AMERICAN ENGINEERING TESTING, INC.

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- MATERIALS
- FORENSICS

PHASE II
ENVIRONMENTAL SITE ASSESSMENT

Former Mass Transit Site

221 Lamm Street
Mankato, Minnesota

AET Project No. 03-06166

Date:

September 29, 2017

Prepared for:

City of Mankato
10 Civic Center Plaza
P.O. Box 3368
Mankato, Minnesota 56001

www.amengtest.com

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September 29, 2017

City of Mankato
10 Civic Center Plaza
P.O. Box 3368
Mankato, Minnesota 56001

Attn: Ms. Kristin Prososki
Economic Development Specialist
kprososki@city.mankato.mn.us

RE: Phase II Environmental Site Assessment
Former Mass Transit Site
221 Lamm Street
Mankato, Minnesota 56001
AET Project No. 03-06166

Dear Ms. Prososki:

American Engineering Testing, Inc. has completed the enclosed report of Phase II Environmental Site Assessment services for the Former Mass Transit Site located in Mankato, Minnesota. This service was performed in accordance with our proposal agreement no. 03-06166. This Phase II ESA meets our understanding of the criteria defined by the ASTM: E1903-11 Standard Practice.

We appreciate the opportunity to have been of service to you on this project. If you have any questions regarding the information presented in this Phase II Environmental Site Assessment Report or if we can be of additional assistance, please contact me.

Sincerely,
American Engineering Testing, Inc.

Tyler Boley

Tyler Boley, PG
Geologist

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E-mail: tboley@amengtest.com

Enclosure

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TABLE OF CONTENTS

Page

TABLE OF CONTENTS i
EXECUTIVE SUMMARY iii

1.0 INTRODUCTION 1
1.1 Site and User Identification 1
1.2 Purpose 1
2.0 BACKGROUND 2
2.1 Site Description and Features 2
2.2 Physical Setting 2
2.3 History of Site and Vicinity 2
2.4 Previous Environmental Reports 3
3.0 PHASE II ESA ACTIVITIES 5
3.1 Scope of Services 5
3.2 Additional Research and Data Reviewed 6
3.3 Environmental Sampling Rationale 6
3.4 Environmental Sampling Methods 7
3.5 Reference Standards 9
4.0 PROJECT RESULTS 10
4.1 Field Observations 10
4.2 Field Screening Results 11
4.3 Laboratory Analysis 11
5.0 DISCUSSION AND OPINIONS 13
5.1 Soil Physical Conditions 13
5.2 Soil Contamination Conditions 14
5.3 Water Contamination Conditions 15
5.4 Vapor Contamination Conditions 16
5.5 Assessment of Previously Identified RECs 16
6.0 CONCLUSIONS 16
7.0 RECOMMENDATIONS 17
8.0 REPORT CLOSURE 18
8.1 Reliance 18
8.2 Standard of Care 18
8.3 Methodology 18
8.4 Remarks 18
9.0 QUALIFICATIONS AND SIGNATURES 19

TABLES

1. Summary of Soil Analytical Results
2. Summary of Groundwater Analytical Results
3. Summary of Soil Gas Analytical Results

FIGURES

1. Site Location Map
2. Site Map

APPENDICES

A. Acronyms/Abbreviations and Definitions
B. Environmental Sampling Methods
C. Subsurface Boring Logs
D. Laboratory Analytical Reports and Chains-of-Custody

EXECUTIVE SUMMARY

American Engineering Testing, Inc. (AET) was authorized by the City of Mankato to conduct a Phase II Environmental Site Assessment (ESA) for the Former Mass Transit Site located at 221 Lamm Street in Mankato, Minnesota. Hereafter, the City of Mankato will be referred to as the "User" of this report, and the assessed property will be referred to as the "Site."

Results and Conclusions

This Phase II ESA has revealed the following information regarding the potential environmental conditions assessed in connection with the Site:

- Fill soils were identified in all borings, ranging from 5 to 15 feet thick. The observed fill materials generally consisted of silt and sand with silt and gravel. Building debris such as bricks were noted in only one boring, GP-9, from 5 to 8 feet bgs. Other than debris, obvious indications of potential environmental impacts such as staining or odors were noted in the following borings and depth:
    - GP-1: slight odors were observed from the surface to 4 feet bgs, no staining;
    - GP-2: moderate petroleum odor and staining were observed from 14 to 18 feet bgs;
    - GP-6: slight petroleum odor was observed from 6 to 7 feet bgs. Moderate petroleum odor and slight staining were also observed from 14 to 20 feet bgs.
- A concentration of diesel range organics (DRO) was detected at a concentration exceeding the Minnesota Pollution Control Agencies (MPCA) unregulated fill criteria in GP-1 at a depth of 1 to 2 feet bgs. Contaminants were not identified above the recreational/residential Soil Reference Value (SRV) in the remaining soil samples analyzed, and metals were detected at levels consistent with background concentrations.
- Laboratory analyses detected various volatile organic compounds (VOCs), metals, DRO, and gasoline range organics (GRO) in several of the groundwater samples analyzed. Four of the groundwater samples exceeded the Minnesota Department of Health's (MDH) Health Based Value (HBV) for DRO and one sample exceeded the HBV for GRO. All VOCs detected were below the MDH Health Risk Limits (HRLs), except for GP-2 with ethylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene. All metals detected were below the MDH HRLs, except for arsenic in GP-2 and GP-6.
- Laboratory analyses detected various VOCs in all of the soil gas vapor samples analyzed. The measured results did not exceed 33-times the MPCA commercial/industrial Intrusion Screening Values (ISVs). The measured results did not exceed 33-times the MPCA

recreational/residential ISVs, except for 1,3-butadiene in VP-6 and VP-8, and tetrachloroethene in VP-3.

Recommendations

Based on the information gathered and our professional experience, AET offers the following opinions regarding the results of this Phase II ESA:

- Additional groundwater testing is warranted to define the degree and extent of contaminant impacts and risks associated with the Site.
- The MPCA has established voluntary programs that provide liability protections for contaminated property owners and lenders. The programs include the Voluntary Investigation and Cleanup (VIC) program for non-petroleum impacted sites and the Petroleum Brownfields Program (PBP) for petroleum impacted sites. These fee-for-service programs require an enrollment application. AET recommends the City of Mankato enroll the Site in the VIC and PBP programs.
- Because the measured concentrations of contaminant impacts exceed regulatory criteria for both potential recreational/residential and commercial/industrial uses, a Response Action Plan (RAP) is warranted to resolve the known contamination and risks during future Site redevelopment, if applicable.
- Due to elevated soil vapor results exceeding 33 times the recreational/residential ISVs in three vapor probe locations, AET recommends additional soil vapor assessment to define the extent and magnitude of vapor impacts across the Site. Depending on the results of an additional soil vapor assessment, a vapor mitigation system may be required for placement beneath recreational/residential buildings constructed at the Site during future redevelopment, if applicable. The design of the system will be described in the RAP, if needed.

1.0 INTRODUCTION

1.1 Site and User Identification

American Engineering Testing, Inc. (AET) was authorized by the City of Mankato to conduct a Phase II Environmental Site Assessment (ESA) for the Former Mass Transit Site located at 221 Lamm Street in Mankato, Minnesota. Hereafter, the City of Mankato will be referred to as the "User" of this report, and the assessed property will be referred to as the "Site."

Figure 1 shows the Site location. Appendix A contains a list of the acronyms and abbreviations used in this report.

1.2 Purpose

We have performed a Phase II ESA at the Site in conformance with the scope and limitations of ASTM Practice E1903-11 and for the following objectives:

- To assess the recognized environmental conditions (RECs) identified at the Site and to evaluate if a release of hazardous substances or petroleum products has occurred;
    - Potential residual petroleum impacts from a closed release at the Site;
    - Potential residual petroleum impacts from a closed release at the adjacent property to the east;
    - Evidence of a petroleum release associated with a UST/dispenser system that was recently removed from the Site;
    - Various vehicle repair and maintenance uses formerly located on the Site that likely used automotive chemicals and/or solvents; and
    - Uncontrolled fill beneath the Site and an unpermitted dump that was situated beneath the adjoining property to the east.
- To document the nature and degree of contaminant impacts to environmental media (soil, groundwater, and soil gas); and
- To assess the potential risks to human health or the environment resulting from the detected contaminant impacts under the existing conditions at the Site.

These objectives are based on AET's understanding of the User's needs and on the User's authorization of the Scope of Services. Any other objectives not described above are not considered to be within the Purpose of this Phase II ESA.

2.0 BACKGROUND

2.1 Site Description and Features

The Site address is 221 Lamm Street. The Site is situated in Blue Earth County in Section 13, Township 108 North, Range 27 West. The Site consists of three individual parcels, R010813256001, R010813256007, and R010813256006, as indicated on the Blue Earth County website.

The Site comprises approximately 3.92 acres located in a commercially developed area of Mankato. Three vacant buildings currently occupy the Site; two of them were used for general storage and vehicle maintenance and one was used as an office space.

The Site is adjoined as noted below.

North:	A commercial property occupied by the Hastings Coop Creamery adjoins the Site to the north.
East:	A commercial property occupied by Polka Dot Dairy adjoins the Site to the east.
South:	18th Street East adjoins the Site to the south followed by vacant land.
West:	Vermillion Street adjoins the Site to the west followed by a commercial property occupied by an abandoned Freedom Gas Station and associated parking lot.

2.2 Physical Setting

AET reviewed a March 2014 Phase II Environmental Site Assessment Report (Phase II), provided by the Minnesota Pollution Control Agency (MPCA), that was prepared for the adjoining Children's Museum Mankato site at 224 Lamm Street, which is situated directly east of the Site. Borings and test pits advanced on the adjacent property during the Phase II encountered up to 10 feet of fill that overlies sand and silt mixed with various debris materials. Debris encountered in the borings and test pits is apparently associated with a former dump on the property that may extend onto the Site. Water level measurements made within the borings on the adjacent property indicated shallow groundwater ranging from 7 to 11 feet in depth beneath the property. Based on our observations of the Site topography and our review of the USGS maps, we expect groundwater below the Site to flow to the north-northwest toward the Minnesota River, which is situated about 900 feet north of the Site.

2.3 History of Site and Vicinity

The eastern portion of the Site was developed in the 1920's by the State of Minnesota Highway Department for use as a vehicle repair and maintenance facility. The western portion of the Site was developed sometime during the 1950's. From the mid-1960's until approximately 2000, the

Site was used by the City of Mankato as a vehicle maintenance and repair facility. The Site has not been used by the City for the past 10 years, except as a fueling facility.

2.4 Previous Environmental Reports

We have reviewed previous environmental reports made available to AET. Key findings from the review are summarized in the sections below.

2.4.1 Phase I ESA

AET previously performed a Phase I ESA for the Site (AET Project No. 03-06166, February 13, 2017). The Phase I ESA identified RECs at the Site and that a Phase II ESA was warranted. The RECs included the following:

- Potential residual petroleum impacts from a closed release at the Site.
- Potential residual petroleum impacts from a closed release at the adjacent property to the east.
- Evidence of a petroleum release associated with a UST/dispenser system that was recently removed from the Site.
- Various vehicle repair and maintenance uses formerly located on the Site that likely used automotive chemicals and/or solvents.
- Uncontrolled fill beneath the Site and an unpermitted dump that was situated beneath the adjoining property to the east.

AET also reviewed a previous Phase I ESA (report dated June 27, 2013) for the east adjacent former Mankato Bus Garage Facility at 224 Lamm Street completed by Bay West, Inc. The following environmental concerns for this property were identified in the Bay West, Inc. report:

- The Mankato Bus Garage property was situated on a historic dump prior to being developed with a bus storage/maintenance facility in the early 1940's. Debris associated with the dump, which included a black, oily material, extended to depths of up to 16 feet below grade. Bay West concluded that the presence of solid waste and debris associated with the former dump represented a REC.
- Four gasoline and diesel USTs were removed in 1988, resulting in a petroleum release investigation (LEAK #501). Soil and groundwater testing indicated relatively low impacts, and the release was closed in December 1991. Bay West concluded that the closed petroleum release represented a REC.

- The Property was identified on the CERCLIS NFRAP database as Heartland Express. A No Further Action (NFA) determination was made in August 1997, the property was not eligible for the NPL, and no additional action was necessary at that time. Bay West concluded that the CERCLIS listing presented a REC.
- City bus maintenance was performed at the property until approximately 1998, and light maintenance activities were being performed the time of the Bay West Phase I ESA. Cracking was observed in the flooring within the maintenance facility, and a parts washer was in use. Bay West concluded that the historical use of petroleum chemicals and solvents associated with bus maintenance activities represented a REC.

2.4.2 Other Previous Reports

We also previously reviewed several reports and letters regarding the Site. These reports and letters are summarized below.

Information provided by the City indicates the following contaminants-of-concern and corresponding high-risk areas: 1) diesel and gasoline tank system located in the northeast corner of the Site and removed in 2016, 2) former gasoline storage tank noted along the east site boundary on the 1948 fire insurance map, 3) former storage tanks removed prior to the installation of those removed in 2016, 4) spray paint booth located inside the existing maintenance building, 5) waste oil tank at unspecified/unknown location(s) that did not meet Minnesota Uniform Fire Code standard and was replaced, 6) waste-oil –fired appliances and waste oil/gasoline appliances at unspecified/unknown location(s), 7) potential waste oil burner at unspecified/unknown location. Note, the City acquired the Site on October 26, 1964, and former addresses 223 and 225 Lamm Street likely comprise the Site (221 Lamm Street).

AET reviewed files available at the MPCA regarding closed Leak #4069, which was discovered on the Site in 1991 during removal of USTs. MPCA records included an Excavation Report which summarized the removal of 1,200 cubic yards of petroleum-impacted soil from the Site. Analysis of samples collected from the excavation floor and sidewalls indicates the majority of the contaminated soils were removed, but some residual contamination remained. No additional investigation was conducted, and the MPCA closed the release file on November 19, 1993.

Portions of several Remedial Assessment Reports, prepared by Twin City Testing (TCT) in 1989, are included as appendices in the Bay West, Inc. Phase I ESA report. The reports documented investigation activities conducted to delineate petroleum impacts from gasoline and diesel USTs that were removed from the bus facility property located on the adjacent property to the east of the Site in 1988. Six soil borings were advanced and three monitoring wells were installed on this

property during the remedial investigation. The USTs had been located to the southwest of the bus wash building. Groundwater was determined to flow to the northwest beneath the bus garage property. The borings and wells encountered waste debris from the former landfill to depths of up to 16 feet below grade on the Site. Soil and groundwater impacts from the petroleum release were relatively minor and did not appear to extend onto the Site. The release file was closed by the MPCA in a letter dated December 19, 1991.

The MPCA provided AET with a copy of a Phase II ESA that was performed by Bay West (report dated March 6, 2014) for the Children's Museum Mankato parcel (former bus garage facility) located at 224 Lamm Street, which adjoins the Site to the east. Bay West advanced 9 soil borings, 6 soil-gas probes, 2 hand augers, and 5 test pits on the former bus garage site. The test pits encountered waste debris from the former dump to the terminal depth of the excavation at 8 feet below grade. Laboratory analysis of a soil sample collected from one test pit indicated elevated concentrations of polynuclear aromatic hydrocarbons (PAHs). Asbestos was also detected in debris samples collected from the test pit. Laboratory analysis of a soil gas sample on the property indicated the presence of tetrachloroethene at concentrations below state regulatory levels.

On December 6, 2016, AET oversaw the removal of three fiberglass USTs, two diesel and one gasoline, all 12,000 gallons in volume, from the Site. Two fuel lines and two dispensers were also removed at this time. During the removal process, an AET technician screened the removed soils and excavation sidewalls for the presence of organic vapors using a photoionization detector (PID). All PID-screening results were non-detect. Soil samples for laboratory analysis were collected from beneath each end of all three tanks, beneath both dispensers, and near the fuel lines. Laboratory results indicated a release of diesel range organics has occurred. Note, at the request of the City of Mankato, the concrete tank pad was left in-place and is located about 10 feet below ground surface. The dimensions of the concrete pad were estimated at 40 feet square, and 12 to 18 inches thick.

3.0 PHASE II ESA ACTIVITIES

3.1 Scope of Services

The scope of this Phase II ESA was defined in AET's proposal agreement no. 03-06166 with the User, authorized on August 10, 2017, and includes the following:

- Advanced seven push probe soil borings on the Site to depths of up to 20 feet below grade for the collection of soil and groundwater samples;
- Collected continuous soil samples from each soil boring. Each soil sample was screened in the field with a photoionization detector (PID) and observed for visual/olfactory

evidence of contaminant impact. Field screening results were included in boring logs for each boring;

- Up to two soil samples were collected from each probe location for laboratory analysis of volatile organic compounds (VOCs), polynuclear aromatic hydrocarbons (PAHs), diesel range organics (DRO), and the eight RCRA metals. In addition, AET collected seven additional soil samples for the eight RCRA metals from the five borings advanced during the Limited Site Investigation (LSI). The LSI consisted of five soil borings and five soil vapor borings surrounding the former UST basin on the north end of the Site. AET conducted the LSI and Phase II ESA field portions at the same time.
- Collected one groundwater sample from each probe for laboratory analysis of VOCs, DRO and dissolved metals, where available. In addition, AET collected five additional water samples for dissolved metals from the LSI borings;
- Advanced three shallow borings for the collection of soil gas samples. Soil gas samples were analyzed for VOCs; and
- Prepared this written report.

In addition, the data collected from the 5 push probes and 5 vapor probes conducted concurrently for the LSI were used for the Phases II ESA.

3.2 Additional Research and Data Reviewed

Additional environmental assessment documents were not available for AET to review during performance of this Phase II ESA.

3.3 Environmental Sampling Rationale

The Phase II ESA environmental sample locations were selected to focus on potential contaminant sources from RECs identified in the previous AET Phase I ESA. Figure 2 shows the Phase II ESA sampling locations. The sampling methods, depths, and analytical parameters were selected to generate data which AET considers useful to achieve the objectives described in the Purpose section of this report.

The rationales for specific sampling locations are described below:

- Soil borings GP-1, GP-2, GP-3, and GP-4 were advanced as part of the LSI completed at the Site surrounding the suspected source of the petroleum release discovered during removal of the three USTs in December 2016.The source location was assumed to be the former tank basin located to the north of the bus garage. A concrete sub-slab was

encountered during the excavation of the former tanks at the Site which required soil boring GP-5 to be advanced slightly south of the former tank basin in an effort to determine the extent and depth of contamination associated with the former tanks;

- Soil boring GP-6 was advanced in the location of the former leaksite at the Site between the entrance to the Site to the east and the former tank dispenser island to identify potential residual impacts from the former leak at the Site;
- Borings GP-7 and GP-8 were located on the eastern edge of the Site to the north and south, respectively, to identify potential impacts due to migration from the reported release and former dump site from the east adjacent property;
- Boring GP-9 was advanced inside the former bus garage to identify potential impacts due to the former vehicle maintenance operations at the Site;
- Boring GP-10 was advanced to the northwest of the former bus garage beneath a former salt silo to identify potential impacts in this location;
- Boring GP-11 was advanced inside the former vehicle storage garage to identify potential impacts at the Site in this location;
- Boring GP-12 was advanced near the northwest corner of the Site to identify potential impacts due to migration from reported releases at and adjacent to the Site; and
- Vapor probes VP-1 through VP-8 were conducted adjacent to their respective soil boring counterparts to determine if soil gas impacts are present there. VP-4 was unable to be analyzed due to water entering the summa canister during sample collection.

3.4 Environmental Sampling Methods

Appendix B contains information sheets which detail AET's standard environmental sampling methods. Site-specific considerations or variations from the standard approaches are described in the sections below.

3.4.1 Field Exploration Technologies

The field exploration for this Phase II ESA included Geoprobe® borings and temporary vapor probes.

Temporary monitoring wells were installed and sampled in accordance with the Minnesota Department of Health (MDH) rules relating to wells and borings, Chapter 4725.

Temporary vapor probes were conducted and sampled in accordance with MPCA guidance document c-s4-06, "Risk-Based Guidance for the Vapor Intrusion Pathway."

3.4.2 Field Screening Techniques

Soil samples were screened in the field with a PID equipped with a 10.6 electron volt (eV) lamp to measure organic vapors in ppm. We also noted obvious odors and observed the samples for visual evidence of contamination. PID screening results are listed on the soil boring logs included in Appendix C.

3.4.3 Laboratory Analytical Methods

AET submitted the samples to TestAmerica for laboratory analysis. The laboratory analytical reports and chain-of-custody records are provided in Appendix D.

Soil

Soil samples were analyzed for the chemical parameters below by the methods referenced:

- Diesel range organics (DRO): Wisconsin Department of Natural Resources (WDNR) modified DRO method;
- Volatile organic compounds (VOCs): United States Environmental Protection Agency (EPA) method 8260B;
- Polynuclear aromatic hydrocarbons (PAHs) "standard list," containing the short 7-compound suite of carcinogenic PAHs (also known as cPAHs): EPA method 8270D; and
- The eight metals of the Resource Conservation and Recovery Act (RCRA) list: EPA methods 6010C/7010/7471B.

Groundwater

Groundwater samples were analyzed for the chemical parameters below by the methods referenced:

- DRO: WDNR modified DRO method;
- Gasoline range organics (GRO): WDNR modified GRO method
- VOCs: EPA method 8260B; and
- The eight metals of the RCRA list: EPA methods 6020A/7470A, filtered in the field.

Soil Gas

Soil gas were analyzed for the chemical parameters below by the methods referenced:

- VOCs: EPA method TO-15

3.5 Reference Standards

In this Phase II ESA, we compare the analytical results to the baseline environmental regulatory standards in use by the MPCA. Due to the future use of the Site being unknown at this time, AET compared analytical results to both the recreational/residential and commercial/industrial regulatory criteria. The reference standards are included in the results tables for comparison with assessment results. The media-specific standards are described in the sections below.

3.5.1 Soil Standards

The following reference standards apply to potential contaminant exposures in soils:

- MPCA Recreational/Residential Soil Reference Values (SRVs): Compound-specific values for long-term soil exposure in unrestricted-use settings (i.e., residential) above which an unacceptable risk to human health is predicted to exist.
- MPCA Commercial/Industrial SRVs: Compound-specific values for long-term soil exposure in industrial/commercial-use settings.
- DRO Criterion: SRVs do not exist for DRO soil impacts. Instead the MPCA Remediation Division applies the guidance document "Best Management Practices for the Off-Site Reuse of Unregulated Fill," which states that petroleum-impacted soil exhibiting measured DRO concentrations over 100 milligrams-per-kilogram (mg/kg) or PID screening results over 10 ppm is considered "regulated" for reuse. Stricter standards may apply based on the intended property use, soil management considerations, or local solid waste ordinances.
- PID Screening Criterion: The practical detection limit of a PID is considered to be 1 ppm, although field conditions during sampling may result in higher background measurements.

3.5.2 Groundwater Standards

The following reference standards apply to groundwater:

- MDH Health Risk Limits (HRLs): Compound-specific values for drinking water in various exposure scenarios above which an unacceptable risk to human health is predicted to exist. AET references the lowest value for a given compound because the MPCA applies the lowest value in risk assessment for groundwater as a potential drinking water source.

- MDH Health Based Values (HBVs) or Risk Assessment Advice (RAAs): Where toxicity data is sufficient to suggest human health risks yet insufficient to set a HRL value, the MPCA applies the provisional HBVs and RAAs.

3.5.3 Soil Gas Standards

The following reference standards apply to the potential inhalation of vapors by intrusion from contaminated soil gas to indoor air environments:

- MPCA Recreational/Residential Intrusion Screening Values (ISVs): Compound-specific inhalation risk screening values for VOCs in residential settings due to vapor intrusion. A multiple factor of 33 times is applied to ISVs to reflect attenuation during vapor intrusion from soils, sub-slab spaces, or groundwater.
- MPCA Commercial/Industrial ISVs: Compound-specific inhalation risk screening values for VOCs in industrial/commercial settings due to vapor intrusion. A multiple factor of 33 times is applied to ISVs to reflect attenuation during vapor intrusion from soils, sub-slab spaces, or groundwater.
- PID Screening Criterion: The practical detection limit of a PID is considered to be 1 ppm, although field conditions during sampling may result in higher background measurements.

4.0 PROJECT RESULTS

4.1 Field Observations

AET performed the field exploration and sampling for this Phase II ESA on August 30, 31, and September 5, 2017. The observational data collected during field exploration activities at the Site are included on the boring logs in Appendix C.

4.1.1 Soil Boring Observations

Fill soils were identified in all borings, ranging from 5 to 15 feet thick. The observed fill materials generally consisted of silt and sand with silt and gravel. Building debris such as bricks were noted in only one boring, GP-9, from 5 to 8 feet bgs. It should be noted that push probe borings are only 2 inches diameter and debris may be present at other locations but not discovered by the push probe borings. Other than debris, obvious indications of potential environmental impacts such as staining or odors were noted in the following borings and depth:

- GP-1: slight odors were observed from the surface to 4 feet bgs, no staining;
- GP-2: moderate petroleum odor and staining were observed from 14 to 18 feet bgs;

- GP-6: slight petroleum odor was observed from 6 to 7 feet bgs. Moderate petroleum odor and slight staining were also observed from 14 to 20 feet bgs.

Natural soils were observed in all twelve borings starting at depths of 5 to 15 feet bgs. The natural soils were typically a mottled brown silt underlain by a brown silty clay which exhibited a moderate swamp odor. Several sand lenses were also encountered throughout the Site at 18 to 20 feet bgs ranging in thickness from 0.5 to 2 feet. Saturated soils were encountered at depths ranging from 9.5 to 13 feet bgs with an average water level of 10 feet bgs.

4.2 Field Screening Results

The screening data collected during field exploration activities at the Site are included on the boring logs in Appendix C.

4.2.1 Organic Vapors by PID

PID screening results ranged from 0.0 to 593 ppm. Specific screening results are identified on the individual boring logs.

4.3 Laboratory Analysis

Appendix D includes the laboratory analytical reports and chains-of-custody for this Phase II ESA. The sections below summarize the laboratory results.

4.3.1 Soil Analytical Results

Table 1 summarizes the results of laboratory analyses performed on soil samples. The soil results are reported in milligrams-per-kilogram (mg/kg), which is equivalent to ppm. The reference standards are included on the table for comparison and evaluation of impacts.

DRO

Laboratory analyses detected DRO in four of the soil samples analyzed. The measured results did not exceed the unregulated fill criteria for DRO with the exception of GP-1 (1 to 2 ft) at 170 mg/kg. Detected results are:

- GP-1 (1 to 2 ft) – 170 mg/kg;
- GP-6 (16 to 18 ft) – 43.2 mg/kg;
- GP-9 (3 to 5 ft) – 7.89 mg/kg; and
- GP-10 (3 to 5 ft) – 9.76 mg/kg

VOCs

VOCs were not detected in any of the soil samples analyzed.

PAHs

Environmental laboratories report the analytical results for each PAH compound separately. In accordance with MPCA guidance, AET normalizes the cPAH results to the toxicity of benzo(a)pyrene by applying a designated "potency equivalency factor" to each compound and calculating the weighted sum as total cPAHs (also known as "BaP equivalents").

Laboratory analyses detected various PAHs in all of the soil samples analyzed. The measured results did not exceed the MPCA Recreational/Residential or Commercial/Industrial SRVs for the BaP equivalents.

RCRA Metals

Laboratory analyses detected various RCRA metals in all of the soil samples analyzed. The measured results did not exceed the MPCA Recreational/Residential or Commercial/Industrial SRVs.

4.3.2 Groundwater Analytical Results

Table 2 lists the results of laboratory analyses performed on groundwater samples. The water results are reported in micrograms-per-liter (µg/L), which is equivalent to parts-per-billion (ppb). The reference standards are included on the table for comparison and evaluation of impacts.

DRO

Laboratory analyses detected DRO in six of the groundwater samples analyzed. Four of the results exceeded the MDH HBV of 200 µg/L. Detected results are below:

- GP-2 (15 to 20 ft) – 3,580 µg/L;
- GP-4 (15 to 20 ft) – 168 µg/L;
- GP-5 (20 to 25 ft) – 257 µg/L;
- GP-6 (14 to 19 ft) – 3,280 µg/L;
- GP-8 (10 to 15 ft) – 215 µg/L; and
- GP-12 (12 to 17 ft) – 160 µg/L.

GRO

Laboratory analyses detected GRO in one of the groundwater samples analyzed. Detected results were 2,250 µg/L in GP-2 (15 to 20 ft), which exceeds the MDH HBV of 200 µg/L.

VOCs

Laboratory analyses detected VOCs in all of the groundwater samples analyzed. All results were below the MDH HRLs with the exception of ethylbenzene, 1,2,4-trimethylbenzene, and 1,2,5-trimethylbenzene in GP-2 (15 to 20 ft).

RCRA Metals

Laboratory analyses detected various RCRA metals in all of the groundwater samples analyzed. The measured results did not exceed the MDH HRLs except for arsenic in GP-2 (15 to 20 ft) and GP-6 (14 to 19 ft).

4.3.3 Soil Gas Analytical Results

Table 3 lists the summary of the detected results of laboratory analyses performed on soil gas samples. The vapor results are reported in micrograms-per-cubic-meter (µg/m^3); this is not directly equivalent to parts-per-billion by volume (ppbv). The reference standards are included on the table for comparison and evaluation of impacts.

VOCs – Soil Gas Vapor

Laboratory analyses detected various VOCs in all soil gas samples analyzed. The measured results did not exceed 33 times the MPCA Commercial/Industrial ISVs. The measured results did not exceed 33 times the MPCA Recreational/Residential ISVs, except for the following:

- 1,3-butadiene greater than 33 times the Recreational/Residential ISV in samples VP-6 (3 to 5 ft) and VP-8 (3 to 5 feet); and
- Tetrachloroethene greater than 33 times the Recreational/Residential ISV in sample VP-3 (3 to 5 ft).

5.0 DISCUSSION AND OPINIONS

5.1 Soil Physical Conditions

5.1.1 Fill Soils

Subsurface sampling during this Phase II ESA indicates that the fill soils in the tested areas are typically at least 5 feet thick and may range up to 15 feet thick. The presence of debris in the boring advanced inside the former bus garage at the Site suggests a more generalized potential for

debris-laden soils in that area which may be difficult to quantify and delineate by field methods utilized during this assessment.

Where debris exists in the fill, this material should be managed as regulated material when excavated and transported off Site. In most cases, this may result in the regulated material being transported to a state permitted disposal facility. If debris can be separated from the fill, then the separated soil/fill material may be suitable for exporting off site as unregulated fill, provided it meets the other MPCA criteria for unregulated fill.

5.1.2 Natural Soils

Natural soils were observed in all twelve borings starting at depths of 5 to 15 feet bgs. These soils were typically a mottled brown silt underlain by a brown silty clay which exhibited a moderate swamp odor. Several sand lenses were also encountered throughout the Site at 18 to 20 feet bgs ranging in thickness from 0.5 to 2 feet. Saturated soils were encountered at depths ranging from 9.5 to 13 feet bgs with an average water level of 10 feet bgs.

5.2 Soil Contamination Conditions

5.2.1 DRO

During this Phase II ESA, DRO was detected in both fill and natural soils at four boring locations, GP-1 (1 to 2 ft), GP-6 (16 to 18 ft), GP-9 (3 to 5 ft), and GP-10 (3 to 5 ft). The DRO concentration at GP-1 was 170 mg/kg, which disqualifies those materials from use as “unregulated fill soil” based on current MPCA guidance.

In March 2012, the MPCA released guidance on the off-site reuse of regulated fill soils. However, there are reporting requirements and there may be business environmental risks associated with the movement of “contaminated” soil among properties. Since this is an evolving regulatory matter, further discussion is warranted if the User intends to reuse regulated fill soil.

5.2.2 Total cPAHs

The measured concentrations of total cPAHs did not exceed the MPCA’s Recreational/Residential or Commercial/Industrial SRVs in soils collected at the Site.

5.2.3 Unregulated Fill Soils

Laboratory analysis of a fill sample collected from GP-1 at 1 to 2 feet bgs detected elevated DRO. The analytical results are consistent with the criteria established by the MPCA for regulated fill

soil. If earthwork activities are planned for future construction at the Site, soils in this area should be monitored for contaminant impacts and managed in accordance with MPCA guidance.

5.3 Water Contamination Conditions

5.3.1 DRO

During this Phase II ESA, DRO was detected in six boring locations as noted below:

- GP-2 (15 to 20 ft) – 3,580 µg/L;
- GP-4 (15 to 20 ft) – 168 µg/L;
- GP-5 (20 to 25 ft) – 257 µg/L;
- GP-6 (14 to 19 ft) – 3,280 µg/L;
- GP-8 (10 to 15 ft) – 215 µg/L; and
- GP-12 (12 to 17 ft) – 160 µg/L.

The DRO concentrations at GP-2, GP-5, GP-6, and GP-8 all exceeded the MDH HBV of 200 µg/L.

5.3.2 GRO

During this Phase II ESA, GRO was detected in one boring location, GP-2 (15 to 20 ft). The laboratory result was 2,250 µg/L, which exceeds the MDH HBV of 200 µg/L.

5.3.3 VOCs

Laboratory analyses detected VOCs in all of the groundwater samples analyzed. All results were below the MDH HRLs with the exception of ethylbenzene, 1,2,4-trimethylbenzene, and 1,2,5-trimethylbenzene in GP-2 (15 to 20 ft).

5.3.4 RCRA Metals

Laboratory analyses detected various RCRA metals in all of the groundwater samples analyzed. The measured results did not exceed the MDH HRLs except for arsenic in GP-2 (15 to 20 ft) and GP-6 (14 to 19 ft).

5.4 Vapor Contamination Conditions

5.4.1 Soil Vapor VOCs

Laboratory analyses detected various VOCs in all soil gas samples analyzed. The measured results did not exceed 33 times the MPCA Commercial/Industrial ISVs. The measured results did not exceed 33 times the MPCA Recreational/Residential ISVs, except for the following:

- 1,3-butadiene greater than 33 times the Recreational/Residential ISV in samples VP-6 (3 to 5 ft) and VP-8 (3 to 5 feet); and
- Tetrachloroethene greater than 33 times the Recreational/Residential ISV in sample VP-3 (3 to 5 ft).

5.5 Assessment of Previously Identified RECs

5.5.1 RECs Confirmed

In AET's opinion, the results of this Phase II ESA confirm the following RECs:

- Residual soil, groundwater, and soil vapor impacts from the closed release at the Site;
- Soil, groundwater, and soil vapor impacts from the east adjacent closed release site;
- Soil vapor impacts were detected associated with the historic various vehicle repair and maintenance activities at the Site; and
- Soil, groundwater, and soil vapor impacts from a release associated with a UST/dispenser system that was recently removed from the Site.

5.5.2 RECs Not Substantiated

In AET's opinion, the results of this Phase II ESA do not substantiate the following RECs which were previously identified:

- Uncontrolled fill soils containing debris were not encountered near the former unpermitted dump site located adjacent to the east of the Site.

6.0 CONCLUSIONS

This Phase II ESA has confirmed the presence of soil, groundwater, and soil gas impacts by hazardous substances and petroleum products at the Site under conditions that indicate a release. The following impacts have been confirmed:

- Soil gas has been impacted by two VOCs at concentrations exceeding 33 times the recreational/residential ISVs at vapor probe locations VP-3 for tetrachloroethene and VP-6 and VP-8 for 1,3-butadiene. Depending on the future redevelopment plans for the Site,

additional soil gas assessment may be warranted on the Site. Additional soil gas assessment may involve multiple rounds of sample collection and analysis to meet MPCA guidance.

- The elevated DRO level in the undocumented fill soils near GP-1 (1 to 2 ft) render the materials as regulated fill soil rather than unregulated fill soil for off-site reuse;
- Various metals and PAHs were detected in soils, but the concentrations did not exceed state regulatory criteria for unrestricted recreational/residential and/or commercial/industrial site uses. Even low levels of PAHs and VOCs may be considered releases by the MPCA.
- Groundwater impacts including elevated DRO, GRO, arsenic, ethylbenzene, 1,2,4-trimethylbenzene, and 1,3,5-trimethylbenzene were detected in several locations throughout the Site which exceeded the MDH HRLs and HBVs. Additional groundwater assessment may be warranted on the Site.

7.0 RECOMMENDATIONS

Based on the objectives and conclusions of this Phase II ESA, AET recommends the following actions be conducted prior to future Site redevelopment activities:

- Additional groundwater testing is warranted to define the degree and extent of contaminant impacts and risks associated with the Site.
- The MPCA has established voluntary programs that provide liability protections for contaminated property owners and lenders. The programs include the Voluntary Investigation and Cleanup (VIC) program for non-petroleum impacted sites and the Petroleum Brownfields Program (PBP) for petroleum impacted sites. These fee-for-service programs require an enrollment application. AET recommends the City of Mankato enroll the Site in the VIC and PBP programs.
- Because the measured concentrations of contaminant impacts exceed regulatory criteria for both potential recreational/residential and commercial/industrial uses, a Response Action Plan (RAP) is warranted to resolve the known contamination and risks during future Site redevelopment, if applicable.
- Due to elevated soil vapor results exceeding 33 times the recreational/residential ISVs in three vapor probe locations, AET recommends additional soil vapor assessment to define the extent and magnitude of vapor impacts across the Site. Depending on the results of an additional soil vapor assessment, a vapor mitigation system may be required for placement beneath recreational/residential buildings constructed at the Site during future

redevelopment, if applicable. The design of the system will be described in the RAP, if needed.

Please contact AET if assistance is needed to implement the recommendations above.

8.0 REPORT CLOSURE

8.1 Reliance

AET has prepared this Phase II ESA for the exclusive use of the User for specific application to the Site. Written authorization by AET is necessary for other parties to rely on this report.

Because Site uses and environmental conditions can change over time, this report must be considered time-sensitive. AET should be consulted if 180 days have elapsed since the report date or the passage of time results in uncertainty about the continuing applicability of this report.

8.2 Standard of Care

AET has endeavored to perform services for this project in a manner consistent with the level of skill and care ordinarily exercised by other members of the profession currently practicing in this area, under similar budgetary and time constraints. No warranty, express or implied, is made.

This report is based on our current understanding of the project and conditions at the Site. If conditions differing from our original understanding or findings are identified, AET should be consulted to determine if there are material impacts on our conclusions or recommendations.

8.3 Methodology

This Phase II ESA has been conducted under the supervision of an Environmental Professional, pursuant to ASTM Practice E1903-11, and for the objectives described in the Purpose section of this report. AET's findings, opinions, conclusions, and recommendations are based on the Scope of Services defined in this report and are not intended to address non-scope considerations. If additional information on non-scope considerations is needed, please contact AET.

8.4 Remarks

The information gathered during the performance of this Phase II ESA may be useful for allocating business environmental risk in transactional and contractual contexts or for disclosing liability in financial statements and securities reporting. However, the User is fully responsible for the appropriate use of this Phase II ESA in such contexts.

The data derived through this Phase II ESA has been used to develop professional opinions about the subsurface and environmental conditions at the Site. However, we recognize that not all critical information may have become known to AET and that no exploration program can fully reveal what is in the subsurface. As a result, there may be impacted locations or media that were not detected, and there may be contaminants present other than those for which we tested given the Purpose and Scope of Services for this Phase II ESA.

9.0 QUALIFICATIONS AND SIGNATURES

I, Robert Kaiser, declare that, to the best of my professional knowledge and belief, I meet the definition of Environmental Professional as defined in §312.10 of 40 CFR 312 and I have the specific qualifications based on education, training, and experience to assess a property of the nature, history, and setting of the Site. We have developed and performed the assessment in conformance with the practices set forth in ASTM: E1903-11.

Report Authored By:

Tyler Boley

Tyler Boley, PG
Geologist

Report Reviewed By:

Robert Kaiser

Robert Kaiser
Senior Vice President

Tables

Legend

Exceeds MPCA Residential/Recreational SRVs	MPCA Unregulated Fill Criteria: < SRVs and 100 mg/kg DRO
Exceeds MPCA Commercial/Industrial SRVs	NA - Not Analyzed or Not Applicable
< - Analyte not detected above reporting limits	RCRA - Resource Conservation and Recovery Act
BaP Eq. - Benzo(a)pyrene Equivalent	MPCA - Minnesota Pollution Control Agency
mg/Kg - Milligrams-per-kilogram	SRV - Soil Reference Value

Table 1
Summary of Soil Analytical Results
Former Mass Transit Site Phase II ESA
Mankato, Minnesota
AET Project No. 03-06166

			Sample Identifier and Date Collected																Unregulated Fill Criteria	Unregulated Fill Criteria
		Sample	GP-1	GP-1	GP-2	GP-2	GP-3	GP-4	GP-5	GP-6	GP-6	GP-7	GP-8	GP-9	G-10	GP-11	GP-12			
		Depth (Feet)	1-2	8-10	14-16	22-24	8-10	8-10	8-10	3-5	16-18	3-5	3-5	3-5	3-5	3-5	3-5			
Parameter		Date	08/30/17	08/30/17	08/30/17	08/30/17	08/31/17	08/31/17	08/30/17	09/05/17	09/05/17	09/05/17	09/05/17	09/05/17	09/05/17	09/05/17	09/05/17		Rec/Res SRVs	Comm/Ind SRVs
Petroleum	Diesel Range Organics	mg/Kg	**170**	<6.98	<7.48	<8.01	<6.49	<6.47	<5.94	<6.48	43.2	<6.32	<5.83	7.89	9.76	<6.00	<6.33		100	100
Polynuclear Aromatic Hydrocarbons (PAHs)	2-Methylnaphthalene	mg/Kg								<0.0119	<0.0110	<0.0114	<0.0108	<0.0112	0.0587	<0.0114	<0.113		39	370
	Acenaphthene	mg/Kg								<0.0119	<0.0110	<0.0114	<0.0108	<0.0112	0.0220	<0.0114	<0.113		1300	19000
	Acenaphthylene	mg/Kg								0.0175	<0.0110	<0.0114	0.0136	<0.0112	0.0114	<0.0114	<0.113		NA	NA
	Anthracene	mg/Kg								0.0141	0.0151	<0.0114	<0.0108	<0.0112	0.028	<0.0114	<0.113		6500	97000
	Benzo(a)anthracene	mg/Kg								0.0873	<0.0110	0.0114	0.0153	<0.0112	0.0662	<0.0114	<0.113		BaP Eq.	BaP Eq.
	Benzo(a)pyrene	mg/Kg								0.0945	0.0172	0.0114	0.0227	<0.0112	0.0647	0.0121	<0.113		BaP Eq.	BaP Eq.
	Benzo(b)fluoranthene	mg/Kg								0.130	0.0318	0.0149	0.0352	<0.0112	0.0957	0.0180	<0.113		BaP Eq.	BaP Eq.
	Benzo(g,h,i)perylene	mg/Kg								0.0544	0.0225	<0.0114	0.0212	<0.0112	0.0426	<0.0114	<0.113		NA	NA
	Benzo(k)fluoranthene	mg/Kg				PAHs were not analyzed for borings GP-1 through GP-5				0.0407	<0.0110	<0.0114	0.0117	<0.0112	0.0348	<0.0114	<0.113		BaP Eq.	BaP Eq.
	Chrysene	mg/Kg								0.0886	<0.0110	<0.0114	0.0202	<0.0112	0.0698	<0.0114	<0.113		BaP Eq.	BaP Eq.
	Dibenz(a,h)anthracene	mg/Kg								0.0163	<0.0110	<0.0114	<0.0108	0.0143	0.0128	<0.0114	<0.113		BaP Eq.	BaP Eq.
	Fluoranthene	mg/Kg								0.157	<0.0110	0.0209	0.0345	<0.0112	0.164	0.0197	0.113		510	6700
	Fluorene	mg/Kg								<0.0119	<0.0110	<0.0114	<0.0108	<0.0112	0.0303	<0.0114	<0.113		860	13000
	Indeno (1,2,3-cd) pyrene	mg/Kg								0.0537	0.0162	<0.0114	0.0177	<0.0112	0.0400	<0.0114	<0.113		BaP Eq.	BaP Eq.
	Naphthalene	mg/Kg								<0.0119	<0.0110	<0.0114	<0.0108	<0.0112	0.0287	<0.0114	<0.113		NA	NA
	Phenanthrene	mg/Kg								0.0516	<0.0110	<0.0114	0.0157	<0.0112	0.128	0.0114	<0.113		NA	NA
	Pyrene	mg/Kg								0.154	<0.0110	0.0186	0.0312	<0.0112	0.141	0.0189	0.140		44	44
	Benzo(a) pyrene Equivalent	mg/Kg								0.136	0.022	0.014	0.031	0.008	0.096	0.014	NA		1	14
RCRA Metals	Arsenic	mg/Kg	2.30	3.50	1.88	7.10	3.24	1.89	2.75	4.55	4.42	3.74	2.75	5.04	7.09	3.63	5.32		9	9
	Barium	mg/Kg	59.4	84.0	60.4	64.8	82.6	42.9	64.0	89.4	75.1	76.2	54.1	56.0	76.6	89.6	116		3000	35000
	Cadmium	mg/Kg	<1.56	<0.939	<0.980	1.01	<0.849	<0.913	<0.878	<1.03	<0.969	<0.976	<0.967	<0.913	<0.995	<0.829	<1.00		1.6	23
	Chromium	mg/Kg	8.20	12.9	13.5	16.3	13.5	10.3	10.8	12.4	10.4	10.6	12.2	12.6	11.3	10.6	12.7		23000	100000
	Lead	mg/Kg	21.7	6.52	6.17	9.75	6.77	5.58	5.50	7.47	8.45	10.7	<4.83	141	47.5	10.6	93.1		300	700
	Mercury	mg/Kg	<0.0206	<0.0237	<0.0248	<0.0252	<0.0199	<0.0207	<0.0227	<0.0226	<0.0199	<0.0231	<0.967	<0.0228	0.0224	0.0320	0.0583		3.1	3.1

Legend

Exceeds MDH Health Risk Limit (HRL)
Exceeds MDH Health Based Value (HBV)
< - Analyte not detected above reporting limits
µg/L - Micrograms-per-liter
mg/L - Milligrams-per-liter

NE - Not Established
RCRA - Resource Conservation and Recovery Act
* - No HRL has been established for DRO and GRO. The HBV for total petroleum hydrocarbons in µg/L was used as the regulatory value

Table 2
Summary of Groundwater Analytical Results
Former Mass Transit Site Phase II ESA
Mankato, Minnesota
AET Project No. 03-06166

			Sample Identifier and Date Collected										
		Sample	GP-1	GP-2	GP-3	GP-4	GP-5	GP-6	GP-7	GP-8	GP-10	GP-12	
		Depth (Feet)	15-20	15-20	17-22	15-20	20-25	14-19	15-20	10-15	14-19	12-17	
Parameter		Date	08/30/17	08/30/17	08/31/17	08/31/17	08/30/17	09/05/17	09/05/17	09/05/17	09/05/17	09/05/17	HRLs
Petroleum	Gasoline Range Organics	µg/L	<500	**2,250**	<500	<500	<500	NA	NA	NA	NA	NA	200*
	Diesel Range Organics	µg/L	<118	**3,580**	<125	168	**257**	**3,280**	<122	**215**	<125	160	200*
Volatile Organic Compounds (VOCs)	Acetone	µg/L	16.8	15.5	12.9	22	21.9	15.3	<10.0	26.2	30.2	13.4	4,000
	Benzene	µg/L	<0.500	1.13	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	<0.500	2
	n-Butylbenzene	µg/L	<1.00	36.4	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NE
	sec-Butylbenzene	µg/L	<1.00	11.3	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NE
	Ethylbenzene	µg/L	<1.00	**112**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	50
	Isopropylbenzene	µg/L	<1.00	24.1	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	300
	p-Isopropyltoluene	µg/L	<1.00	6.03	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NE
	Naphthalene	µg/L	<5.00	52.3	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	300
	N-Propylbenzene	µg/L	<1.00	87.5	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	NE
	1,2,4-Trimethylbenzene	µg/L	<1.00	**553**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
	1,3,5-Trimethylbenzene	µg/L	<1.00	**137**	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	<1.00	100
	Xylenes, Total	µg/L	<3.00	261	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	300
Dissolved RCRA Metals	Arsenic	µg/L	<2.00	**46.4**	<2.00	<2.00	2.95	**14.4**	<2.00	<2.00	<2.00	<2.00	10
	Barium	µg/L	618	297	281	95.7	570	1,300	236	328	689	172	2,000
	Cadmium	µg/L	0.755	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	2.55	<0.0005	4
	Lead	µg/L	<0.0005	<0.0005	0.619	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	2.55	<0.0005	15

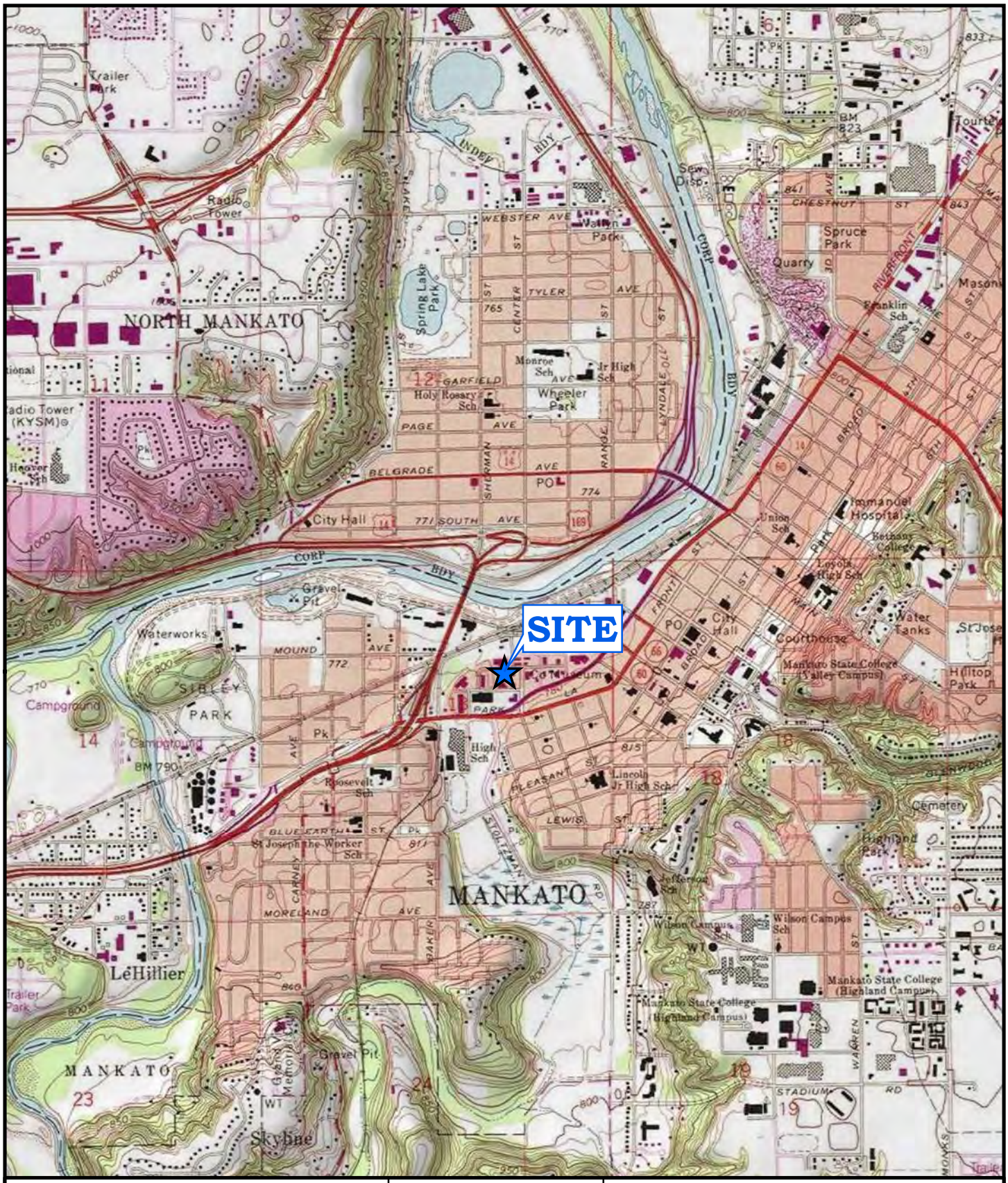
Legend		
Exceeds Comm/Ind ISV	**Exceeds Rec/Res ISV**	ppm - parts-per-million
Exceeds 33X Comm/Ind ISV	**Exceeds 33X Rec/Res ISV**	µg/m^3 - micrograms per cubic meter
Exceeds 33X Comm/Ind EISV	**Exceeds 33X Rec/Res EISV**	EISV - Expedited ISV
ISV - Intrusion Screening Value	NE - Not Established	

Table 3

Summary of Soil Vapor Analytical Results
Former Mass Transit Site Phase II ESA
Mankato, Minnesota
AET Project No. 03-06166

		Sample Idenitifer and Date Collected												
	Units	VP-1	VP-2	VP-3	VP-5	VP-6	VP-7	VP-8						
	Date	8/30/17	8/30/17	8/31/17	8/30/17	8/31/17	8/31/17	8/31/17		33X	33X		33X	33X
	Depth (ft)	3-5	3-5	3-5	3-5	3-5	3-5	3-5	Rec/Res	Rec/Res	Rec/Res	Comm/Ind	Comm/Ind	Comm/Ind
Parameter	PID (ppm)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ISV (µg/m^3)	ISV (µg/m^3)	EISV (µg/m^3)	ISV (µg/m^3)	ISV (µg/m^3)	EISV (µg/m^3)
1,1,1-Trichloroethane	µg/m^3	<5.5	7.4	3.5	<2.2	<11	<2.2	<6.6	5,000	166,667	NE	10,000	333,333	NE
1,2,4-Trimethylbenzene	µg/m^3	<4.9	<2.0	<2.0	2.1	<9.8	<2.0	<6.0	63	2,100	6,300	210	7,000	21,000
1,3-Butadiene	µg/m^3	**8.0**	**4.2**	**2.1**	<0.88	**23**	**2.5**	**10**	0.28	9.3	93	2.7	90	700
Acetone	µg/m^3	120	110	91	50	140	100	310	31,000	1,033,333	NE	87,000	2,900,000	NE
Benzene	µg/m^3	**11**	3.3	2.0	4.6	**41**	2.0	**8.6**	5	150	1,500	45	1,500	11,000
Carbon Disulfide	µg/m^3	<7.8	3.1	<3.1	<3.1	<16	<3.1	<9.4	700	23,333	NE	2,000	66,666	NE
Cyclohexane	µg/m^3	3.8	<1.4	<1.4	2.0	28	19	<4.2	6,000	200,000	NE	20,000	666,666	NE
Dichlorodifluoromethane	µg/m^3	<12	<4.9	<4.9	6.6	**660**	<4.9	<15	200	6,667	NE	600	20,000	NE
Ethanol	µg/m^3	<47	<19	22	<19	<94	<19	<57	15,000	500,000	NE	42,000	1,400,000	NE
Ethylbenzene	µg/m^3	<4.3	1.9	1.8	**5.6**	**67**	<1.7	**5.9**	4.1	140	1,400	39	1,300	13,000
m,p-Xylene	µg/m^3	11	7.3	6.3	13	<22	4.8	<13	100	3,300	10,000	350	12,000	37,000
Methyl Ethyl Ketone (MEK)	µg/m^3	19	23	20	81	48	27	86	5,000	166,667	NE	10,000	333,333	NE
n-Heptane	µg/m^3	5.5	2.2	<1.6	2.0	56	<1.6	5.5	NE	NE	NE	NE	NE	NE
n-Hexane	µg/m^3	23	24	23	11	110	9.6	25	2,000	66,667	NE	6,000	200,000	NE
Propylene	µg/m^3	160	50	42	42	460	27	240	3,000	100,000	NE	8,000	266,666	NE
Styrene	µg/m^3	<4.3	<1.7	<1.7	6.5	<8.5	<1.7	<5.2	1,000	33,333	NE	3,000	100,000	NE
Tetrachloroethene	µg/m^3	**11**	**17**	**160**	**83**	<14	**3.5**	<8.2	3.4	110	1,100	33	1,100	5,300
Toluene	µg/m^3	18	9.1	7.1	18	86	10	15	5,200	170,000	530,000	18,000	600,000	1,800,000
trans-1,3-Dichloropropene	µg/m^3	<4.5	<1.8	<1.8	<1.8	<9.1	5.7	<5.5	20	667	NE	60	2,000	NE
Trichlorofluoromethane	µg/m^3	<5.6	8.4	150	87	<11	57	<6.8	700	23,333	NE	2,000	66,666	NE
Xylene, o-	µg/m^3	<4.3	1.9	1.7	4.2	8.8	<1.7	<5.3	100	3,300	10,000	350	12,000	37,000

Figures



Map Reference: Copyright:© 2013 National Geographic Society, i-cubed
USGS 7.5" Quadrangle: Mankato West and East, Minnesota

N

0 1,000 2,000
Feet

AMERICAN ENGINEERING TESTING, INC

Figure 1
Site Location Map

Phase II Environmental Site Assessment

Former Mass Transit Site
221 Lamm Street
Mankato, Minnesota

Date: 09/27/2017 AET Project No. 03-06166

File: FMT_Ph2_Fig1-SLM.mxd

Reference: © 2017 Google. Google Earth. 4/22/17

N

0 30 60

Feet

AMERICAN ENGINEERING TESTING, INC

Figure 2
Site Map

Phase II Environmental Site Assessment

Former Mass Transit Site
221 Lamm Street
Mankato, Minnesota

Date: 09/27/2017 AET Project No. 03-06166

File: FMT_Ph2_Fig2-SM.mxd

Appendix A

Acronyms/Abbreviations and Definitions

ACRONYMS / ABBREVIATIONS AND DEFINITIONS

AET Standard List

^{0}	degrees Celsius
^{0}	degrees Fahrenheit
%	percent
AAI	EPA All Appropriate Inquiry (§312.10 of 40 CFR 312)
ACM	asbestos containing material
ACWM	asbestos containing waste material
AET	American Engineering Testing, Inc.
AHERA	Asbestos Hazard Emergency Response Act
AST	aboveground storage tank
ASTM	American Society for Testing and Materials (now known only by acronym)
AUL	activity and use limitation
BaPs	benzo(a)pyrene equivalents
BETX	benzene, ethlybenzene, toluene, xylene
bgs	below ground surface
CAP	Corrective Action Plan
CCP	Construction Contingency Plan
CERCLA	Comprehensive Environmental Response, Compensation, Liability Act (Superfund)
CERCLIS	Comprehensive Environmental Response, Compensation, Liability Information System
CESQG	RCRA Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
CG	cleanup goal
CGI	combustible gas indicator
COC	MPCA Certificate of Completion
CoC	contaminant of concern
c.o.c.	chain of custody
CORRACTS	RCRA Corrective Actions Information System
cPAH	carcinogenic polynuclear aromatic hydrocarbon
CVOC	chlorinated volatile organic compound
cy or CY	cubic yards
DML	MPCA Dredge Management Level
DRO	diesel range organics ("-Si" indicates silica-gel pretreatment)
EA/EAW	Environmental Assessment [Worksheet]
EC	engineering control
ECP	Emissions Control Plan
ECR	Environmental Construction Report
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EP	Environmental Professional (§312.10 of 40 CFR 312)
EPA	Environmental Protection Agency (also USEPA)
ERNS	Emergency Response Notification System (federal)
ESA	Environmental Site Assessment
EWP	Environmental Work Plan
f/cc	fibers-per-cubic-centimeter
ft	feet

ACRONYMS / ABBREVIATIONS AND DEFINITIONS

AET Standard List

GEN	RCRA Generator
GIS	geographic information system
GPS	global positioning system
GRO	gasoline range organics
HASP	Health and Safety Plan
HBV	MDH Health Based Value
HIG	Historical Information Gatherers, Inc.
HREC	historical recognized environmental condition
HRL	MDH Health Risk Limit
IC	institutional control
ISV	MPCA Intrusion Screening Value
LAST	leaking aboveground storage tank
LEL	lower explosion limit
lf or LF	lineal feet
LIMS	laboratory information management system
LLP	landowner liability protection
LQG	RCRA Large Quantity Generator
LSI	MPCA Limited Site Investigation
LUST	leaking underground storage tank
MCES	Metropolitan Council Environmental Services
MCL	EPA Maximum Contaminant Level
MDA	Minnesota Department of Agriculture
MDH	Minnesota Department of Health
MDL	method detection limit.
mg/kg	milligrams-per-kilogram
mg/L	milligrams-per-liter
MGS	Minnesota Geological Survey
MMP	Materials Management Plan
MnDOT	Minnesota Department of Transportation
MPCA	Minnesota Pollution Control Agency
MS/MSD	matrix spike/matrix spike duplicate
MSDS	material safety data sheet
MTBE	methyl tert-butyl ether
NA	not assigned or not applicable
NAD	MPCA No Association Determination
ND	no detection
NEPA	National Environmental Protection Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFA	MPCA No Further Action
NFRAP	No Further Remedial Action Planned
NLR	RCRA No Longer Regulated Information System
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List (federal Superfund)
NR	not recorded

ACRONYMS / ABBREVIATIONS AND DEFINITIONS

AET Standard List

ODI	EPA Open Dump Inventory
OSHA	Occupational Safety and Health Administration
PAH	polynuclear aromatic hydrocarbon
PEL	OSHA Permissible Exposure Limit
PBP	MPCA Petroleum Brownfield Program
PCB	polychlorinated biphenyl
pcm	point count method
PCM	phase-contrast microscopy
PE	Professional Engineer
PEF	potency equivalency factor
PG	Professional Geologist
PID	photoionization detector
PLM	polarized light microscopy
PLP	Permanent List of Priorities (state Superfund)
ppb	parts-per-billion
ppbv	parts-per-billion by volume
PPE	personal protective equipment
ppm	parts-per-million
ppmv	parts-per-million by volume
PRP	MPCA Petroleum Remediation Program
PVOC	petroleum volatile organic compound
QA	quality assurance
QAPP	Quality Assurance Project Plan
QC	quality control
RACM	regulated asbestos containing material
RAI	Response Action Implementation
RAP	Response Action Plan
RCRA	Resource Conservation Recovery Act
REC	recognized environmental condition
RI	MPCA or MDA Remedial Investigation
RL	laboratory reporting limit
ROD	EPA Record of Decision
SHOP	Special Handling Operations Plan
SLV	MPCA Soil Leaching Value
SMP	Soil Management Plan
SOP	standard operating procedure
SPILLS	MPCA Spills inventory
SQG	RCRA Small Quantity Generator
SREC	suspect recognized environmental condition
SRV	MPCA Soil Reference Value
SSP	Site Safety Plan
SVOC	semi-volatile organic compound
SWF/LF	MPCA Solid Waste Facilities/Landfill Sites
TCLP	Toxicity Characteristic Leaching Procedure

ACRONYMS / ABBREVIATIONS AND DEFINITIONS

AET Standard List

TPH	total petroleum hydrocarbons
TRIS	EPA Toxic Release Inventory System
TSCA	Toxic Substances Control Act
TSD	RCRA Transportation Storage and Disposal inventory
TWA	time-weighted average
µg/kg	micrograms-per-kilogram
µg/l or µg/L	micrograms-per-liter
µg/m3	micrograms-per-cubic-meter
USEPA	United States Environmental Protection Agency (also EPA)
USGS	United States Geological Survey
UST	underground storage tank
VIC	MPCA Voluntary Investigation and Cleanup Program
VOC	volatile organic compound
WCA	Wetland Conservation Act
XRF	x-ray fluorescence

DEFINITIONS

Controlled recognized environmental condition (CREC): a recognized environmental condition resulting from a past release of hazardous substances or petroleum products that has been addressed to the satisfaction of the applicable regulatory authority (for example, as evidenced by the issuance of a no further action letter or equivalent, or meeting risk-based criteria established by regulatory authority), with hazardous substances or petroleum products allowed to remain in place subject to the implementation of required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

De minimus condition: a condition that generally does not present a threat to human health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate government agencies. Conditions determined to be de minimus conditions are not recognized environmental conditions nor controlled recognized environmental conditions.

Historical recognized environmental condition (HREC): a past release of any hazardous substances or petroleum products that has occurred in connection with the property and has been addressed to the satisfaction of the applicable regulatory authority or meeting unrestricted use criteria established by a regulatory authority, without subjecting the property to any required controls (for example, property use restrictions, activity and use limitations, institutional controls, or engineering controls).

Recognized environmental condition (REC): the presence or likely presence of hazardous substances or petroleum products in, on, or at a property: 1) due to release to the environment; 2) under conditions indicative of a release to the environment; or 3) under conditions that pose a material threat of a future release to the environment.

Appendix B

Environmental Sampling Methods

ENVIRONMENTAL SAMPLING METHODS – GENERAL: EXCAVATIONS/TEST PITS, HAND AUGERS, SURFICIAL SOILS, STOCKPILES

Site Safety Issues

Safety is of paramount importance on construction, demolition, or other high-traffic sites with potentially unstable ground. Frequent visual and verbal contact is maintained with operators of heavy equipment in the sampling vicinity. Care is taken not to enter depressions or scale mounds that would constitute confined spaces, where engulfment, immersion, or falls are possible, or where harmful vapors may collect. Most observations and soil collection are performed from a stable and level ground surface with the help of heavy equipment operated by an excavation contractor.

Contamination Reduction

Sampling devices (except heavy equipment in most cases) are cleaned between sampling points to minimize cross contamination. The cleaning procedure may consist of an alconox detergent-water wash using a brush, followed by a tap water rinse. Certain types of projects may entail more or less stringent decontamination procedures.

Soil Collection

Most soil samples from excavations or test pits are collected directly from heavy equipment (e.g., excavation bucket, loader, or bulldozer), giving preference to soils that have not touched the equipment. A hand auger is used to complete shallow soil borings in locations of limited vehicle access. Hand auger borings are advanced manually, typically in 6" to 12" depth intervals. Soils are collected directly from the hollow auger barrel. A spade shovel is used to collect surficial soils (i.e., up to 6" depth). In many cases, soil samples can be collected by hand without added equipment.

Impacted soils or buried debris may be present in the ground that are not observed due to the spacing and depths of sampling points. Best judgment determinations, based on known site conditions and past experience in similar situations, do not guarantee identification or removal of all impacts.

Soil Classification

As the samples are obtained in the field, they are visually and manually classified by the field staff. Representative portions of the samples may be returned to the laboratory for further examination and for verification of the field classification. Soil classifications, visual/odor observations, and information on any groundwater encountered are reported on the Soil Screening Data Sheet or other field notes.

Soil Sample Vapor Screening

Soil samples collected directly or from equipment are screened with a photoionization detector (PID) for the presence of organic vapors with ionization potentials less than the lamp voltage. The PID is calibrated for direct reading in parts-per-million-volume (PPMv) of a benzene equivalent. Soil samples are collected and screened according to the bag-headspace field screening procedure, which consists of placing freshly collected soil into a polyethylene Whirl-Pak or freezer "baggie" (i.e., bag), sealing the bag to contain an air pocket (i.e., headspace), and allowing 10 to 20 minutes for vapors to disperse from the soil to the headspace. The highest reading upon inserting the PID probe into the bag headspace – typically attained within two to five seconds of probe insertion – is recorded on the Soil Screening Data Sheet or other field notes. Excessive moisture, temperature extremes, ambient vapors, or other unusual field circumstances can affect screening results.

Other Field Screening

For certain sites, field screening may be conducted for additional parameters in accordance with AET's Field Screening Methods Supplemental information sheet.

Soil Sampling for Chemical Analysis

Soil samples obtained for chemical analysis are collected directly or from the sampling device into laboratory-prepared containers with appropriate preservatives, according to laboratory protocols. The samples are delivered to the analytical laboratory within prescribed holding times, accompanied by proper chain-of-custody forms.

Not all methods summarized on this information sheet are conducted at all sites. Special conditions may also occur which require modifications to these methods. Any descriptions of field methods within the report text take precedence.

Appendix C

Subsurface Boring Logs

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-6 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	2" BITUMINOUS	FILL									
1	FILL, sand with silt and gravel, brown to black										0.0
2				M	MC	50					0.0
3											
4											0.0
5	FILL, sand and gravel with silt, brown to gray, slight petroleum odor from 6' to 7'										
6											0.0
7				M	MC	49					10.2
8											
9											0.0
10	FILL, gravel, brown, pieces of bituminous near 15', moderate petroleum odor at 15'			▼							
11											0.0
12				M	MC	28					
13											
14											25.9
15	SILTY CLAY, gray to black, moderate petroleum odor throughout	FINE ALLUVIUM									
16											69.2
17				M	MC	32					78.5
18											
19											9.5
20	**END OF BORING**										

DEPTH:	DRILLING METHOD
0-20'	**Geoprobe**

WATER LEVEL MEASUREMENTS

DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
9/5/17		**14'-19'**				**10'**

BORING COMPLETED: **9/5/17**

DR: **BT** LG: **TB** Rig: **64**

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-7 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	FILL, silt with sand, black to brown	FILL									
1											0.0
2				M	MC	42					0.0
3											
4											0.0
5	FILL, silt with sand, brown										
6											0.0
7				M	MC	50					0.0
8											
9	SILT, brown to gray mottled	FINE ALLUVIUM		▼							0.0
10											
11											0.0
12				M	MC	49					
13											
14											0.0
15											
16											0.0
17				M	MC	42					0.0
18											
19											0.0
20	SAND, gray										
	END OF BORING										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
0-20'	**Geoprobe**	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
		9/5/17		**15'-20'**				**9.5'**
BORING COMPLETED: **9/5/17**								
DR: **BT** LG: **TB** Rig: **64**								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-8 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	TOPSOIL, silt with sand, black	TOPSOIL									
1	FILL, sand with gravel, brown to black	FILL									0.0
2				M	MC	49					0.0
3											
4											0.0
5	FILL, sand with silt, brown to gray										
6											0.0
7				M	MC	12					0.0
8											
9											0.0
10											
11											0.0
12	SILT, gray, swamp odor	FINE ALLUVIUM		M	MC	48					
13				▼							
14											0.0
15											
16											0.0
17				M	MC	24					0.0
18											
19											0.0
20	END OF BORING										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-20'	**Geoprobe**	**9/5/17**		**10'-15'**				**13.5'**
BORING COMPLETED: **9/5/17**								
DR: **BT** LG: **TB** Rig: **64**								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-9 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	3" CONCRETE	FILL									
1	FILL, silt with sand and gravel, brown to black										0.0
2				M	MC	41					0.0
3											
4											0.0
5	FILL, silt with sand, brown to red, brick debris from 5' to 8'										
6											0.0
7				M	MC	51					0.0
8											
9											0.0
10	FILL, silty with sand, brown to gray										
11											0.0
12				M	MC	43					
13											
14											0.0
15	CLAY WITH SILT, gray	FINE ALLUVIUM									
16											0.0
17				M	MC	40					0.0
18											
19											0.0
20	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
0-20'	**Geoprobe**	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
				None	**Taken**	**Refer To**	**"MC"**	**Column**
BORING COMPLETED: **9/5/17**								
DR: **BT** LG: **TB** Rig: **64**								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-10 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	3" BITUMINOUS	FILL									
1	FILL, sand with silt and gravel, brown to black										0.0
2				M	MC	56					0.0
3											
4											0.0
5	FILL, sand with silt, brown										
6											0.0
7				M	MC	60					0.0
8	SILT, brown to gray mottled	FINE ALLUVIUM									
9											0.0
10											
11											0.0
12				M	MC	54					
13											
14											0.0
15											
16											0.0
17				M	MC	34					0.0
18	SAND, brown to gray mottled										
19											0.0
20	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-20'	**Geoprobe**	**9/5/17**		**14'-19'**				**13'**
BORING COMPLETED:	**9/5/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-11 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	3" CONCRETE	FILL									
1	FILL, sand with silt and gravel, brown										0.0
2				M	MC	42					0.0
3											
4											0.0
5	FILL, sand with silt, brown										
6											0.0
7				M	MC	52					0.0
8											
9	FILL, silt with sand, brown										0.0
10	SILT, brown to gray	FINE ALLUVIUM									
11											0.0
12				M	MC	49					
13											
14											0.0
15											
16											0.0
17				M	MC	32					0.0
18											
19											0.0
	SAND, gray										
20	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
0-20'	**Geoprobe**	DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
				None	**Taken**	**Refer To**	**"MC"**	**Column**
BORING COMPLETED:	**9/5/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06166** LOG OF BORING NO. **GP-12 (p. 1 of 1)**

PROJECT: **City of Mankato, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	FILL, silt with sand, black to gray to brown	FILL									
1											0.0
2				M	MC	36					0.0
3											
4											0.0
5	FILL, silt with sand, brown to gray										
6	SILT, brown	FINE ALLUVIUM									0.0
7				M	MC	44					0.0
8											
9				▼							0.0
10											
11											0.0
12				M	MC	39					
13											
14											0.0
15	SILT, brown to gray mottled										
16											0.0
17				M	MC	40					0.0
18											
19	SAND, brown to gray										0.0
20	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-20'	**Geoprobe**	**9/5/17**		**12'-17'**				**9.5'**
BORING COMPLETED:	**9/5/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-1 (p. 1 of 1)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	4" CONCRETE	FILL									
1	FILL, sand with gravel, brown to black										18.1
2	FILL, silt, brown			M	MC	36					83
3											
4											15.8
5											
6											0.0
7				M	MC	40					0.0
8											
9											0.0
10	SILTY CLAY, brown	FINE ALLUVIUM									
11											0.0
12				M	MC	44					
13											
14											0.0
15											
16											0.0
17				M	MC	34					0.0
18											
19											0.0
20	SAND LENSE, gray to brown	ALLUVIUM									
	SILTY CLAY, gray, swamp odor	FINE ALLUVIUM									
21											0.0
22				M	MC	46					
23											
24											0.0
25	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-25'	**Geoprobe**	**8/30/17**		**15'-20'**				**10'**
BORING COMPLETED:	**8/30/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-2 (p. 1 of 2)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
1	FILL, sand with silt, black to brown to red, brick debris present from 4' to 5'	FILL									0.0
2											
3				M	MC	42					0.0
4											0.0
5	FILL, sand with silt, brown, brick debris from 5' to 6'										
6											0.0
7											
8				M	MC	59					0.0
9	SILT, brown	FINE ALLUVIUM									0.0
10	SILT, brown mottled										
11				▼							0.0
12											
13				M	MC	40					
14	SILT, grayish green, moderate petroleum odor										593
15											
16											101.3
17											
18				M	MC	28					96.2
19											0.4
20	SAND LENSE, gray, slight petroleum odor										
	SILTY CLAY, gray, swamp odor										
21											0.0
22											
23				M	MC	42					
24											0.0
25											

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-28'	**Geoprobe**	**8/30/17**		**15'-20'**				**11.5'**
BORING COMPLETED: **8/30/17**								
DR: **BT** LG: **TB** Rig: **64**								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-2 (p. 2 of 2)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	SILTY CLAY, gray, swamp odor *(continued)*			M	MC	28					0.0 0.0
27											
28	**END OF BORING**										

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-3 (p. 1 of 1)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	4" CONCRETE	FILL									
1	FILL, sand with silt, brown										0.0
2				M	MC	29					0.0
3											
4											0.0
5											
6											0.0
7				M	MC	42					0.0
8											
9	SILT, brown mottled	FINE ALLUVIUM									0.0
10				▼							
11											0.0
12				M	MC	46					
13											
14											0.0
15											
16											0.0
17				M	MC	52					0.0
18											
19											0.0
20	SAND LENSE, gray										
	SILT, brown mottled										
21											0.0
22				M	MC	46					
23											
24	SILTY CLAY, black, swamp odor										0.0
25	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-25'	**Geoprobe**	**8/31/17**		**17'-22'**				**10'**
BORING COMPLETED:	**8/31/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-4 (p. 1 of 1)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
1	FILL, sand with gravel and bituminous, black to brown	FILL									
	FILL, sand with silt, brown										0.0
2				M	MC	32					0.0
3											
4											0.0
5	FILL, sand with silt, brown										
6											0.0
7				M	MC	40					0.0
8	SILT, brown mottled	FINE ALLUVIUM									
9											0.0
10				▼							
11											0.0
12				M	MC	46					
13											
14											0.0
15											
16											0.0
17				M	MC	52					0.0
18											
19											0.0
	SILTY CLAY, black to gray, swamp odor										
20	**END OF BORING**										

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-20'	**Geoprobe**	**8/31/17**		**15'-20'**				**10'**
BORING COMPLETED:	**8/31/17**							
DR: **BT**	LG: **TB** Rig: **64**							

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-5 (p. 1 of 2)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	SURFACE ELEVATION: _____ MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	FILL, sand with gravel, brown	FILL									
1											0.0
2				M	MC	54					0.0
3											
4											0.0
5	SILT, brown	FINE ALLUVIUM									
6											0.0
7				M	MC	36					0.0
8											
9											0.0
10	SILT, brown to gray mottled										
11											0.0
12				M	MC	30					
13											
14											0.0
15											
16											0.0
17				M	MC	24					0.0
18											
19											0.0
	CLAY, gray										
20	SAND, gray										
	SAND, fine grained, gray										
21											0.0
22	SILTY CLAY, black, swamp odor	PEAT		M	MC	38					
23											
24				▼							0.0
25	SILTY CLAY, gray, swamp odor	FINE ALLUVIUM									

DEPTH:	DRILLING METHOD	WATER LEVEL MEASUREMENTS						
		DATE	TIME	SAMPLED DEPTH	CASING DEPTH	CAVE-IN DEPTH	DRILLING FLUID LEVEL	WATER LEVEL
0-40'	**Geoprobe**	**8/30/17**		**20'-25'**				**24'**
BORING COMPLETED: **8/30/17**								
DR: **BT** LG: **TB** Rig: **64**								

NOTE: REFER TO THE ATTACHED SHEETS FOR AN EXPLANATION OF TERMINOLOGY ON THIS LOG

AMERICAN ENGINEERING TESTING, INC.

GEOPROBE SUBSURFACE BORING LOG

AET JOB NO: **03-06706** LOG OF BORING NO. **GP-5 (p. 2 of 2)**

PROJECT: **City of Mankato LSI, Mankato, MN**

DEPTH IN FEET	MATERIAL DESCRIPTION	GEOLOGY	N	MC	SAMPLE TYPE	REC IN.	FIELD & LABORATORY TESTS WC	DEN	LL	XRF (ppm)	PID (ppm)
	SILTY CLAY, gray, swamp odor *(continued)*	FINE ALLUVIUM *(continued)*									0.0
27				M	MC	44					
28											
29											0.0
30											
31											0.0
32				M	MC	48					
33											
34											0.0
35	SILT AND SAND WITH GRAVEL, gray, swamp odor	MIXED ALLUVIUM									
36											0.0
37				M	MC	48					
38											
39											0.0
40	**END OF BORING**										

Appendix D

Laboratory Analytical Reports and Chains-of-Custody

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15

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: 310-113404-1
TestAmerica Sample Delivery Group: 03-06706
Client Project/Site: City of Mankato LSI

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/13/2017 3:21:49 PM

Zach Bindert, Project Manager I
(319)277-2401
zach.bindert@testamericainc.com

REVIEWED
By Tyler Boley at 1:36 pm, Sep 29, 2017

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Detection Summary 5
Client Sample Results 6
Definitions 16
Surrogate Summary 17
QC Sample Results 19
QC Association 24
Chronicle 25
Certification Summary 27
Method Summary 28
Chain of Custody 29
Receipt Checklists 31

Job ID: 310-113404-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-113404-1

Comments
No additional comments.

Receipt
The samples were received on 9/2/2017 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 3.4º C.

GC/MS VOA
Method 8260B: The following samples were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: GP-1 (15-20) (310-113404-1), GP-2 (15-20) (310-113404-2), GP-3 (17-22) (310-113404-3), GP-4 (15-20) (310-113404-4) and GP-5 (20-25) (310-113404-5).

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

GC VOA
Method WI-GRO: The following samples were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: GP-1 (15-20) (310-113404-1), GP-2 (15-20) (310-113404-2), GP-3 (17-22) (310-113404-3), GP-4 (15-20) (310-113404-4) and GP-5 (20-25) (310-113404-5).

Method WI-GRO: Surrogate recovery for the following sample was outside control limits: GP-2 (15-20) (310-113404-2). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method WI-GRO: The following samples were diluted due to the nature of the sample matrix: GP-1 (15-20) (310-113404-1), GP-3 (17-22) (310-113404-3), GP-4 (15-20) (310-113404-4) and GP-5 (20-25) (310-113404-5). Elevated reporting limits (RLs) are provided. Samples had excessive sediment.

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

GC Semi VOA
Method WI-DRO: Significant peaks, readily distinguished from background, were detected in the following sample before the analytical window defined by the first component eluting in the Diesel Range Organics (DRO) mix (i.e., n-Decane): GP-2 (15-20) (310-113404-2).

Method WI-DRO: Significant peaks, readily distinguished from background, were detected in the following samples within five minutes after the end of the analytical window defined by the last component eluting in the Diesel Range Organics (DRO) mix (i.e., n-Octacosane): GP-1 (15-20) (310-113404-1) and GP-4 (15-20) (310-113404-4).

No additional analytical or quality issues were noted, other than those described above or 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: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-113404-1	GP-1 (15-20)	Ground Water	08/30/17 11:47	09/02/17 09:15
310-113404-2	GP-2 (15-20)	Ground Water	08/30/17 17:36	09/02/17 09:15
310-113404-3	GP-3 (17-22)	Ground Water	08/31/17 08:20	09/02/17 09:15
310-113404-4	GP-4 (15-20)	Ground Water	08/31/17 09:50	09/02/17 09:15
310-113404-5	GP-5 (20-25)	Ground Water	08/30/17 14:00	09/02/17 09:15

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-1 (15-20) — Lab Sample ID: 310-113404-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	16.8		10.0		ug/L	1		8260B	Total/NA

Client Sample ID: GP-2 (15-20) — Lab Sample ID: 310-113404-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	15.5		10.0		ug/L	1		8260B	Total/NA
Benzene	1.13		0.500		ug/L	1		8260B	Total/NA
n-Butylbenzene	36.4		1.00		ug/L	1		8260B	Total/NA
sec-Butylbenzene	11.3		1.00		ug/L	1		8260B	Total/NA
Ethylbenzene	112		1.00		ug/L	1		8260B	Total/NA
Isopropylbenzene	24.1		1.00		ug/L	1		8260B	Total/NA
p-Isopropyltoluene	6.03		1.00		ug/L	1		8260B	Total/NA
Naphthalene	52.3		5.00		ug/L	1		8260B	Total/NA
N-Propylbenzene	87.5		1.00		ug/L	1		8260B	Total/NA
1,2,4-Trimethylbenzene	553		1.00		ug/L	1		8260B	Total/NA
1,3,5-Trimethylbenzene	137		1.00		ug/L	1		8260B	Total/NA
Xylenes, Total	261		3.00		ug/L	1		8260B	Total/NA
Wisconsin GRO	2250		500		ug/L	5		WI-GRO	Total/NA
Diesel Range Organics (DRO)	3.58		0.111		mg/L	1		WI-DRO	Total/NA

Client Sample ID: GP-3 (17-22) — Lab Sample ID: 310-113404-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	12.9		10.0		ug/L	1		8260B	Total/NA

Client Sample ID: GP-4 (15-20) — Lab Sample ID: 310-113404-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	22.0		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.168		0.125		mg/L	1		WI-DRO	Total/NA

Client Sample ID: GP-5 (20-25) — Lab Sample ID: 310-113404-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	21.9		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.257		0.111		mg/L	1		WI-DRO	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-1 (15-20)

Date Collected: 08/30/17 11:47
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-1

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**16.8**		10.0		ug/L			09/05/17 14:37	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 14:37	1
Benzene	<0.500		0.500		ug/L			09/05/17 14:37	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 14:37	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 14:37	1
Bromoform	<5.00		5.00		ug/L			09/05/17 14:37	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 14:37	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 14:37	1
n-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 14:37	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 14:37	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 14:37	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 14:37	1
Chloroform	<1.00		1.00		ug/L			09/05/17 14:37	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 14:37	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 14:37	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 14:37	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 14:37	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 14:37	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 14:37	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 14:37	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 14:37	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 14:37	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 14:37	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 14:37	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 14:37	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 14:37	1
Ethylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 14:37	1
Isopropylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/05/17 14:37	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 14:37	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 14:37	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 14:37	1
Naphthalene	<5.00		5.00		ug/L			09/05/17 14:37	1
N-Propylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Styrene	<1.00		1.00		ug/L			09/05/17 14:37	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-1 (15-20)

Date Collected: 08/30/17 11:47
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-1

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 14:37	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 14:37	1
Toluene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 14:37	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 14:37	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 14:37	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 14:37	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 14:37	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 14:37	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 14:37	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 14:37	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 14:37	1
Xylenes, Total	<3.00		3.00		ug/L			09/05/17 14:37	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 14:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/05/17 14:37*	*1*
Dibromofluoromethane (Surr)	*97*		*79 - 119*		*09/05/17 14:37*	*1*
Toluene-d8 (Surr)	*97*		*77 - 117*		*09/05/17 14:37*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	<500		500		ug/L			09/12/17 20:09	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*09/12/17 20:09*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.118		0.118		mg/L		09/06/17 16:56	09/08/17 17:11	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-2 (15-20)

Date Collected: 08/30/17 17:36
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-2

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**15.5**		10.0		ug/L			09/05/17 16:04	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 16:04	1
Benzene	**1.13**		0.500		ug/L			09/05/17 16:04	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 16:04	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 16:04	1
Bromoform	<5.00		5.00		ug/L			09/05/17 16:04	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 16:04	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 16:04	1
n-Butylbenzene	**36.4**		1.00		ug/L			09/05/17 16:04	1
sec-Butylbenzene	**11.3**		1.00		ug/L			09/05/17 16:04	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 16:04	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 16:04	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 16:04	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 16:04	1
Chloroform	<1.00		1.00		ug/L			09/05/17 16:04	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 16:04	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 16:04	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 16:04	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 16:04	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 16:04	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 16:04	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 16:04	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 16:04	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 16:04	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 16:04	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 16:04	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 16:04	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 16:04	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 16:04	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 16:04	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 16:04	1
Ethylbenzene	**112**		1.00		ug/L			09/05/17 16:04	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 16:04	1
Isopropylbenzene	**24.1**		1.00		ug/L			09/05/17 16:04	1
p-Isopropyltoluene	**6.03**		1.00		ug/L			09/05/17 16:04	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 16:04	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 16:04	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 16:04	1
Naphthalene	**52.3**		5.00		ug/L			09/05/17 16:04	1
N-Propylbenzene	**87.5**		1.00		ug/L			09/05/17 16:04	1
Styrene	<1.00		1.00		ug/L			09/05/17 16:04	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-2 (15-20)

Date Collected: 08/30/17 17:36
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-2

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 16:04	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 16:04	1
Toluene	<1.00		1.00		ug/L			09/05/17 16:04	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 16:04	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 16:04	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 16:04	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 16:04	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 16:04	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 16:04	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 16:04	1
1,2,4-Trimethylbenzene	**553**		1.00		ug/L			09/05/17 16:04	1
1,3,5-Trimethylbenzene	**137**		1.00		ug/L			09/05/17 16:04	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 16:04	1
Xylenes, Total	**261**		3.00		ug/L			09/05/17 16:04	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 16:04	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*90*		*82 - 122*		*09/05/17 16:04*	*1*
Dibromofluoromethane (Surr)	*104*		*79 - 119*		*09/05/17 16:04*	*1*
Toluene-d8 (Surr)	*98*		*77 - 117*		*09/05/17 16:04*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	**2250**		500		ug/L			09/12/17 20:41	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*122*	*X*	*80 - 120*		*09/12/17 20:41*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**3.58**		0.111		mg/L		09/06/17 16:56	09/08/17 14:32	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-3 (17-22)

Date Collected: 08/31/17 08:20
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-3

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**12.9**		10.0		ug/L			09/05/17 15:20	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 15:20	1
Benzene	<0.500		0.500		ug/L			09/05/17 15:20	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 15:20	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 15:20	1
Bromoform	<5.00		5.00		ug/L			09/05/17 15:20	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 15:20	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 15:20	1
n-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 15:20	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 15:20	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 15:20	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 15:20	1
Chloroform	<1.00		1.00		ug/L			09/05/17 15:20	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 15:20	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 15:20	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 15:20	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 15:20	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 15:20	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 15:20	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 15:20	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 15:20	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 15:20	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 15:20	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 15:20	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 15:20	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 15:20	1
Ethylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 15:20	1
Isopropylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/05/17 15:20	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 15:20	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 15:20	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 15:20	1
Naphthalene	<5.00		5.00		ug/L			09/05/17 15:20	1
N-Propylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Styrene	<1.00		1.00		ug/L			09/05/17 15:20	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-3 (17-22)

Date Collected: 08/31/17 08:20
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-3

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 15:20	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 15:20	1
Toluene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 15:20	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 15:20	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 15:20	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 15:20	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 15:20	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 15:20	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 15:20	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 15:20	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 15:20	1
Xylenes, Total	<3.00		3.00		ug/L			09/05/17 15:20	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 15:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/05/17 15:20*	*1*
Dibromofluoromethane (Surr)	*93*		*79 - 119*		*09/05/17 15:20*	*1*
Toluene-d8 (Surr)	*96*		*77 - 117*		*09/05/17 15:20*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	<500		500		ug/L			09/12/17 21:44	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*		*09/12/17 21:44*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.125		0.125		mg/L		09/06/17 16:56	09/08/17 13:11	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-4 (15-20)

Date Collected: 08/31/17 09:50
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-4

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**22.0**		10.0		ug/L			09/05/17 14:59	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 14:59	1
Benzene	<0.500		0.500		ug/L			09/05/17 14:59	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 14:59	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 14:59	1
Bromoform	<5.00		5.00		ug/L			09/05/17 14:59	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 14:59	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 14:59	1
n-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 14:59	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 14:59	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 14:59	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 14:59	1
Chloroform	<1.00		1.00		ug/L			09/05/17 14:59	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 14:59	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 14:59	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 14:59	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 14:59	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 14:59	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 14:59	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 14:59	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 14:59	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 14:59	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 14:59	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 14:59	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 14:59	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 14:59	1
Ethylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 14:59	1
Isopropylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/05/17 14:59	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 14:59	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 14:59	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 14:59	1
Naphthalene	<5.00		5.00		ug/L			09/05/17 14:59	1
N-Propylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Styrene	<1.00		1.00		ug/L			09/05/17 14:59	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-4 (15-20)

Date Collected: 08/31/17 09:50
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-4

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 14:59	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 14:59	1
Toluene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 14:59	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 14:59	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 14:59	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 14:59	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 14:59	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 14:59	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 14:59	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 14:59	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 14:59	1
Xylenes, Total	<3.00		3.00		ug/L			09/05/17 14:59	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 14:59	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*82 - 122*		*09/05/17 14:59*	*1*
Dibromofluoromethane (Surr)	*97*		*79 - 119*		*09/05/17 14:59*	*1*
Toluene-d8 (Surr)	*97*		*77 - 117*		*09/05/17 14:59*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	<500		500		ug/L			09/12/17 22:16	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*80 - 120*		*09/12/17 22:16*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.168**		0.125		mg/L		09/06/17 16:56	09/08/17 13:37	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-5 (20-25)

Date Collected: 08/30/17 14:00
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-5

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**21.9**		10.0		ug/L			09/05/17 15:42	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 15:42	1
Benzene	<0.500		0.500		ug/L			09/05/17 15:42	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 15:42	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 15:42	1
Bromoform	<5.00		5.00		ug/L			09/05/17 15:42	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 15:42	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 15:42	1
n-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 15:42	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 15:42	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 15:42	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 15:42	1
Chloroform	<1.00		1.00		ug/L			09/05/17 15:42	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 15:42	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 15:42	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 15:42	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 15:42	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 15:42	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 15:42	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 15:42	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 15:42	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 15:42	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 15:42	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 15:42	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 15:42	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 15:42	1
Ethylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 15:42	1
Isopropylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/05/17 15:42	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 15:42	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 15:42	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 15:42	1
Naphthalene	<5.00		5.00		ug/L			09/05/17 15:42	1
N-Propylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Styrene	<1.00		1.00		ug/L			09/05/17 15:42	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-5 (20-25)

Date Collected: 08/30/17 14:00
Date Received: 09/02/17 09:15

Lab Sample ID: 310-113404-5

Matrix: Ground Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 15:42	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 15:42	1
Toluene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 15:42	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 15:42	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 15:42	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 15:42	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 15:42	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 15:42	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 15:42	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 15:42	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 15:42	1
Xylenes, Total	<3.00		3.00		ug/L			09/05/17 15:42	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 15:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/05/17 15:42*	*1*
Dibromofluoromethane (Surr)	*97*		*79 - 119*		*09/05/17 15:42*	*1*
Toluene-d8 (Surr)	*97*		*77 - 117*		*09/05/17 15:42*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	<500		500		ug/L			09/12/17 21:12	5

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*80 - 120*		*09/12/17 21:12*	*5*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.257**		0.111		mg/L		09/06/17 16:56	09/08/17 14:04	1

Definitions/Glossary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Qualifiers

GC VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

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	(82-122)	(79-119)	(77-117)
310-113404-1	GP-1 (15-20)	103	97	97
310-113404-2	GP-2 (15-20)	90	104	98
310-113404-3	GP-3 (17-22)	103	93	96
310-113404-4	GP-4 (15-20)	102	97	97
310-113404-5	GP-5 (20-25)	103	97	97

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	(82-122)	(79-119)	(77-117)
LCS 310-177702/6	Lab Control Sample	101	105	97
LCS 310-177702/7	Lab Control Sample	104	102	99
MB 310-177702/8	Method Blank	107	102	98

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(80-120)
310-113404-1	GP-1 (15-20)	106
310-113404-2	GP-2 (15-20)	122 X
310-113404-3	GP-3 (17-22)	104
310-113404-4	GP-4 (15-20)	102
310-113404-5	GP-5 (20-25)	106

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

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

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(80-120)
LCS 310-178514/2	Lab Control Sample	109
LCSD 310-178514/27	Lab Control Sample Dup	104
MB 310-178514/1	Method Blank	100

Surrogate Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Lab Sample ID: MB 310-177702/8
Matrix: Water
Analysis Batch: 177702

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			09/05/17 08:52	1
Allyl chloride	<2.00		2.00		ug/L			09/05/17 08:52	1
Benzene	<0.500		0.500		ug/L			09/05/17 08:52	1
Bromobenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Bromochloromethane	<5.00		5.00		ug/L			09/05/17 08:52	1
Bromodichloromethane	<1.00		1.00		ug/L			09/05/17 08:52	1
Bromoform	<5.00		5.00		ug/L			09/05/17 08:52	1
Bromomethane	<4.00		4.00		ug/L			09/05/17 08:52	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/05/17 08:52	1
n-Butylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/05/17 08:52	1
Chlorobenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/05/17 08:52	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/05/17 08:52	1
Chloroethane	<4.00		4.00		ug/L			09/05/17 08:52	1
Chloroform	<1.00		1.00		ug/L			09/05/17 08:52	1
Chloromethane	<3.00		3.00		ug/L			09/05/17 08:52	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 08:52	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/05/17 08:52	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/05/17 08:52	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/05/17 08:52	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/05/17 08:52	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 08:52	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/05/17 08:52	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/05/17 08:52	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/05/17 08:52	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 08:52	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/05/17 08:52	1
Diethyl ether	<2.00		2.00		ug/L			09/05/17 08:52	1
Ethylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/05/17 08:52	1
Isopropylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/05/17 08:52	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/05/17 08:52	1
Methylene Chloride	<5.00		5.00		ug/L			09/05/17 08:52	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/05/17 08:52	1
Naphthalene	<5.00		5.00		ug/L			09/05/17 08:52	1
N-Propylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1

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

Lab Sample ID: MB 310-177702/8
Matrix: Water
Analysis Batch: 177702

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
Tetrachloroethene	<1.00		1.00		ug/L			09/05/17 08:52	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/05/17 08:52	1
Toluene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 08:52	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/05/17 08:52	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/05/17 08:52	1
Trichloroethene	<1.00		1.00		ug/L			09/05/17 08:52	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/05/17 08:52	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/05/17 08:52	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/05/17 08:52	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/05/17 08:52	1
Vinyl chloride	<1.00		1.00		ug/L			09/05/17 08:52	1
Xylenes, Total	<3.00		3.00		ug/L			09/05/17 08:52	1
Dibromomethane	<1.00		1.00		ug/L			09/05/17 08:52	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*82 - 122*		*09/05/17 08:52*	*1*
Dibromofluoromethane (Surr)	*102*		*79 - 119*		*09/05/17 08:52*	*1*
Toluene-d8 (Surr)	*98*		*77 - 117*		*09/05/17 08:52*	*1*

Lab Sample ID: LCS 310-177702/6
Matrix: Water
Analysis Batch: 177702

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	50.87		ug/L		127	55 - 150
Allyl chloride	20.0	20.08		ug/L		100	39 - 150
Benzene	20.0	19.40		ug/L		97	74 - 127
Bromobenzene	20.0	18.93		ug/L		95	72 - 122
Bromochloromethane	20.0	20.00		ug/L		100	73 - 142
Bromodichloromethane	20.0	19.20		ug/L		96	71 - 118
Bromoform	20.0	18.10		ug/L		91	56 - 123
2-Butanone (MEK)	40.0	43.21		ug/L		108	51 - 150
n-Butylbenzene	20.0	20.59		ug/L		103	62 - 126
sec-Butylbenzene	20.0	19.63		ug/L		98	61 - 133
tert-Butylbenzene	20.0	19.67		ug/L		98	64 - 128
Carbon tetrachloride	20.0	22.19		ug/L		111	71 - 131
Chlorobenzene	20.0	19.61		ug/L		98	74 - 120
Chlorodibromomethane	20.0	18.74		ug/L		94	59 - 125
Chloroform	20.0	20.74		ug/L		104	72 - 129
4-Chlorotoluene	20.0	19.83		ug/L		99	69 - 123
2-Chlorotoluene	20.0	19.41		ug/L		97	67 - 127
1,2-Dibromo-3-Chloropropane	20.0	20.38		ug/L		102	45 - 131

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

Lab Sample ID: LCS 310-177702/6
Matrix: Water
Analysis Batch: 177702

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	20.0	20.40		ug/L		102	69 - 127
1,2-Dichlorobenzene	20.0	19.33		ug/L		97	68 - 121
1,3-Dichlorobenzene	20.0	19.66		ug/L		98	66 - 128
1,4-Dichlorobenzene	20.0	19.64		ug/L		98	67 - 120
1,2-Dichloroethane	20.0	20.99		ug/L		105	71 - 131
1,1-Dichloroethane	20.0	19.09		ug/L		95	71 - 135
1,1-Dichloroethene	20.0	20.29		ug/L		101	71 - 137
cis-1,2-Dichloroethene	20.0	19.89		ug/L		99	72 - 130
trans-1,2-Dichloroethene	20.0	18.93		ug/L		95	73 - 132
1,2-Dichloropropane	20.0	19.27		ug/L		96	72 - 126
1,3-Dichloropropane	20.0	20.47		ug/L		102	73 - 129
2,2-Dichloropropane	20.0	19.41		ug/L		97	50 - 150
1,1-Dichloropropene	20.0	20.02		ug/L		100	72 - 131
cis-1,3-Dichloropropene	20.0	19.18		ug/L		96	66 - 124
trans-1,3-Dichloropropene	20.0	19.21		ug/L		96	59 - 129
Diethyl ether	20.0	19.60		ug/L		98	70 - 133
Ethylbenzene	20.0	19.81		ug/L		99	71 - 122
Hexachlorobutadiene	20.0	20.71		ug/L		104	62 - 134
Isopropylbenzene	20.0	19.92		ug/L		100	70 - 125
p-Isopropyltoluene	20.0	20.72		ug/L		104	65 - 124
4-Methyl-2-pentanone (MIBK)	40.0	40.14		ug/L		100	52 - 137
Methylene Chloride	20.0	18.82		ug/L		94	66 - 129
Methyl tert-butyl ether	20.0	18.72		ug/L		94	72 - 128
Naphthalene	20.0	21.01		ug/L		105	50 - 129
N-Propylbenzene	20.0	19.92		ug/L		100	70 - 125
Styrene	20.0	19.63		ug/L		98	71 - 121
1,1,1,2-Tetrachloroethane	20.0	19.43		ug/L		97	72 - 117
1,1,2,2-Tetrachloroethane	20.0	19.69		ug/L		98	62 - 123
Tetrachloroethene	20.0	19.51		ug/L		98	68 - 138
Tetrahydrofuran	40.0	38.70		ug/L		97	56 - 141
Toluene	20.0	19.61		ug/L		98	69 - 128
1,2,3-Trichlorobenzene	20.0	20.99		ug/L		105	62 - 131
1,2,4-Trichlorobenzene	20.0	19.32		ug/L		97	61 - 127
1,1,1-Trichloroethane	20.0	20.15		ug/L		101	73 - 132
1,1,2-Trichloroethane	20.0	20.31		ug/L		102	65 - 131
Trichloroethene	20.0	19.82		ug/L		99	73 - 132
1,2,3-Trichloropropane	20.0	20.25		ug/L		101	66 - 124
1,1,2-Trichlorotrifluoroethane	20.0	20.06		ug/L		100	69 - 145
1,2,4-Trimethylbenzene	20.0	19.81		ug/L		99	66 - 126
1,3,5-Trimethylbenzene	20.0	20.09		ug/L		100	69 - 128
Xylenes, Total	40.0	38.54		ug/L		96	72 - 121
Dibromomethane	20.0	20.09		ug/L		100	72 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*101*		*82 - 122*
Dibromofluoromethane (Surr)	*105*		*79 - 119*
Toluene-d8 (Surr)	*97*		*77 - 117*

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

Lab Sample ID: LCS 310-177702/7 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 177702

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	20.0	15.54		ug/L		78	18 - 128
Dichlorofluoromethane	20.0	19.93		ug/L		100	66 - 142
Chloroethane	20.0	20.02		ug/L		100	66 - 140
Chloromethane	20.0	16.92		ug/L		85	55 - 141
Dichlorodifluoromethane	20.0	19.32		ug/L		97	49 - 150
Trichlorofluoromethane	20.0	22.14		ug/L		111	69 - 139
Vinyl chloride	20.0	19.71		ug/L		99	67 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*82 - 122*
Dibromofluoromethane (Surr)	*102*		*79 - 119*
Toluene-d8 (Surr)	*99*		*77 - 117*

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

Lab Sample ID: MB 310-178514/1 — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178514

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Wisconsin GRO	<100		100		ug/L			09/12/17 13:36	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*80 - 120*		*09/12/17 13:36*	*1*

Lab Sample ID: LCS 310-178514/2 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178514

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Wisconsin GRO	400	443.0		ug/L		111	80 - 120

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*109*		*80 - 120*

Lab Sample ID: LCSD 310-178514/27 — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178514

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Wisconsin GRO	400	469.4		ug/L		117	80 - 120	6	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*104*		*80 - 120*

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

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

Lab Sample ID: MB 310-177981/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178147 — **Prep Batch: 177981**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.100		0.100		mg/L		09/06/17 16:56	09/08/17 09:09	1

Lab Sample ID: LCS 310-177981/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178147 — **Prep Batch: 177981**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	2.50	2.029		mg/L		81	75 - 115

Lab Sample ID: LCSD 310-177981/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178147 — **Prep Batch: 177981**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	2.50	2.236		mg/L		89	75 - 115	10	20

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

GC/MS VOA

Analysis Batch: 177702

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113404-1	GP-1 (15-20)	Total/NA	Ground Water	8260B	
310-113404-2	GP-2 (15-20)	Total/NA	Ground Water	8260B	
310-113404-3	GP-3 (17-22)	Total/NA	Ground Water	8260B	
310-113404-4	GP-4 (15-20)	Total/NA	Ground Water	8260B	
310-113404-5	GP-5 (20-25)	Total/NA	Ground Water	8260B	
MB 310-177702/8	Method Blank	Total/NA	Water	8260B	
LCS 310-177702/6	Lab Control Sample	Total/NA	Water	8260B	
LCS 310-177702/7	Lab Control Sample	Total/NA	Water	8260B	

GC VOA

Analysis Batch: 178514

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113404-1	GP-1 (15-20)	Total/NA	Ground Water	WI-GRO	
310-113404-2	GP-2 (15-20)	Total/NA	Ground Water	WI-GRO	
310-113404-3	GP-3 (17-22)	Total/NA	Ground Water	WI-GRO	
310-113404-4	GP-4 (15-20)	Total/NA	Ground Water	WI-GRO	
310-113404-5	GP-5 (20-25)	Total/NA	Ground Water	WI-GRO	
MB 310-178514/1	Method Blank	Total/NA	Water	WI-GRO	
LCS 310-178514/2	Lab Control Sample	Total/NA	Water	WI-GRO	
LCSD 310-178514/27	Lab Control Sample Dup	Total/NA	Water	WI-GRO	

GC Semi VOA

Prep Batch: 177981

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113404-1	GP-1 (15-20)	Total/NA	Ground Water	3510C	
310-113404-2	GP-2 (15-20)	Total/NA	Ground Water	3510C	
310-113404-3	GP-3 (17-22)	Total/NA	Ground Water	3510C	
310-113404-4	GP-4 (15-20)	Total/NA	Ground Water	3510C	
310-113404-5	GP-5 (20-25)	Total/NA	Ground Water	3510C	
MB 310-177981/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-177981/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-177981/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 178147

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113404-1	GP-1 (15-20)	Total/NA	Ground Water	WI-DRO	177981
310-113404-2	GP-2 (15-20)	Total/NA	Ground Water	WI-DRO	177981
310-113404-3	GP-3 (17-22)	Total/NA	Ground Water	WI-DRO	177981
310-113404-4	GP-4 (15-20)	Total/NA	Ground Water	WI-DRO	177981
310-113404-5	GP-5 (20-25)	Total/NA	Ground Water	WI-DRO	177981
MB 310-177981/1-A	Method Blank	Total/NA	Water	WI-DRO	177981
LCS 310-177981/2-A	Lab Control Sample	Total/NA	Water	WI-DRO	177981
LCSD 310-177981/3-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	177981

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Client Sample ID: GP-1 (15-20)

Lab Sample ID: 310-113404-1

Date Collected: 08/30/17 11:47
Matrix: Ground Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	177702	09/05/17 14:37	SJN	TAL CF
Total/NA	Analysis	WI-GRO		5	178514	09/12/17 20:09	CMM	TAL CF
Total/NA	Prep	3510C			177981	09/06/17 16:56	DEM2	TAL CF
Total/NA	Analysis	WI-DRO		1	178147	09/08/17 17:11	AJM	TAL CF

Client Sample ID: GP-2 (15-20)

Lab Sample ID: 310-113404-2

Date Collected: 08/30/17 17:36
Matrix: Ground Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	177702	09/05/17 16:04	SJN	TAL CF
Total/NA	Analysis	WI-GRO		5	178514	09/12/17 20:41	CMM	TAL CF
Total/NA	Prep	3510C			177981	09/06/17 16:56	DEM2	TAL CF
Total/NA	Analysis	WI-DRO		1	178147	09/08/17 14:32	AJM	TAL CF

Client Sample ID: GP-3 (17-22)

Lab Sample ID: 310-113404-3

Date Collected: 08/31/17 08:20
Matrix: Ground Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	177702	09/05/17 15:20	SJN	TAL CF
Total/NA	Analysis	WI-GRO		5	178514	09/12/17 21:44	CMM	TAL CF
Total/NA	Prep	3510C			177981	09/06/17 16:56	DEM2	TAL CF
Total/NA	Analysis	WI-DRO		1	178147	09/08/17 13:11	AJM	TAL CF

Client Sample ID: GP-4 (15-20)

Lab Sample ID: 310-113404-4

Date Collected: 08/31/17 09:50
Matrix: Ground Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	177702	09/05/17 14:59	SJN	TAL CF
Total/NA	Analysis	WI-GRO		5	178514	09/12/17 22:16	CMM	TAL CF
Total/NA	Prep	3510C			177981	09/06/17 16:56	DEM2	TAL CF
Total/NA	Analysis	WI-DRO		1	178147	09/08/17 13:37	AJM	TAL CF

Client Sample ID: GP-5 (20-25)

Lab Sample ID: 310-113404-5

Date Collected: 08/30/17 14:00
Matrix: Ground Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	177702	09/05/17 15:42	SJN	TAL CF
Total/NA	Analysis	WI-GRO		5	178514	09/12/17 21:12	CMM	TAL CF

Lab Chronicle

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			177981	09/06/17 16:56	DEM2	TAL CF
Total/NA	Analysis	WI-DRO		1	178147	09/08/17 14:04	AJM	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260B		Ground Water	Dichlorofluoromethane

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 310-113404-1
SDG: 03-06706

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

Protocol References:

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 CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-113404 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AET

City/State: Mankato, MN | Project: GW Mankato LSI

Receipt Information

Date/Time Received: 9.2.17 915 | Received By: BKM

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID: AET

Multiple Coolers? ☐ Yes ☑ No *If yes:* Cooler # _____ of _____

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 3.4 | Corrected Temp (°C): 3.4

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

No MN sticker?

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

18062

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER AET- Mankato

ADDRESS:

PHONE:

PAGE 1 OF 1

AET PROJECT NUMBER 03-06706

PROJECT NAME/LOCATION City of Mankato LSI

AET PROJECT MANAGER Jenna Vujic

SEND REPORT TO Jenna Vujic & Tyler Boley

SAMPLED BY (PRINT) Tyler Boley

SAMPLER SIGNATURE Tyler Boley

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	MeOH	HCL	H_2SO_4	HNO_3		FIELD FILTERED Y/N	DRO	GRO	VOCs	~~[illegible]~~							REMARKS
01	GP-1 (15-20)	8/30	1147	H_2O	5			4		1		Y	X	X	X	~~X~~							
02	GP-2 (15-20)	8/30	1736	↓	↓			↓		↓		↓	X	X	X	~~X~~							
03	GP-3 (17-22)	8/31	0820	↓	↓			↓		↓		↓	X	X	X	~~X~~							
04	GP-4 (15-20)	8/31	0950	↓	↓			↓		↓		↓	X	X	X	~~X~~							
05	GP-5 (20-25)	8/30	1400	↓	↓			↓		↓		↓	X	X	X	~~X~~							

NOTE:
Limited volume for GRO/VOCs.
Please prioritize VOCs if problems are encountered.

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
01-05	Tyler Boley / AET	Tammy Hagen	9/1/17	1500
		Nathan Peterson	9-2-17	915

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 310-113404-1
SDG Number: 03-06706

Login Number: 113404
List Number: 1
Creator: Patrick, Kathryn E

List Source: TestAmerica Cedar Falls

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.	N/A	
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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").	False	All vials for GP-1, GP-3, GP-4 and 2 vials for GP-5 have headspace
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

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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: 310-113887-1
TestAmerica Sample Delivery Group: 09-06166
Client Project/Site: City of Mankato Phase II

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/15/2017 4:24:46 PM

Zach Bindert, Project Manager I
(319)277-2401
zach.bindert@testamericainc.com

REVIEWED
By Tyler Boley at 9:53 am, Sep 25, 2017

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Detection Summary 5
Client Sample Results 6
Definitions 16
Surrogate Summary 17
QC Sample Results 18
QC Association 25
Chronicle 28
Certification Summary 30
Method Summary 31
Chain of Custody 32
Receipt Checklists 36

Job ID: 310-113887-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-113887-1

Comments
No additional comments.

Receipt
The samples were received on 9/9/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9º C and 5.7º C.

GC/MS VOA
Method 8260B: The following samples were collected in properly preserved vials for analysis of volatile organic compounds (VOCs). However, the pH was outside the required criteria when verified by the laboratory, and corrective action was not possible: GP-6 (14-19) (310-113887-1), GP-7 (15-20) (310-113887-2), GP-8 (10-15) (310-113887-3), GP-10 (14-19) (310-113887-4) and GP-12 (12-17) (310-113887-5).

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

GC Semi VOA
Method WI-DRO: Significant peaks, readily distinguished from background, were detected in the following samples within five minutes after the end of the analytical window defined by the last component eluting in the Diesel Range Organics (DRO) mix (i.e., n-Octacosane): GP-6 (14-19) (310-113887-1), GP-8 (10-15) (310-113887-3), GP-10 (14-19) (310-113887-4) and GP-12 (12-17) (310-113887-5).

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

Metals
Method(s) 6020A: Due to sample matrix effect on the internal standard (ISTD), a dilution was required for the following sample: GP-10 (14-19) (310-113887-4).

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

Organic Prep
Method 3510C: Elevated reporting limits are provided for the following samples due to insufficient sample provided for preparation. GP-6 (14-19) (310-113887-1) and GP-8 (10-15) (310-113887-3)

No additional analytical or quality issues were noted, other than those described above or 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: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-113887-1	GP-6 (14-19)	Water	09/05/17 09:50	09/09/17 09:30
310-113887-2	GP-7 (15-20)	Water	09/05/17 10:50	09/09/17 09:30
310-113887-3	GP-8 (10-15)	Water	09/05/17 12:30	09/09/17 09:30
310-113887-4	GP-10 (14-19)	Water	09/05/17 15:00	09/09/17 09:30
310-113887-5	GP-12 (12-17)	Water	09/05/17 17:20	09/09/17 09:30

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-6 (14-19) — Lab Sample ID: 310-113887-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	15.3		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	3.28		0.147		mg/L	1		WI-DRO	Total/NA
Arsenic	0.0144		0.00200		mg/L	1		6020A	Dissolved
Barium	1.30		0.00200		mg/L	1		6020A	Dissolved

Client Sample ID: GP-7 (15-20) — Lab Sample ID: 310-113887-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.236		0.00200		mg/L	1		6020A	Dissolved

Client Sample ID: GP-8 (10-15) — Lab Sample ID: 310-113887-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	26.2		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.215		0.172		mg/L	1		WI-DRO	Total/NA
Barium	0.328		0.00200		mg/L	1		6020A	Dissolved

Client Sample ID: GP-10 (14-19) — Lab Sample ID: 310-113887-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	30.2		10.0		ug/L	1		8260B	Total/NA
Barium	0.689		0.0100		mg/L	5		6020A	Dissolved
Cadmium	0.00255		0.000500		mg/L	1		6020A	Dissolved

Client Sample ID: GP-12 (12-17) — Lab Sample ID: 310-113887-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acetone	13.4		10.0		ug/L	1		8260B	Total/NA
Diesel Range Organics (DRO)	0.160		0.114		mg/L	1		WI-DRO	Total/NA
Barium	0.172		0.00200		mg/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-6 (14-19)

Date Collected: 09/05/17 09:50
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**15.3**		10.0		ug/L			09/12/17 13:06	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 13:06	1
Benzene	<0.500		0.500		ug/L			09/12/17 13:06	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 13:06	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 13:06	1
Bromoform	<5.00		5.00		ug/L			09/12/17 13:06	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 13:06	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 13:06	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 13:06	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 13:06	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 13:06	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 13:06	1
Chloroform	<1.00		1.00		ug/L			09/12/17 13:06	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 13:06	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:06	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 13:06	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 13:06	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 13:06	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 13:06	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:06	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:06	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 13:06	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 13:06	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:06	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:06	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 13:06	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 13:06	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 13:06	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 13:06	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 13:06	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 13:06	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 13:06	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Styrene	<1.00		1.00		ug/L			09/12/17 13:06	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-6 (14-19)

Date Collected: 09/05/17 09:50
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-1

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 13:06	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 13:06	1
Toluene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:06	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:06	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:06	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 13:06	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 13:06	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 13:06	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 13:06	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:06	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 13:06	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 13:06	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 13:06	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/12/17 13:06*	*1*
Dibromofluoromethane (Surr)	*98*		*79 - 119*		*09/12/17 13:06*	*1*
Toluene-d8 (Surr)	*95*		*77 - 117*		*09/12/17 13:06*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**3.28**		0.147		mg/L		09/11/17 13:25	09/12/17 18:32	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0144**		0.00200		mg/L		09/12/17 08:09	09/13/17 13:09	1
Barium	**1.30**		0.00200		mg/L		09/12/17 08:09	09/13/17 13:09	1
Cadmium	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 13:09	1
Chromium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:09	1
Lead	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 13:09	1
Selenium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:09	1
Silver	<0.00100		0.00100		mg/L		09/12/17 08:09	09/13/17 13:09	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/12/17 10:15	09/12/17 13:42	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-7 (15-20)

Lab Sample ID: 310-113887-2

Date Collected: 09/05/17 10:50

Matrix: Water

Date Received: 09/09/17 09:30

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			09/12/17 13:28	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 13:28	1
Benzene	<0.500		0.500		ug/L			09/12/17 13:28	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 13:28	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 13:28	1
Bromoform	<5.00		5.00		ug/L			09/12/17 13:28	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 13:28	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 13:28	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 13:28	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 13:28	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 13:28	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 13:28	1
Chloroform	<1.00		1.00		ug/L			09/12/17 13:28	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 13:28	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:28	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 13:28	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 13:28	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 13:28	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 13:28	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:28	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:28	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 13:28	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 13:28	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:28	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:28	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 13:28	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 13:28	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 13:28	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 13:28	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 13:28	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 13:28	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 13:28	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Styrene	<1.00		1.00		ug/L			09/12/17 13:28	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-7 (15-20)

Date Collected: 09/05/17 10:50
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-2

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 13:28	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 13:28	1
Toluene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:28	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:28	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:28	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 13:28	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 13:28	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 13:28	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 13:28	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:28	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 13:28	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 13:28	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 13:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/12/17 13:28*	*1*
Dibromofluoromethane (Surr)	*98*		*79 - 119*		*09/12/17 13:28*	*1*
Toluene-d8 (Surr)	*94*		*77 - 117*		*09/12/17 13:28*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.122		0.122		mg/L		09/11/17 13:25	09/12/17 15:50	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/12/17 08:09	09/13/17 13:12	1
Barium	**0.236**		0.00200		mg/L		09/12/17 08:09	09/13/17 13:12	1
Cadmium	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 13:12	1
Chromium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:12	1
Lead	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 13:12	1
Selenium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:12	1
Silver	<0.00100		0.00100		mg/L		09/12/17 08:09	09/13/17 13:12	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/12/17 10:15	09/12/17 13:44	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-8 (10-15)

Date Collected: 09/05/17 12:30
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-3

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**26.2**		10.0		ug/L			09/12/17 13:49	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 13:49	1
Benzene	<0.500		0.500		ug/L			09/12/17 13:49	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 13:49	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 13:49	1
Bromoform	<5.00		5.00		ug/L			09/12/17 13:49	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 13:49	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 13:49	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 13:49	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 13:49	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 13:49	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 13:49	1
Chloroform	<1.00		1.00		ug/L			09/12/17 13:49	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 13:49	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:49	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 13:49	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 13:49	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 13:49	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 13:49	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:49	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 13:49	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 13:49	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 13:49	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:49	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 13:49	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 13:49	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 13:49	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 13:49	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 13:49	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 13:49	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 13:49	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 13:49	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Styrene	<1.00		1.00		ug/L			09/12/17 13:49	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-8 (10-15)

Lab Sample ID: 310-113887-3

Date Collected: 09/05/17 12:30
Matrix: Water
Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 13:49	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 13:49	1
Toluene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:49	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 13:49	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 13:49	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 13:49	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 13:49	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 13:49	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 13:49	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 13:49	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 13:49	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 13:49	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 13:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*82 - 122*		*09/12/17 13:49*	*1*
Dibromofluoromethane (Surr)	*96*		*79 - 119*		*09/12/17 13:49*	*1*
Toluene-d8 (Surr)	*98*		*77 - 117*		*09/12/17 13:49*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.215**		0.172		mg/L		09/11/17 13:25	09/12/17 16:44	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/13/17 07:32	09/13/17 22:20	1
Barium	**0.328**		0.00200		mg/L		09/13/17 07:32	09/13/17 22:20	1
Cadmium	<0.000500		0.000500		mg/L		09/13/17 07:32	09/13/17 22:20	1
Chromium	<0.00500		0.00500		mg/L		09/13/17 07:32	09/13/17 22:20	1
Lead	<0.000500		0.000500		mg/L		09/13/17 07:32	09/13/17 22:20	1
Selenium	<0.00500		0.00500		mg/L		09/13/17 07:32	09/13/17 22:20	1
Silver	<0.00100		0.00100		mg/L		09/13/17 07:32	09/13/17 22:20	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/14/17 15:25	09/15/17 15:00	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-10 (14-19)

Date Collected: 09/05/17 15:00
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	**30.2**		10.0		ug/L			09/12/17 14:11	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 14:11	1
Benzene	<0.500		0.500		ug/L			09/12/17 14:11	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 14:11	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 14:11	1
Bromoform	<5.00		5.00		ug/L			09/12/17 14:11	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 14:11	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 14:11	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 14:11	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 14:11	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 14:11	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 14:11	1
Chloroform	<1.00		1.00		ug/L			09/12/17 14:11	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 14:11	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 14:11	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 14:11	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 14:11	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 14:11	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 14:11	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 14:11	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 14:11	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 14:11	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 14:11	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 14:11	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 14:11	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 14:11	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 14:11	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 14:11	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 14:11	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 14:11	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 14:11	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 14:11	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Styrene	<1.00		1.00		ug/L			09/12/17 14:11	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-10 (14-19)

Date Collected: 09/05/17 15:00
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-4

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 14:11	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 14:11	1
Toluene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 14:11	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 14:11	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 14:11	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 14:11	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 14:11	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 14:11	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 14:11	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 14:11	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 14:11	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 14:11	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 14:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*82 - 122*		*09/12/17 14:11*	*1*
Dibromofluoromethane (Surr)	*100*		*79 - 119*		*09/12/17 14:11*	*1*
Toluene-d8 (Surr)	*96*		*77 - 117*		*09/12/17 14:11*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.125		0.125		mg/L		09/11/17 13:25	09/12/17 16:17	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/12/17 08:09	09/13/17 13:15	1
Barium	**0.689**		0.0100		mg/L		09/12/17 08:09	09/13/17 14:17	5
Cadmium	**0.00255**		0.000500		mg/L		09/12/17 08:09	09/13/17 13:15	1
Chromium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:15	1
Lead	<0.00250		0.00250		mg/L		09/12/17 08:09	09/13/17 14:17	5
Selenium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:15	1
Silver	<0.00100		0.00100		mg/L		09/12/17 08:09	09/13/17 13:15	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/12/17 10:15	09/12/17 13:45	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-12 (12-17)

Date Collected: 09/05/17 17:20
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	13.4		10.0		ug/L			09/12/17 14:32	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 14:32	1
Benzene	<0.500		0.500		ug/L			09/12/17 14:32	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 14:32	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 14:32	1
Bromoform	<5.00		5.00		ug/L			09/12/17 14:32	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 14:32	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 14:32	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 14:32	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 14:32	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 14:32	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 14:32	1
Chloroform	<1.00		1.00		ug/L			09/12/17 14:32	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 14:32	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 14:32	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 14:32	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 14:32	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 14:32	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 14:32	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 14:32	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 14:32	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 14:32	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 14:32	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 14:32	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 14:32	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 14:32	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 14:32	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 14:32	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 14:32	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 14:32	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 14:32	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 14:32	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Styrene	<1.00		1.00		ug/L			09/12/17 14:32	1

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-12 (12-17)

Date Collected: 09/05/17 17:20
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113887-5

Matrix: Water

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 14:32	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 14:32	1
Toluene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 14:32	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 14:32	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 14:32	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 14:32	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 14:32	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 14:32	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 14:32	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 14:32	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 14:32	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 14:32	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 14:32	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*103*		*82 - 122*		*09/12/17 14:32*	*1*
Dibromofluoromethane (Surr)	*100*		*79 - 119*		*09/12/17 14:32*	*1*
Toluene-d8 (Surr)	*95*		*77 - 117*		*09/12/17 14:32*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**0.160**		0.114		mg/L		09/11/17 13:25	09/12/17 18:05	1

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/12/17 08:09	09/13/17 14:24	1
Barium	**0.172**		0.00200		mg/L		09/12/17 08:09	09/13/17 13:22	1
Cadmium	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 14:24	1
Chromium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 14:24	1
Lead	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 13:22	1
Selenium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 13:22	1
Silver	<0.00100		0.00100		mg/L		09/12/17 08:09	09/13/17 13:22	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/12/17 10:15	09/12/17 13:47	1

Qualifiers

Metals

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

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	(82-122)	(79-119)	(77-117)
310-113887-1	GP-6 (14-19)	103	98	95
310-113887-2	GP-7 (15-20)	103	98	94
310-113887-3	GP-8 (10-15)	106	96	98
310-113887-4	GP-10 (14-19)	105	100	96
310-113887-5	GP-12 (12-17)	103	100	95
LCS 310-178328/5	Lab Control Sample	100	103	98
LCS 310-178328/6	Lab Control Sample	102	99	96
MB 310-178328/7	Method Blank	106	103	96

Surrogate Legend

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

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

Lab Sample ID: MB 310-178328/7
Matrix: Water
Analysis Batch: 178328

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			09/12/17 07:42	1
Allyl chloride	<2.00		2.00		ug/L			09/12/17 07:42	1
Benzene	<0.500		0.500		ug/L			09/12/17 07:42	1
Bromobenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Bromochloromethane	<5.00		5.00		ug/L			09/12/17 07:42	1
Bromodichloromethane	<1.00		1.00		ug/L			09/12/17 07:42	1
Bromoform	<5.00		5.00		ug/L			09/12/17 07:42	1
Bromomethane	<4.00		4.00		ug/L			09/12/17 07:42	1
2-Butanone (MEK)	<10.0		10.0		ug/L			09/12/17 07:42	1
n-Butylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
sec-Butylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
tert-Butylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Carbon tetrachloride	<2.00		2.00		ug/L			09/12/17 07:42	1
Chlorobenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Chlorodibromomethane	<5.00		5.00		ug/L			09/12/17 07:42	1
Dichlorofluoromethane	<1.00		1.00		ug/L			09/12/17 07:42	1
Chloroethane	<4.00		4.00		ug/L			09/12/17 07:42	1
Chloroform	<1.00		1.00		ug/L			09/12/17 07:42	1
Chloromethane	<3.00		3.00		ug/L			09/12/17 07:42	1
4-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 07:42	1
2-Chlorotoluene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,2-Dibromo-3-Chloropropane	<5.00		5.00		ug/L			09/12/17 07:42	1
1,2-Dibromoethane (EDB)	<1.00		1.00		ug/L			09/12/17 07:42	1
1,2-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,3-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,4-Dichlorobenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Dichlorodifluoromethane	<3.00		3.00		ug/L			09/12/17 07:42	1
1,2-Dichloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1-Dichloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1-Dichloroethene	<2.00		2.00		ug/L			09/12/17 07:42	1
cis-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 07:42	1
trans-1,2-Dichloroethene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,2-Dichloropropane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,3-Dichloropropane	<1.00		1.00		ug/L			09/12/17 07:42	1
2,2-Dichloropropane	<4.00		4.00		ug/L			09/12/17 07:42	1
1,1-Dichloropropene	<1.00		1.00		ug/L			09/12/17 07:42	1
cis-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 07:42	1
trans-1,3-Dichloropropene	<5.00		5.00		ug/L			09/12/17 07:42	1
Diethyl ether	<2.00		2.00		ug/L			09/12/17 07:42	1
Ethylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Hexachlorobutadiene	<5.00		5.00		ug/L			09/12/17 07:42	1
Isopropylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
p-Isopropyltoluene	<1.00		1.00		ug/L			09/12/17 07:42	1
4-Methyl-2-pentanone (MIBK)	<10.0		10.0		ug/L			09/12/17 07:42	1
Methylene Chloride	<5.00		5.00		ug/L			09/12/17 07:42	1
Methyl tert-butyl ether	<1.00		1.00		ug/L			09/12/17 07:42	1
Naphthalene	<5.00		5.00		ug/L			09/12/17 07:42	1
N-Propylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1

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

Lab Sample ID: MB 310-178328/7
Matrix: Water
Analysis Batch: 178328

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1,1,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1,2,2-Tetrachloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
Tetrachloroethene	<1.00		1.00		ug/L			09/12/17 07:42	1
Tetrahydrofuran	<10.0		10.0		ug/L			09/12/17 07:42	1
Toluene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,2,3-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 07:42	1
1,2,4-Trichlorobenzene	<5.00		5.00		ug/L			09/12/17 07:42	1
1,1,1-Trichloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1,2-Trichloroethane	<1.00		1.00		ug/L			09/12/17 07:42	1
Trichloroethene	<1.00		1.00		ug/L			09/12/17 07:42	1
Trichlorofluoromethane	<4.00		4.00		ug/L			09/12/17 07:42	1
1,2,3-Trichloropropane	<1.00		1.00		ug/L			09/12/17 07:42	1
1,1,2-Trichlorotrifluoroethane	<2.00		2.00		ug/L			09/12/17 07:42	1
1,2,4-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
1,3,5-Trimethylbenzene	<1.00		1.00		ug/L			09/12/17 07:42	1
Vinyl chloride	<1.00		1.00		ug/L			09/12/17 07:42	1
Xylenes, Total	<3.00		3.00		ug/L			09/12/17 07:42	1
Dibromomethane	<1.00		1.00		ug/L			09/12/17 07:42	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*106*		*82 - 122*		*09/12/17 07:42*	*1*
Dibromofluoromethane (Surr)	*103*		*79 - 119*		*09/12/17 07:42*	*1*
Toluene-d8 (Surr)	*96*		*77 - 117*		*09/12/17 07:42*	*1*

Lab Sample ID: LCS 310-178328/5
Matrix: Water
Analysis Batch: 178328

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	54.77		ug/L		137	55 - 150
Allyl chloride	20.0	19.43		ug/L		97	39 - 150
Benzene	20.0	19.83		ug/L		99	74 - 127
Bromobenzene	20.0	19.39		ug/L		97	72 - 122
Bromochloromethane	20.0	21.45		ug/L		107	73 - 142
Bromodichloromethane	20.0	19.91		ug/L		100	71 - 118
Bromoform	20.0	16.34		ug/L		82	56 - 123
2-Butanone (MEK)	40.0	45.26		ug/L		113	51 - 150
n-Butylbenzene	20.0	19.34		ug/L		97	62 - 126
sec-Butylbenzene	20.0	19.75		ug/L		99	61 - 133
tert-Butylbenzene	20.0	19.09		ug/L		95	64 - 128
Carbon tetrachloride	20.0	20.67		ug/L		103	71 - 131
Chlorobenzene	20.0	19.98		ug/L		100	74 - 120
Chlorodibromomethane	20.0	18.57		ug/L		93	59 - 125
Chloroform	20.0	21.23		ug/L		106	72 - 129
4-Chlorotoluene	20.0	19.80		ug/L		99	69 - 123
2-Chlorotoluene	20.0	19.74		ug/L		99	67 - 127
1,2-Dibromo-3-Chloropropane	20.0	17.72		ug/L		89	45 - 131

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

Lab Sample ID: LCS 310-178328/5
Matrix: Water
Analysis Batch: 178328

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	20.0	21.79		ug/L		109	69 - 127
1,2-Dichlorobenzene	20.0	19.51		ug/L		98	68 - 121
1,3-Dichlorobenzene	20.0	19.43		ug/L		97	66 - 128
1,4-Dichlorobenzene	20.0	19.97		ug/L		100	67 - 120
1,2-Dichloroethane	20.0	21.06		ug/L		105	71 - 131
1,1-Dichloroethane	20.0	19.49		ug/L		97	71 - 135
1,1-Dichloroethene	20.0	20.63		ug/L		103	71 - 137
cis-1,2-Dichloroethene	20.0	19.58		ug/L		98	72 - 130
trans-1,2-Dichloroethene	20.0	19.81		ug/L		99	73 - 132
1,2-Dichloropropane	20.0	20.52		ug/L		103	72 - 126
1,3-Dichloropropane	20.0	21.81		ug/L		109	73 - 129
2,2-Dichloropropane	20.0	18.47		ug/L		92	50 - 150
1,1-Dichloropropene	20.0	20.84		ug/L		104	72 - 131
cis-1,3-Dichloropropene	20.0	18.82		ug/L		94	66 - 124
trans-1,3-Dichloropropene	20.0	18.21		ug/L		91	59 - 129
Diethyl ether	20.0	20.15		ug/L		101	70 - 133
Ethylbenzene	20.0	19.77		ug/L		99	71 - 122
Hexachlorobutadiene	20.0	18.83		ug/L		94	62 - 134
Isopropylbenzene	20.0	19.48		ug/L		97	70 - 125
p-Isopropyltoluene	20.0	19.52		ug/L		98	65 - 124
4-Methyl-2-pentanone (MIBK)	40.0	44.10		ug/L		110	52 - 137
Methylene Chloride	20.0	19.49		ug/L		97	66 - 129
Methyl tert-butyl ether	20.0	20.35		ug/L		102	72 - 128
Naphthalene	20.0	19.78		ug/L		99	50 - 129
N-Propylbenzene	20.0	19.88		ug/L		99	70 - 125
Styrene	20.0	19.56		ug/L		98	71 - 121
1,1,1,2-Tetrachloroethane	20.0	18.96		ug/L		95	72 - 117
1,1,2,2-Tetrachloroethane	20.0	20.20		ug/L		101	62 - 123
Tetrachloroethene	20.0	20.19		ug/L		101	68 - 138
Tetrahydrofuran	40.0	42.33		ug/L		106	56 - 141
Toluene	20.0	20.58		ug/L		103	69 - 128
1,2,3-Trichlorobenzene	20.0	20.57		ug/L		103	62 - 131
1,2,4-Trichlorobenzene	20.0	18.56		ug/L		93	61 - 127
1,1,1-Trichloroethane	20.0	20.03		ug/L		100	73 - 132
1,1,2-Trichloroethane	20.0	21.42		ug/L		107	65 - 131
Trichloroethene	20.0	20.57		ug/L		103	73 - 132
1,2,3-Trichloropropane	20.0	21.74		ug/L		109	66 - 124
1,1,2-Trichlorotrifluoroethane	20.0	21.49		ug/L		107	69 - 145
1,2,4-Trimethylbenzene	20.0	19.44		ug/L		97	66 - 126
1,3,5-Trimethylbenzene	20.0	19.95		ug/L		100	69 - 128
Xylenes, Total	40.0	38.03		ug/L		95	72 - 121
Dibromomethane	20.0	21.63		ug/L		108	72 - 135

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*82 - 122*
Dibromofluoromethane (Surr)	*103*		*79 - 119*
Toluene-d8 (Surr)	*98*		*77 - 117*

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

Lab Sample ID: LCS 310-178328/6 — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178328

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Bromomethane	20.0	16.71		ug/L		84	18 - 128
Dichlorofluoromethane	20.0	20.50		ug/L		102	66 - 142
Chloroethane	20.0	20.26		ug/L		101	66 - 140
Chloromethane	20.0	17.49		ug/L		87	55 - 141
Dichlorodifluoromethane	20.0	23.51		ug/L		118	49 - 150
Trichlorofluoromethane	20.0	24.81		ug/L		124	69 - 139
Vinyl chloride	20.0	20.28		ug/L		101	67 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*102*		*82 - 122*
Dibromofluoromethane (Surr)	*99*		*79 - 119*
Toluene-d8 (Surr)	*96*		*77 - 117*

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

Lab Sample ID: MB 310-178364/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178506 — **Prep Batch: 178364**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<0.100		0.100		mg/L		09/11/17 13:25	09/12/17 13:35	1

Lab Sample ID: LCS 310-178364/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178506 — **Prep Batch: 178364**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	2.50	2.270		mg/L		91	75 - 115

Lab Sample ID: LCSD 310-178364/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178506 — **Prep Batch: 178364**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	2.50	2.182		mg/L		87	75 - 115	4	20

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-178435/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178692 — **Prep Batch: 178435**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/12/17 08:09	09/13/17 12:06	1
Barium	<0.00200		0.00200		mg/L		09/12/17 08:09	09/13/17 12:06	1
Cadmium	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 12:06	1
Chromium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 12:06	1
Lead	<0.000500		0.000500		mg/L		09/12/17 08:09	09/13/17 12:06	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: MB 310-178435/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178692 — **Prep Batch: 178435**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.00500		0.00500		mg/L		09/12/17 08:09	09/13/17 12:06	1
Silver	<0.00100		0.00100		mg/L		09/12/17 08:09	09/13/17 12:06	1

Lab Sample ID: LCS 310-178435/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178692 — **Prep Batch: 178435**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.04380		mg/L		110	80 - 120
Barium	0.0400	0.04420		mg/L		110	80 - 120
Cadmium	0.0200	0.02167		mg/L		108	80 - 120
Chromium	0.0400	0.04266		mg/L		107	80 - 120
Lead	0.0200	0.02186		mg/L		109	80 - 120
Selenium	0.0400	0.04267		mg/L		107	80 - 120
Silver	0.0200	0.02204		mg/L		110	80 - 120

Lab Sample ID: 310-113887-4 DU — **Client Sample ID: GP-10 (14-19)**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178692 — **Prep Batch: 178435**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	<0.00200		<0.00200		mg/L		NC	20
Barium	0.869		0.8629		mg/L		0.7	20
Cadmium	0.00255		0.002338		mg/L		9	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Silver	<0.00100		<0.00100		mg/L		NC	20

Lab Sample ID: 310-113887-4 DU — **Client Sample ID: GP-10 (14-19)**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178692 — **Prep Batch: 178435**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Chromium	<0.0250		<0.0250		mg/L		NC	20

Lab Sample ID: MB 310-178448/1-B — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178782 — **Prep Batch: 178567**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/13/17 07:32	09/13/17 22:10	1
Barium	<0.00200		0.00200		mg/L		09/13/17 07:32	09/13/17 22:10	1
Cadmium	<0.000500		0.000500		mg/L		09/13/17 07:32	09/13/17 22:10	1
Chromium	<0.00500		0.00500		mg/L		09/13/17 07:32	09/13/17 22:10	1
Lead	<0.000500		0.000500		mg/L		09/13/17 07:32	09/13/17 22:10	1
Selenium	<0.00500		0.00500		mg/L		09/13/17 07:32	09/13/17 22:10	1
Silver	<0.00100		0.00100		mg/L		09/13/17 07:32	09/13/17 22:10	1

Method: 6020A - Metals (ICP/MS) (Continued)

Lab Sample ID: LCS 310-178448/2-B — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178782 — **Prep Batch: 178567**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.04062		mg/L		102	80 - 120
Barium	0.0400	0.04046		mg/L		101	80 - 120
Cadmium	0.0200	0.02144		mg/L		107	80 - 120
Chromium	0.0400	0.04072		mg/L		102	80 - 120
Lead	0.0200	0.02133		mg/L		107	80 - 120
Selenium	0.0400	0.03899		mg/L		97	80 - 120
Silver	0.0200	0.02007		mg/L		100	80 - 120

Lab Sample ID: 310-113887-3 MS — **Client Sample ID: GP-8 (10-15)**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178782 — **Prep Batch: 178567**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	<0.00200		0.0400	0.04068		mg/L		97	75 - 125
Barium	0.328		0.0400	0.3631	4	mg/L		87	75 - 125
Cadmium	<0.000500		0.0200	0.01973		mg/L		99	75 - 125
Chromium	<0.00500		0.0400	0.03844		mg/L		96	75 - 125
Lead	<0.000500		0.0200	0.01967		mg/L		98	75 - 125
Selenium	<0.00500		0.0400	0.03883		mg/L		97	75 - 125
Silver	<0.00100		0.0200	0.01815		mg/L		91	75 - 125

Lab Sample ID: 310-113887-3 MSD — **Client Sample ID: GP-8 (10-15)**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178782 — **Prep Batch: 178567**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	<0.00200		0.0400	0.04059		mg/L		97	75 - 125	0	20
Barium	0.328		0.0400	0.3773	4	mg/L		123	75 - 125	4	20
Cadmium	<0.000500		0.0200	0.02039		mg/L		102	75 - 125	3	20
Chromium	<0.00500		0.0400	0.03995		mg/L		100	75 - 125	4	20
Lead	<0.000500		0.0200	0.02028		mg/L		101	75 - 125	3	20
Selenium	<0.00500		0.0400	0.03796		mg/L		95	75 - 125	2	20
Silver	<0.00100		0.0200	0.01913		mg/L		96	75 - 125	5	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-178376/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178536 — **Prep Batch: 178376**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/11/17 13:57	09/12/17 13:18	1

Lab Sample ID: LCS 310-178376/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178536 — **Prep Batch: 178376**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001488		mg/L		89	80 - 120

QC Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Lab Sample ID: MB 310-178449/1-B
Matrix: Water
Analysis Batch: 179005

Client Sample ID: Method Blank
Prep Type: Dissolved
Prep Batch: 178852

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/14/17 15:25	09/15/17 14:52	1

Lab Sample ID: LCS 310-178449/2-B
Matrix: Water
Analysis Batch: 179005

Client Sample ID: Lab Control Sample
Prep Type: Dissolved
Prep Batch: 178852

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury			0.00167	0.001528		mg/L		92	80 - 120		

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

GC/MS VOA

Analysis Batch: 178328

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Total/NA	Water	8260B	
310-113887-2	GP-7 (15-20)	Total/NA	Water	8260B	
310-113887-3	GP-8 (10-15)	Total/NA	Water	8260B	
310-113887-4	GP-10 (14-19)	Total/NA	Water	8260B	
310-113887-5	GP-12 (12-17)	Total/NA	Water	8260B	
MB 310-178328/7	Method Blank	Total/NA	Water	8260B	
LCS 310-178328/5	Lab Control Sample	Total/NA	Water	8260B	
LCS 310-178328/6	Lab Control Sample	Total/NA	Water	8260B	

GC Semi VOA

Prep Batch: 178364

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Total/NA	Water	3510C	
310-113887-2	GP-7 (15-20)	Total/NA	Water	3510C	
310-113887-3	GP-8 (10-15)	Total/NA	Water	3510C	
310-113887-4	GP-10 (14-19)	Total/NA	Water	3510C	
310-113887-5	GP-12 (12-17)	Total/NA	Water	3510C	
MB 310-178364/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-178364/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-178364/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 178506

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Total/NA	Water	WI-DRO	178364
310-113887-2	GP-7 (15-20)	Total/NA	Water	WI-DRO	178364
310-113887-3	GP-8 (10-15)	Total/NA	Water	WI-DRO	178364
310-113887-4	GP-10 (14-19)	Total/NA	Water	WI-DRO	178364
310-113887-5	GP-12 (12-17)	Total/NA	Water	WI-DRO	178364
MB 310-178364/1-A	Method Blank	Total/NA	Water	WI-DRO	178364
LCS 310-178364/2-A	Lab Control Sample	Total/NA	Water	WI-DRO	178364
LCSD 310-178364/3-A	Lab Control Sample Dup	Total/NA	Water	WI-DRO	178364

Metals

Prep Batch: 178376

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Dissolved	Water	7470A	
310-113887-2	GP-7 (15-20)	Dissolved	Water	7470A	
310-113887-4	GP-10 (14-19)	Dissolved	Water	7470A	
310-113887-5	GP-12 (12-17)	Dissolved	Water	7470A	
MB 310-178376/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-178376/2-A	Lab Control Sample	Total/NA	Water	7470A	

Prep Batch: 178435

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Dissolved	Water	3010A	
310-113887-2	GP-7 (15-20)	Dissolved	Water	3010A	
310-113887-4	GP-10 (14-19)	Dissolved	Water	3010A	
310-113887-5	GP-12 (12-17)	Dissolved	Water	3010A	

Metals (Continued)

Prep Batch: 178435 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-178435/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-178435/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-113887-4 DU	GP-10 (14-19)	Dissolved	Water	3010A	

Filtration Batch: 178448

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	Filtration	
MB 310-178448/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-178448/2-B	Lab Control Sample	Dissolved	Water	Filtration	
310-113887-3 MS	GP-8 (10-15)	Dissolved	Water	Filtration	
310-113887-3 MSD	GP-8 (10-15)	Dissolved	Water	Filtration	

Filtration Batch: 178449

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	Filtration	
MB 310-178449/1-B	Method Blank	Dissolved	Water	Filtration	
LCS 310-178449/2-B	Lab Control Sample	Dissolved	Water	Filtration	

Analysis Batch: 178536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Dissolved	Water	7470A	178376
310-113887-2	GP-7 (15-20)	Dissolved	Water	7470A	178376
310-113887-4	GP-10 (14-19)	Dissolved	Water	7470A	178376
310-113887-5	GP-12 (12-17)	Dissolved	Water	7470A	178376
MB 310-178376/1-A	Method Blank	Total/NA	Water	7470A	178376
LCS 310-178376/2-A	Lab Control Sample	Total/NA	Water	7470A	178376

Prep Batch: 178567

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	3010A	178448
MB 310-178448/1-B	Method Blank	Dissolved	Water	3010A	178448
LCS 310-178448/2-B	Lab Control Sample	Dissolved	Water	3010A	178448
310-113887-3 MS	GP-8 (10-15)	Dissolved	Water	3010A	178448
310-113887-3 MSD	GP-8 (10-15)	Dissolved	Water	3010A	178448

Analysis Batch: 178692

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-1	GP-6 (14-19)	Dissolved	Water	6020A	178435
310-113887-2	GP-7 (15-20)	Dissolved	Water	6020A	178435
310-113887-4	GP-10 (14-19)	Dissolved	Water	6020A	178435
310-113887-4	GP-10 (14-19)	Dissolved	Water	6020A	178435
310-113887-5	GP-12 (12-17)	Dissolved	Water	6020A	178435
310-113887-5	GP-12 (12-17)	Dissolved	Water	6020A	178435
MB 310-178435/1-A	Method Blank	Total/NA	Water	6020A	178435
LCS 310-178435/2-A	Lab Control Sample	Total/NA	Water	6020A	178435
310-113887-4 DU	GP-10 (14-19)	Dissolved	Water	6020A	178435
310-113887-4 DU	GP-10 (14-19)	Dissolved	Water	6020A	178435

Analysis Batch: 178782

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	6020A	178567

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Metals (Continued)

Analysis Batch: 178782 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-178448/1-B	Method Blank	Dissolved	Water	6020A	178567
LCS 310-178448/2-B	Lab Control Sample	Dissolved	Water	6020A	178567
310-113887-3 MS	GP-8 (10-15)	Dissolved	Water	6020A	178567
310-113887-3 MSD	GP-8 (10-15)	Dissolved	Water	6020A	178567

Prep Batch: 178852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	7470A	178449
MB 310-178449/1-B	Method Blank	Dissolved	Water	7470A	178449
LCS 310-178449/2-B	Lab Control Sample	Dissolved	Water	7470A	178449

Analysis Batch: 179005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113887-3	GP-8 (10-15)	Dissolved	Water	7470A	178852
MB 310-178449/1-B	Method Blank	Dissolved	Water	7470A	178852
LCS 310-178449/2-B	Lab Control Sample	Dissolved	Water	7470A	178852

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-6 (14-19)

Lab Sample ID: 310-113887-1
Date Collected: 09/05/17 09:50
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	178328	09/12/17 13:06	SJN	TAL CF
Total/NA	Prep	3510C			178364	09/11/17 13:25	DEM1	TAL CF
Total/NA	Analysis	WI-DRO		1	178506	09/12/17 18:32	AJM	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		1	178692	09/13/17 13:09	SAD	TAL CF
Dissolved	Prep	7470A			178376	09/12/17 10:15	MEG	TAL CF
Dissolved	Analysis	7470A		1	178536	09/12/17 13:42	MEG	TAL CF

Client Sample ID: GP-7 (15-20)

Lab Sample ID: 310-113887-2
Date Collected: 09/05/17 10:50
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	178328	09/12/17 13:28	SJN	TAL CF
Total/NA	Prep	3510C			178364	09/11/17 13:25	DEM1	TAL CF
Total/NA	Analysis	WI-DRO		1	178506	09/12/17 15:50	AJM	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		1	178692	09/13/17 13:12	SAD	TAL CF
Dissolved	Prep	7470A			178376	09/12/17 10:15	MEG	TAL CF
Dissolved	Analysis	7470A		1	178536	09/12/17 13:44	MEG	TAL CF

Client Sample ID: GP-8 (10-15)

Lab Sample ID: 310-113887-3
Date Collected: 09/05/17 12:30
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	178328	09/12/17 13:49	SJN	TAL CF
Total/NA	Prep	3510C			178364	09/11/17 13:25	DEM1	TAL CF
Total/NA	Analysis	WI-DRO		1	178506	09/12/17 16:44	AJM	TAL CF
Dissolved	Filtration	Filtration			178448	09/12/17 09:12	JNR	TAL CF
Dissolved	Prep	3010A			178567	09/13/17 07:32	JNR	TAL CF
Dissolved	Analysis	6020A		1	178782	09/13/17 22:20	SAD	TAL CF
Dissolved	Filtration	Filtration			178449	09/12/17 09:13	JNR	TAL CF
Dissolved	Prep	7470A			178852	09/14/17 15:25	MEG	TAL CF
Dissolved	Analysis	7470A		1	179005	09/15/17 15:00	MEG	TAL CF

Client Sample ID: GP-10 (14-19)

Lab Sample ID: 310-113887-4
Date Collected: 09/05/17 15:00
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	178328	09/12/17 14:11	SJN	TAL CF
Total/NA	Prep	3510C			178364	09/11/17 13:25	DEM1	TAL CF

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Client Sample ID: GP-10 (14-19)

Lab Sample ID: 310-113887-4

Date Collected: 09/05/17 15:00
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	WI-DRO		1	178506	09/12/17 16:17	AJM	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		1	178692	09/13/17 13:15	SAD	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		5	178692	09/13/17 14:17	SAD	TAL CF
Dissolved	Prep	7470A			178376	09/12/17 10:15	MEG	TAL CF
Dissolved	Analysis	7470A		1	178536	09/12/17 13:45	MEG	TAL CF

Client Sample ID: GP-12 (12-17)

Lab Sample ID: 310-113887-5

Date Collected: 09/05/17 17:20
Matrix: Water
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B		1	178328	09/12/17 14:32	SJN	TAL CF
Total/NA	Prep	3510C			178364	09/11/17 13:25	DEM1	TAL CF
Total/NA	Analysis	WI-DRO		1	178506	09/12/17 18:05	AJM	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		1	178692	09/13/17 13:22	SAD	TAL CF
Dissolved	Prep	3010A			178435	09/12/17 08:09	JNR	TAL CF
Dissolved	Analysis	6020A		1	178692	09/13/17 14:24	SAD	TAL CF
Dissolved	Prep	7470A			178376	09/12/17 10:15	MEG	TAL CF
Dissolved	Analysis	7470A		1	178536	09/12/17 13:47	MEG	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260B		Water	Dichlorofluoromethane

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113887-1
SDG: 09-06166

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CF
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CF
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF

Protocol References:

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.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
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310-113887 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AET

City/State: Mankato MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9:30 9-9-17 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: J | Correction Factor (°C): ~~+0.6~~ +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 7.4 | Corrected Temp (°C): 7.5

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1 PI 500 HNO3 GP10 (14-19) CONTAINER 2

Uncorrected Temp (°C): TEMP 1 5.6 TEMP 2 | Corrected Temp (°C): TEMP 1 5.7 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

temp blank was a voa vial

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AET

City/State: Mankato MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9-9-12 930 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: J | Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.8 | Corrected Temp (°C): 0.9

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER AET-Mankato

ADDRESS:

PHONE:

№ 21797

PAGE 1 OF 1

AET PROJECT NUMBER 03-06166

PROJECT NAME/LOCATION City of Mankato Phase II

AET PROJECT MANAGER Jenna Vujic

SEND REPORT TO Jenna Vujic & Tyler Boley

SAMPLED BY (PRINT) Tyler Boley

SAMPLER SIGNATURE Tyler Boley

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	MeOH	HCL	H_2SO_4	HNO_3		FIELD FILTERED Y/N	ANALYSIS: VOCs	DRO	Diss. Metals							REMARKS
01	GP-6 (14-19)	9/5	0950	H2O	5			4		1		Y	X	X	X							
02	GP-7 (15-20)	↓	1050	↓	↓			4		1		Y	X	X	X							
03	GP-8 (10-15)		1230			1		4				N	X	X	X							
04	GP-10 (14-19)		1500					4		1		Y	X	X	X							
05	GP-12 (12-17)		1720					4		1		Y	X	X	X							

NOTE:

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
01-05	Tyler Boley / AET	[illegible]	9/8/17	15:53
		Brita Pauly	9.9.17	930

Login Container Summary Report

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
GP-6 (14-19)	310-113887-D-1	Plastic 250ml - w/nitric - dis	<2	_____	_____
GP-6 (14-19)	310-113887-E-1	Amber Glass 1 liter - Hydrochloric	_____	_____	_____
GP-7 (15-20)	310-113887-D-2	Plastic 250ml - w/nitric - dis	<2	_____	_____
GP-7 (15-20)	310-113887-E-2	Amber Glass 1 liter - Hydrochloric	_____	_____	_____
GP-8 (10-15)	310-113887-E-3	Amber Glass 1 liter - Hydrochloric	_____	_____	_____
GP-10 (14-19)	310-113887-D-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-10 (14-19)	310-113887-E-4	Amber Glass 1 liter - Hydrochloric	_____	_____	_____
GP-12 (12-17)	310-113887-D-5	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-12 (12-17)	310-113887-E-5	Amber Glass 1 liter - Hydrochloric	_____	_____	_____

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 310-113887-1
SDG Number: 09-06166

Login Number: 113887
List Number: 1
Creator: Leitz, Gemma H

List Source: TestAmerica Cedar Falls

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.	N/A	
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

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TestAmerica

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ANALYTICAL REPORT

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

TestAmerica Job ID: 310-113419-1
TestAmerica Sample Delivery Group: 03-06166
Client Project/Site: City of Mankato Phase II

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/8/2017 2:27:12 PM

Zach Bindert, Project Manager I
(319)277-2401
zach.bindert@testamericainc.com

REVIEWED
By Tyler Boley at 9:46 am, Sep 25, 2017

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Detection Summary 5
Client Sample Results 6
Definitions 11
QC Sample Results 12
QC Association 14
Chronicle 15
Certification Summary 17
Method Summary 18
Chain of Custody 19
Receipt Checklists 22

Job ID: 310-113419-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-113419-1

Comments
No additional comments.

Receipt
The samples were received on 9/2/2017 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 10.8º C.

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

Sample Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-113419-1	GP-1 (15-20)	Water	08/30/17 11:47	09/02/17 09:15
310-113419-2	GP-2 (15-20)	Water	08/30/17 17:36	09/02/17 09:15
310-113419-3	GP-3 (17-22)	Water	08/31/17 08:20	09/02/17 09:15
310-113419-4	GP-4 (15-20)	Water	08/31/17 09:50	09/02/17 09:15
310-113419-5	GP-5 (20-25)	Water	08/30/17 14:00	09/02/17 09:15

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-1 (15-20) — Lab Sample ID: 310-113419-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.618		0.00200		mg/L	1		6020A	Dissolved
Cadmium	0.000755		0.000500		mg/L	1		6020A	Dissolved

Client Sample ID: GP-2 (15-20) — Lab Sample ID: 310-113419-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.0464		0.00200		mg/L	1		6020A	Dissolved
Barium	0.297		0.00200		mg/L	1		6020A	Dissolved

Client Sample ID: GP-3 (17-22) — Lab Sample ID: 310-113419-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.281		0.00200		mg/L	1		6020A	Dissolved
Lead	0.000619		0.000500		mg/L	1		6020A	Dissolved

Client Sample ID: GP-4 (15-20) — Lab Sample ID: 310-113419-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	0.0957		0.00200		mg/L	1		6020A	Dissolved

Client Sample ID: GP-5 (20-25) — Lab Sample ID: 310-113419-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Arsenic	0.00295		0.00200		mg/L	1		6020A	Dissolved
Barium	0.570		0.00200		mg/L	1		6020A	Dissolved

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-1 (15-20)

Lab Sample ID: 310-113419-1

Date Collected: 08/30/17 11:47

Matrix: Water

Date Received: 09/02/17 09:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/06/17 07:35	09/07/17 16:37	1
Barium	**0.618**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:37	1
Cadmium	**0.000755**		0.000500		mg/L		09/06/17 07:35	09/07/17 16:37	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:37	1
Lead	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:37	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:37	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:35	09/07/17 16:37	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 13:51	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-2 (15-20)

Lab Sample ID: 310-113419-2

Date Collected: 08/30/17 17:36

Matrix: Water

Date Received: 09/02/17 09:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.0464**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:40	1
Barium	**0.297**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:40	1
Cadmium	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:40	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:40	1
Lead	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:40	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:40	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:35	09/07/17 16:40	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 13:55	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-3 (17-22)

Lab Sample ID: 310-113419-3

Date Collected: 08/31/17 08:20

Matrix: Water

Date Received: 09/02/17 09:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/06/17 07:35	09/07/17 16:52	1
Barium	**0.281**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:52	1
Cadmium	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:52	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:52	1
Lead	**0.000619**		0.000500		mg/L		09/06/17 07:35	09/07/17 16:52	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:52	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:35	09/07/17 16:52	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 13:57	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-4 (15-20)

Lab Sample ID: 310-113419-4

Date Collected: 08/31/17 09:50

Matrix: Water

Date Received: 09/02/17 09:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/06/17 07:35	09/07/17 16:55	1
Barium	**0.0957**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:55	1
Cadmium	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:55	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:55	1
Lead	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:55	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:55	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:35	09/07/17 16:55	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 13:58	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-5 (20-25)

Lab Sample ID: 310-113419-5

Date Collected: 08/30/17 14:00

Matrix: Water

Date Received: 09/02/17 09:15

Method: 6020A - Metals (ICP/MS) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**0.00295**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:58	1
Barium	**0.570**		0.00200		mg/L		09/06/17 07:35	09/07/17 16:58	1
Cadmium	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:58	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:58	1
Lead	<0.000500		0.000500		mg/L		09/06/17 07:35	09/07/17 16:58	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:35	09/07/17 16:58	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:35	09/07/17 16:58	1

Method: 7470A - Mercury (CVAA) - Dissolved

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 14:00	1

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Method: 6020A - Metals (ICP/MS)

Lab Sample ID: MB 310-177858/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178171 — **Prep Batch: 177858**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.00200		0.00200		mg/L		09/06/17 07:34	09/07/17 15:46	1
Barium	<0.00200		0.00200		mg/L		09/06/17 07:34	09/07/17 15:46	1
Cadmium	<0.000500		0.000500		mg/L		09/06/17 07:34	09/07/17 15:46	1
Chromium	<0.00500		0.00500		mg/L		09/06/17 07:34	09/07/17 15:46	1
Lead	<0.000500		0.000500		mg/L		09/06/17 07:34	09/07/17 15:46	1
Selenium	<0.00500		0.00500		mg/L		09/06/17 07:34	09/07/17 15:46	1
Silver	<0.00100		0.00100		mg/L		09/06/17 07:34	09/07/17 15:46	1

Lab Sample ID: LCS 310-177858/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178171 — **Prep Batch: 177858**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	0.0400	0.04383		mg/L		110	80 - 120
Barium	0.0400	0.04206		mg/L		105	80 - 120
Cadmium	0.0200	0.02053		mg/L		103	80 - 120
Chromium	0.0400	0.04131		mg/L		103	80 - 120
Lead	0.0200	0.02081		mg/L		104	80 - 120
Selenium	0.0400	0.04192		mg/L		105	80 - 120
Silver	0.0200	0.01981		mg/L		99	80 - 120

Lab Sample ID: 310-113419-5 DU — **Client Sample ID: GP-5 (20-25)**
Matrix: Water — **Prep Type: Dissolved**
Analysis Batch: 178171 — **Prep Batch: 177858**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Arsenic	0.00295		0.002868		mg/L		3	20
Barium	0.570		0.5824		mg/L		2	20
Cadmium	<0.000500		<0.000500		mg/L		NC	20
Chromium	<0.00500		<0.00500		mg/L		NC	20
Lead	<0.000500		<0.000500		mg/L		NC	20
Selenium	<0.00500		<0.00500		mg/L		NC	20
Silver	<0.00100		<0.00100		mg/L		NC	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 310-177916/1-A — **Client Sample ID: Method Blank**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178091 — **Prep Batch: 177916**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.000200		0.000200		mg/L		09/06/17 12:29	09/07/17 13:44	1

Lab Sample ID: LCS 310-177916/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Water — **Prep Type: Total/NA**
Analysis Batch: 178091 — **Prep Batch: 177916**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.00167	0.001692		mg/L		102	80 - 120

QC Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Lab Sample ID: 310-113419-1 MS
Matrix: Water
Analysis Batch: 178091

Client Sample ID: GP-1 (15-20)
Prep Type: Dissolved
Prep Batch: 177916

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Mercury	<0.000200		0.00167	0.001919		mg/L		115	80 - 120		

Lab Sample ID: 310-113419-1 MSD
Matrix: Water
Analysis Batch: 178091

Client Sample ID: GP-1 (15-20)
Prep Type: Dissolved
Prep Batch: 177916

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.000200		0.00167	0.001931		mg/L		116	80 - 120	1	20

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Metals

Prep Batch: 177858

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113419-1	GP-1 (15-20)	Dissolved	Water	3010A	
310-113419-2	GP-2 (15-20)	Dissolved	Water	3010A	
310-113419-3	GP-3 (17-22)	Dissolved	Water	3010A	
310-113419-4	GP-4 (15-20)	Dissolved	Water	3010A	
310-113419-5	GP-5 (20-25)	Dissolved	Water	3010A	
MB 310-177858/1-A	Method Blank	Total/NA	Water	3010A	
LCS 310-177858/2-A	Lab Control Sample	Total/NA	Water	3010A	
310-113419-5 DU	GP-5 (20-25)	Dissolved	Water	3010A	

Prep Batch: 177916

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113419-1	GP-1 (15-20)	Dissolved	Water	7470A	
310-113419-2	GP-2 (15-20)	Dissolved	Water	7470A	
310-113419-3	GP-3 (17-22)	Dissolved	Water	7470A	
310-113419-4	GP-4 (15-20)	Dissolved	Water	7470A	
310-113419-5	GP-5 (20-25)	Dissolved	Water	7470A	
MB 310-177916/1-A	Method Blank	Total/NA	Water	7470A	
LCS 310-177916/2-A	Lab Control Sample	Total/NA	Water	7470A	
310-113419-1 MS	GP-1 (15-20)	Dissolved	Water	7470A	
310-113419-1 MSD	GP-1 (15-20)	Dissolved	Water	7470A	

Analysis Batch: 178091

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113419-1	GP-1 (15-20)	Dissolved	Water	7470A	177916
310-113419-2	GP-2 (15-20)	Dissolved	Water	7470A	177916
310-113419-3	GP-3 (17-22)	Dissolved	Water	7470A	177916
310-113419-4	GP-4 (15-20)	Dissolved	Water	7470A	177916
310-113419-5	GP-5 (20-25)	Dissolved	Water	7470A	177916
MB 310-177916/1-A	Method Blank	Total/NA	Water	7470A	177916
LCS 310-177916/2-A	Lab Control Sample	Total/NA	Water	7470A	177916
310-113419-1 MS	GP-1 (15-20)	Dissolved	Water	7470A	177916
310-113419-1 MSD	GP-1 (15-20)	Dissolved	Water	7470A	177916

Analysis Batch: 178171

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113419-1	GP-1 (15-20)	Dissolved	Water	6020A	177858
310-113419-2	GP-2 (15-20)	Dissolved	Water	6020A	177858
310-113419-3	GP-3 (17-22)	Dissolved	Water	6020A	177858
310-113419-4	GP-4 (15-20)	Dissolved	Water	6020A	177858
310-113419-5	GP-5 (20-25)	Dissolved	Water	6020A	177858
MB 310-177858/1-A	Method Blank	Total/NA	Water	6020A	177858
LCS 310-177858/2-A	Lab Control Sample	Total/NA	Water	6020A	177858
310-113419-5 DU	GP-5 (20-25)	Dissolved	Water	6020A	177858

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-1 (15-20)

Lab Sample ID: 310-113419-1

Date Collected: 08/30/17 11:47
Matrix: Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			177858	09/06/17 07:35	JNR	TAL CF
Dissolved	Analysis	6020A		1	178171	09/07/17 16:37	SAD	TAL CF
Dissolved	Prep	7470A			177916	09/06/17 12:29	MEG	TAL CF
Dissolved	Analysis	7470A		1	178091	09/07/17 13:51	MEG	TAL CF

Client Sample ID: GP-2 (15-20)

Lab Sample ID: 310-113419-2

Date Collected: 08/30/17 17:36
Matrix: Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			177858	09/06/17 07:35	JNR	TAL CF
Dissolved	Analysis	6020A		1	178171	09/07/17 16:40	SAD	TAL CF
Dissolved	Prep	7470A			177916	09/06/17 12:29	MEG	TAL CF
Dissolved	Analysis	7470A		1	178091	09/07/17 13:55	MEG	TAL CF

Client Sample ID: GP-3 (17-22)

Lab Sample ID: 310-113419-3

Date Collected: 08/31/17 08:20
Matrix: Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			177858	09/06/17 07:35	JNR	TAL CF
Dissolved	Analysis	6020A		1	178171	09/07/17 16:52	SAD	TAL CF
Dissolved	Prep	7470A			177916	09/06/17 12:29	MEG	TAL CF
Dissolved	Analysis	7470A		1	178091	09/07/17 13:57	MEG	TAL CF

Client Sample ID: GP-4 (15-20)

Lab Sample ID: 310-113419-4

Date Collected: 08/31/17 09:50
Matrix: Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			177858	09/06/17 07:35	JNR	TAL CF
Dissolved	Analysis	6020A		1	178171	09/07/17 16:55	SAD	TAL CF
Dissolved	Prep	7470A			177916	09/06/17 12:29	MEG	TAL CF
Dissolved	Analysis	7470A		1	178091	09/07/17 13:58	MEG	TAL CF

Client Sample ID: GP-5 (20-25)

Lab Sample ID: 310-113419-5

Date Collected: 08/30/17 14:00
Matrix: Water
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Prep	3010A			177858	09/06/17 07:35	JNR	TAL CF
Dissolved	Analysis	6020A		1	178171	09/07/17 16:58	SAD	TAL CF
Dissolved	Prep	7470A			177916	09/06/17 12:29	MEG	TAL CF

Lab Chronicle

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Client Sample ID: GP-5 (20-25)

Lab Sample ID: 310-113419-5

Date Collected: 08/30/17 14:00

Matrix: Water

Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Dissolved	Analysis	7470A		1	178091	09/07/17 14:00	MEG	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-17

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113419-1
SDG: 03-06166

Method	Method Description	Protocol	Laboratory
6020A	Metals (ICP/MS)	SW846	TAL CF
7470A	Mercury (CVAA)	SW846	TAL CF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

310-113419 Chain of Custody

Cooler/Sample Receipt and Temperatur

Client Information

Client: AET

City/State: Mankato, MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9.2.17 915 | Received By: BKM

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # ____ of ____
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: H | Correction Factor (°C): 0.0

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 10.8 | Corrected Temp (°C): 10.8

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER AET-Mankato

ADDRESS:

PHONE:

№ 21794

PAGE 1 OF 1

AET PROJECT NUMBER 03-06166

PROJECT NAME/LOCATION City of Mankato Phase II

AET PROJECT MANAGER Jenna Vujic

SEND REPORT TO Jenna Vujic & Tyler Bola

SAMPLED BY (PRINT) Tyler Boley

SAMPLER SIGNATURE Tyler Boley

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	MeOH	HCL	H_2SO_4	HNO_3		FIELD FILTERED Y/N	ANALYSIS: Diss. Metals	REMARKS
01	GP-1 (15-20)	8/30	1147	H_2O	1					1		Y	X	
02	GP-2 (15-20)	8/30	1736	↓	↓					↓		↓	X	
03	GP-3 (17-22)	8/31	0820	↓	↓					↓		↓	X	
04	GP-4 (15-20)	8/31	0950	↓	↓					↓		↓	X	
05	GP-5 (20-25)	8/30	1400	↓	↓					↓		↓	X	

NOTE:

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
01-05	Tyler Boley / AET	Tammy Hagen	9/1/17	1500
		[illegible]	9.2.17	0815

Login Container Summary Report

310-113419

Temperature readings: _____

Client Sample ID	Lab ID	Container Type	Container pH	Preservative Added (mls)	Lot #
GP-1 (15-20)	310-113419-A-1	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-2 (15-20)	310-113419-A-2	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-3 (17-22)	310-113419-A-3	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-4 (15-20)	310-113419-A-4	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____
GP-5 (20-25)	310-113419-A-5	Plastic 500ml - w/ Nitric - Dis.	<2	_____	_____

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 310-113419-1
SDG Number: 03-06166

Login Number: 113419
List Number: 1
Creator: Leitz, Gemma H

List Source: TestAmerica Cedar Falls

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.	N/A	
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

TestAmerica

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ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-39979-1
TestAmerica Sample Delivery Group: 200-39979-1
Client Project/Site: City of Mankato LSI

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/14/2017 8:14:14 PM

Kathryn Kelly, Project Manager I
(802)660-1990
kathryn.kelly@testamericainc.com

REVIEWED
By Tyler Boley at 1:56 pm, Sep 26, 2017

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 7
QC Sample Results 14
QC Association Summary 19
Lab Chronicle 20
Certification Summary 21
Method Summary 22
Sample Summary 23
Chain of Custody 24
Receipt Checklists 27
Clean Canister Certification 28
Pre-Ship Certification 28
Clean Canister Data 30

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Air - GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	This flag indicates the presumptive evidence of a compound.

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Job ID: 200-39979-1

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: American Engineering Testing Inc.

Project: City of Mankato LSI

Report Number: 200-39979-1

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 09/07/2017; the samples arrived in good condition.

VOLATILE ORGANIC COMPOUNDS
Samples VP-1 (3-5), VP-2 (3-5), VP-3 (3-5) and VP-5 (3-5) were analyzed for Volatile Organic Compounds in accordance with EPA Method TO-15. The samples were analyzed on 09/08/2017.

Samples VP-1 (3-5)[5X], VP-2 (3-5)[2X], VP-3 (3-5)[2X] and VP-5 (3-5)[2X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-1 (3-5) — Lab Sample ID: 200-39979-1

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	160		43	43	ug/m3	5		TO-15	Total/NA
1,3-Butadiene	8.0		2.2	2.2	ug/m3	5		TO-15	Total/NA
Acetone	120		59	59	ug/m3	5		TO-15	Total/NA
n-Hexane	23		3.5	3.5	ug/m3	5		TO-15	Total/NA
Methyl Ethyl Ketone	19		7.4	7.4	ug/m3	5		TO-15	Total/NA
Cyclohexane	3.8		3.4	3.4	ug/m3	5		TO-15	Total/NA
Benzene	11		3.2	3.2	ug/m3	5		TO-15	Total/NA
n-Heptane	5.5		4.1	4.1	ug/m3	5		TO-15	Total/NA
Toluene	18		3.8	3.8	ug/m3	5		TO-15	Total/NA
Tetrachloroethene	11		6.8	6.8	ug/m3	5		TO-15	Total/NA
m,p-Xylene	11		11	11	ug/m3	5		TO-15	Total/NA

Client Sample ID: VP-2 (3-5) — Lab Sample ID: 200-39979-2

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	50		17	17	ug/m3	2		TO-15	Total/NA
1,3-Butadiene	4.2		0.88	0.88	ug/m3	2		TO-15	Total/NA
Trichlorofluoromethane	8.4		2.2	2.2	ug/m3	2		TO-15	Total/NA
Acetone	110		24	24	ug/m3	2		TO-15	Total/NA
Carbon disulfide	3.1		3.1	3.1	ug/m3	2		TO-15	Total/NA
n-Hexane	24		1.4	1.4	ug/m3	2		TO-15	Total/NA
Methyl Ethyl Ketone	23		2.9	2.9	ug/m3	2		TO-15	Total/NA
1,1,1-Trichloroethane	7.4		2.2	2.2	ug/m3	2		TO-15	Total/NA
Benzene	3.3		1.3	1.3	ug/m3	2		TO-15	Total/NA
n-Heptane	2.2		1.6	1.6	ug/m3	2		TO-15	Total/NA
Toluene	9.1		1.5	1.5	ug/m3	2		TO-15	Total/NA
Tetrachloroethene	17		2.7	2.7	ug/m3	2		TO-15	Total/NA
Ethylbenzene	1.9		1.7	1.7	ug/m3	2		TO-15	Total/NA
m,p-Xylene	7.3		4.3	4.3	ug/m3	2		TO-15	Total/NA
Xylene, o-	1.9		1.7	1.7	ug/m3	2		TO-15	Total/NA

Client Sample ID: VP-3 (3-5) — Lab Sample ID: 200-39979-3

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	42		17	17	ug/m3	2		TO-15	Total/NA
1,3-Butadiene	2.1		0.88	0.88	ug/m3	2		TO-15	Total/NA
Trichlorofluoromethane	150		2.2	2.2	ug/m3	2		TO-15	Total/NA
Ethanol	22		19	19	ug/m3	2		TO-15	Total/NA
Acetone	91		24	24	ug/m3	2		TO-15	Total/NA
n-Hexane	23		1.4	1.4	ug/m3	2		TO-15	Total/NA
Methyl Ethyl Ketone	20		2.9	2.9	ug/m3	2		TO-15	Total/NA
1,1,1-Trichloroethane	3.5		2.2	2.2	ug/m3	2		TO-15	Total/NA
Benzene	2.0		1.3	1.3	ug/m3	2		TO-15	Total/NA
Toluene	7.1		1.5	1.5	ug/m3	2		TO-15	Total/NA
Tetrachloroethene	160		2.7	2.7	ug/m3	2		TO-15	Total/NA
Ethylbenzene	1.8		1.7	1.7	ug/m3	2		TO-15	Total/NA
m,p-Xylene	6.3		4.3	4.3	ug/m3	2		TO-15	Total/NA
Xylene, o-	1.7		1.7	1.7	ug/m3	2		TO-15	Total/NA

Client Sample ID: VP-5 (3-5) — Lab Sample ID: 200-39979-5

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-5 (3-5) (Continued) — Lab Sample ID: 200-39979-5

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	42		17	17	ug/m3	2		TO-15	Total/NA
Dichlorodifluoromethane	6.6		4.9	4.9	ug/m3	2		TO-15	Total/NA
Trichlorofluoromethane	87		2.2	2.2	ug/m3	2		TO-15	Total/NA
Acetone	50		24	24	ug/m3	2		TO-15	Total/NA
n-Hexane	11		1.4	1.4	ug/m3	2		TO-15	Total/NA
Methyl Ethyl Ketone	81		2.9	2.9	ug/m3	2		TO-15	Total/NA
Cyclohexane	2.0		1.4	1.4	ug/m3	2		TO-15	Total/NA
Benzene	4.6		1.3	1.3	ug/m3	2		TO-15	Total/NA
n-Heptane	2.0		1.6	1.6	ug/m3	2		TO-15	Total/NA
Toluene	18		1.5	1.5	ug/m3	2		TO-15	Total/NA
Tetrachloroethene	83		2.7	2.7	ug/m3	2		TO-15	Total/NA
Ethylbenzene	5.6		1.7	1.7	ug/m3	2		TO-15	Total/NA
m,p-Xylene	13		4.3	4.3	ug/m3	2		TO-15	Total/NA
Xylene, o-	4.2		1.7	1.7	ug/m3	2		TO-15	Total/NA
Styrene	6.5		1.7	1.7	ug/m3	2		TO-15	Total/NA
1,2,4-Trimethylbenzene	2.1		2.0	2.0	ug/m3	2		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-1 (3-5)

Date Collected: 08/30/17 11:33
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Lab Sample ID: 200-39979-1

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**160**		43	43	ug/m3			09/08/17 16:54	5
Dichlorodifluoromethane	12	U	12	12	ug/m3			09/08/17 16:54	5
1,2-Dichlorotetrafluoroethane	7.0	U	7.0	7.0	ug/m3			09/08/17 16:54	5
Chloromethane	5.2	U	5.2	5.2	ug/m3			09/08/17 16:54	5
Vinyl chloride	2.6	U	2.6	2.6	ug/m3			09/08/17 16:54	5
1,3-Butadiene	**8.0**		2.2	2.2	ug/m3			09/08/17 16:54	5
Bromomethane	3.9	U	3.9	3.9	ug/m3			09/08/17 16:54	5
Chloroethane	6.6	U	6.6	6.6	ug/m3			09/08/17 16:54	5
Trichlorofluoromethane	5.6	U	5.6	5.6	ug/m3			09/08/17 16:54	5
Ethanol	47	U	47	47	ug/m3			09/08/17 16:54	5
Freon TF	7.7	U	7.7	7.7	ug/m3			09/08/17 16:54	5
1,1-Dichloroethene	4.0	U	4.0	4.0	ug/m3			09/08/17 16:54	5
Acetone	**120**		59	59	ug/m3			09/08/17 16:54	5
Isopropyl alcohol	61	U	61	61	ug/m3			09/08/17 16:54	5
Carbon disulfide	7.8	U	7.8	7.8	ug/m3			09/08/17 16:54	5
Methylene Chloride	8.7	U	8.7	8.7	ug/m3			09/08/17 16:54	5
Methyl tert-butyl ether	3.6	U	3.6	3.6	ug/m3			09/08/17 16:54	5
trans-1,2-Dichloroethene	4.0	U	4.0	4.0	ug/m3			09/08/17 16:54	5
n-Hexane	**23**		3.5	3.5	ug/m3			09/08/17 16:54	5
1,1-Dichloroethane	4.0	U	4.0	4.0	ug/m3			09/08/17 16:54	5
Vinyl acetate	88	U	88	88	ug/m3			09/08/17 16:54	5
Ethyl acetate	90	U	90	90	ug/m3			09/08/17 16:54	5
Methyl Ethyl Ketone	**19**		7.4	7.4	ug/m3			09/08/17 16:54	5
cis-1,2-Dichloroethene	4.0	U	4.0	4.0	ug/m3			09/08/17 16:54	5
Chloroform	4.9	U	4.9	4.9	ug/m3			09/08/17 16:54	5
Tetrahydrofuran	74	U	74	74	ug/m3			09/08/17 16:54	5
1,1,1-Trichloroethane	5.5	U	5.5	5.5	ug/m3			09/08/17 16:54	5
Cyclohexane	**3.8**		3.4	3.4	ug/m3			09/08/17 16:54	5
Carbon tetrachloride	6.3	U	6.3	6.3	ug/m3			09/08/17 16:54	5
Benzene	**11**		3.2	3.2	ug/m3			09/08/17 16:54	5
1,2-Dichloroethane	4.0	U	4.0	4.0	ug/m3			09/08/17 16:54	5
n-Heptane	**5.5**		4.1	4.1	ug/m3			09/08/17 16:54	5
Trichloroethene	5.4	U	5.4	5.4	ug/m3			09/08/17 16:54	5
1,2-Dichloropropane	4.6	U	4.6	4.6	ug/m3			09/08/17 16:54	5
Bromodichloromethane	6.7	U	6.7	6.7	ug/m3			09/08/17 16:54	5
cis-1,3-Dichloropropene	4.5	U	4.5	4.5	ug/m3			09/08/17 16:54	5
Methyl isobutyl ketone	10	U	10	10	ug/m3			09/08/17 16:54	5
Toluene	**18**		3.8	3.8	ug/m3			09/08/17 16:54	5
trans-1,3-Dichloropropene	4.5	U	4.5	4.5	ug/m3			09/08/17 16:54	5
1,1,2-Trichloroethane	5.5	U	5.5	5.5	ug/m3			09/08/17 16:54	5
Tetrachloroethene	**11**		6.8	6.8	ug/m3			09/08/17 16:54	5
Methyl Butyl Ketone (2-Hexanone)	10	U	10	10	ug/m3			09/08/17 16:54	5
1,2-Dibromoethane	7.7	U	7.7	7.7	ug/m3			09/08/17 16:54	5
Chlorobenzene	4.6	U	4.6	4.6	ug/m3			09/08/17 16:54	5
Ethylbenzene	4.3	U	4.3	4.3	ug/m3			09/08/17 16:54	5
m,p-Xylene	**11**		11	11	ug/m3			09/08/17 16:54	5
Xylene, o-	4.3	U	4.3	4.3	ug/m3			09/08/17 16:54	5
Styrene	4.3	U	4.3	4.3	ug/m3			09/08/17 16:54	5

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-1 (3-5)

Lab Sample ID: 200-39979-1

Date Collected: 08/30/17 11:33
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	10	U	10	10	ug/m3			09/08/17 16:54	5
1,1,2,2-Tetrachloroethane	6.9	U	6.9	6.9	ug/m3			09/08/17 16:54	5
4-Ethyltoluene	4.9	U	4.9	4.9	ug/m3			09/08/17 16:54	5
1,3,5-Trimethylbenzene	4.9	U	4.9	4.9	ug/m3			09/08/17 16:54	5
1,2,4-Trimethylbenzene	4.9	U	4.9	4.9	ug/m3			09/08/17 16:54	5
1,3-Dichlorobenzene	6.0	U	6.0	6.0	ug/m3			09/08/17 16:54	5
1,4-Dichlorobenzene	6.0	U	6.0	6.0	ug/m3			09/08/17 16:54	5
Benzyl chloride	5.2	U	5.2	5.2	ug/m3			09/08/17 16:54	5
1,2-Dichlorobenzene	6.0	U	6.0	6.0	ug/m3			09/08/17 16:54	5
1,2,4-Trichlorobenzene	19	U	19	19	ug/m3			09/08/17 16:54	5
Hexachlorobutadiene	11	U	11	11	ug/m3			09/08/17 16:54	5
Naphthalene	13	U	13	13	ug/m3			09/08/17 16:54	5

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*6.6*	*J*	*ppb v/v*		*3.41*			*09/08/17 16:54*	*5*
Unknown	*11*	*J*	*ppb v/v*		*3.95*			*09/08/17 16:54*	*5*
Unknown	*11*	*J*	*ppb v/v*		*4.55*			*09/08/17 16:54*	*5*
Undecane	*11*	*J N*	*ppb v/v*		*20.33*	*1120-21-4*		*09/08/17 16:54*	*5*
Unknown	*8.7*	*J*	*ppb v/v*		*22.54*			*09/08/17 16:54*	*5*
Unknown	*5.3*	*J*	*ppb v/v*		*23.68*			*09/08/17 16:54*	*5*

Client Sample ID: VP-2 (3-5)

Lab Sample ID: 200-39979-2

Date Collected: 08/30/17 17:38
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**50**		17	17	ug/m3			09/08/17 18:35	2
Dichlorodifluoromethane	4.9	U	4.9	4.9	ug/m3			09/08/17 18:35	2
1,2-Dichlorotetrafluoroethane	2.8	U	2.8	2.8	ug/m3			09/08/17 18:35	2
Chloromethane	2.1	U	2.1	2.1	ug/m3			09/08/17 18:35	2
Vinyl chloride	1.0	U	1.0	1.0	ug/m3			09/08/17 18:35	2
1,3-Butadiene	**4.2**		0.88	0.88	ug/m3			09/08/17 18:35	2
Bromomethane	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
Chloroethane	2.6	U	2.6	2.6	ug/m3			09/08/17 18:35	2
Trichlorofluoromethane	**8.4**		2.2	2.2	ug/m3			09/08/17 18:35	2
Ethanol	19	U	19	19	ug/m3			09/08/17 18:35	2
Freon TF	3.1	U	3.1	3.1	ug/m3			09/08/17 18:35	2
1,1-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
Acetone	**110**		24	24	ug/m3			09/08/17 18:35	2
Isopropyl alcohol	25	U	25	25	ug/m3			09/08/17 18:35	2
Carbon disulfide	**3.1**		3.1	3.1	ug/m3			09/08/17 18:35	2
Methylene Chloride	3.5	U	3.5	3.5	ug/m3			09/08/17 18:35	2
Methyl tert-butyl ether	1.4	U	1.4	1.4	ug/m3			09/08/17 18:35	2
trans-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
n-Hexane	**24**		1.4	1.4	ug/m3			09/08/17 18:35	2
1,1-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
Vinyl acetate	35	U	35	35	ug/m3			09/08/17 18:35	2

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-2 (3-5)

Lab Sample ID: 200-39979-2

Date Collected: 08/30/17 17:38
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethyl acetate	36	U	36	36	ug/m3			09/08/17 18:35	2
Methyl Ethyl Ketone	**23**		2.9	2.9	ug/m3			09/08/17 18:35	2
cis-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
Chloroform	2.0	U	2.0	2.0	ug/m3			09/08/17 18:35	2
Tetrahydrofuran	29	U	29	29	ug/m3			09/08/17 18:35	2
1,1,1-Trichloroethane	**7.4**		2.2	2.2	ug/m3			09/08/17 18:35	2
Cyclohexane	1.4	U	1.4	1.4	ug/m3			09/08/17 18:35	2
Carbon tetrachloride	2.5	U	2.5	2.5	ug/m3			09/08/17 18:35	2
Benzene	**3.3**		1.3	1.3	ug/m3			09/08/17 18:35	2
1,2-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 18:35	2
n-Heptane	**2.2**		1.6	1.6	ug/m3			09/08/17 18:35	2
Trichloroethene	2.1	U	2.1	2.1	ug/m3			09/08/17 18:35	2
1,2-Dichloropropane	1.8	U	1.8	1.8	ug/m3			09/08/17 18:35	2
Bromodichloromethane	2.7	U	2.7	2.7	ug/m3			09/08/17 18:35	2
cis-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 18:35	2
Methyl isobutyl ketone	4.1	U	4.1	4.1	ug/m3			09/08/17 18:35	2
Toluene	**9.1**		1.5	1.5	ug/m3			09/08/17 18:35	2
trans-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 18:35	2
1,1,2-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/08/17 18:35	2
Tetrachloroethene	**17**		2.7	2.7	ug/m3			09/08/17 18:35	2
Methyl Butyl Ketone (2-Hexanone)	4.1	U	4.1	4.1	ug/m3			09/08/17 18:35	2
1,2-Dibromoethane	3.1	U	3.1	3.1	ug/m3			09/08/17 18:35	2
Chlorobenzene	1.8	U	1.8	1.8	ug/m3			09/08/17 18:35	2
Ethylbenzene	**1.9**		1.7	1.7	ug/m3			09/08/17 18:35	2
m,p-Xylene	**7.3**		4.3	4.3	ug/m3			09/08/17 18:35	2
Xylene, o-	**1.9**		1.7	1.7	ug/m3			09/08/17 18:35	2
Styrene	1.7	U	1.7	1.7	ug/m3			09/08/17 18:35	2
Bromoform	4.1	U	4.1	4.1	ug/m3			09/08/17 18:35	2
1,1,2,2-Tetrachloroethane	2.7	U	2.7	2.7	ug/m3			09/08/17 18:35	2
4-Ethyltoluene	2.0	U	2.0	2.0	ug/m3			09/08/17 18:35	2
1,3,5-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/08/17 18:35	2
1,2,4-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/08/17 18:35	2
1,3-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 18:35	2
1,4-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 18:35	2
Benzyl chloride	2.1	U	2.1	2.1	ug/m3			09/08/17 18:35	2
1,2-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 18:35	2
1,2,4-Trichlorobenzene	7.4	U	7.4	7.4	ug/m3			09/08/17 18:35	2
Hexachlorobutadiene	4.3	U	4.3	4.3	ug/m3			09/08/17 18:35	2
Naphthalene	5.2	U	5.2	5.2	ug/m3			09/08/17 18:35	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*8.1*	*J*	*ppb v/v*		*3.64*			*09/08/17 18:35*	*2*
Unknown	*7.7*	*J*	*ppb v/v*		*3.95*			*09/08/17 18:35*	*2*
Nonane, 3-methylene-	*5.2*	*J N*	*ppb v/v*		*20.17*	*51655-64-2*		*09/08/17 18:35*	*2*
1-Decene	*8.3*	*J N*	*ppb v/v*		*20.26*	*872-05-9*		*09/08/17 18:35*	*2*
Decane	*16*	*J N*	*ppb v/v*		*20.33*	*124-18-5*		*09/08/17 18:35*	*2*
Unknown	*4.1*	*J*	*ppb v/v*		*21.24*			*09/08/17 18:35*	*2*
Unknown	*9.2*	*J*	*ppb v/v*		*22.54*			*09/08/17 18:35*	*2*
Unknown	*4.8*	*J*	*ppb v/v*		*23.25*			*09/08/17 18:35*	*2*

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-2 (3-5)

Lab Sample ID: 200-39979-2

Date Collected: 08/30/17 17:38
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Tentatively Identified Compound	Est. Result	Qualifier	Unit	D	RT	CAS No.	Prepared	Analyzed	Dil Fac
Unknown	4.7	J	ppb v/v		23.68			09/08/17 18:35	2

Client Sample ID: VP-3 (3-5)

Lab Sample ID: 200-39979-3

Date Collected: 08/31/17 08:07
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**42**		17	17	ug/m3			09/08/17 19:25	2
Dichlorodifluoromethane	4.9	U	4.9	4.9	ug/m3			09/08/17 19:25	2
1,2-Dichlorotetrafluoroethane	2.8	U	2.8	2.8	ug/m3			09/08/17 19:25	2
Chloromethane	2.1	U	2.1	2.1	ug/m3			09/08/17 19:25	2
Vinyl chloride	1.0	U	1.0	1.0	ug/m3			09/08/17 19:25	2
1,3-Butadiene	**2.1**		0.88	0.88	ug/m3			09/08/17 19:25	2
Bromomethane	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
Chloroethane	2.6	U	2.6	2.6	ug/m3			09/08/17 19:25	2
Trichlorofluoromethane	**150**		2.2	2.2	ug/m3			09/08/17 19:25	2
Ethanol	**22**		19	19	ug/m3			09/08/17 19:25	2
Freon TF	3.1	U	3.1	3.1	ug/m3			09/08/17 19:25	2
1,1-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
Acetone	**91**		24	24	ug/m3			09/08/17 19:25	2
Isopropyl alcohol	25	U	25	25	ug/m3			09/08/17 19:25	2
Carbon disulfide	3.1	U	3.1	3.1	ug/m3			09/08/17 19:25	2
Methylene Chloride	3.5	U	3.5	3.5	ug/m3			09/08/17 19:25	2
Methyl tert-butyl ether	1.4	U	1.4	1.4	ug/m3			09/08/17 19:25	2
trans-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
n-Hexane	**23**		1.4	1.4	ug/m3			09/08/17 19:25	2
1,1-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
Vinyl acetate	35	U	35	35	ug/m3			09/08/17 19:25	2
Ethyl acetate	36	U	36	36	ug/m3			09/08/17 19:25	2
Methyl Ethyl Ketone	**20**		2.9	2.9	ug/m3			09/08/17 19:25	2
cis-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
Chloroform	2.0	U	2.0	2.0	ug/m3			09/08/17 19:25	2
Tetrahydrofuran	29	U	29	29	ug/m3			09/08/17 19:25	2
1,1,1-Trichloroethane	**3.5**		2.2	2.2	ug/m3			09/08/17 19:25	2
Cyclohexane	1.4	U	1.4	1.4	ug/m3			09/08/17 19:25	2
Carbon tetrachloride	2.5	U	2.5	2.5	ug/m3			09/08/17 19:25	2
Benzene	**2.0**		1.3	1.3	ug/m3			09/08/17 19:25	2
1,2-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
n-Heptane	1.6	U	1.6	1.6	ug/m3			09/08/17 19:25	2
Trichloroethene	2.1	U	2.1	2.1	ug/m3			09/08/17 19:25	2
1,2-Dichloropropane	1.8	U	1.8	1.8	ug/m3			09/08/17 19:25	2
Bromodichloromethane	2.7	U	2.7	2.7	ug/m3			09/08/17 19:25	2
cis-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 19:25	2
Methyl isobutyl ketone	4.1	U	4.1	4.1	ug/m3			09/08/17 19:25	2
Toluene	**7.1**		1.5	1.5	ug/m3			09/08/17 19:25	2
trans-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 19:25	2

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-3 (3-5)

Lab Sample ID: 200-39979-3

Date Collected: 08/31/17 08:07
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,2-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/08/17 19:25	2
Tetrachloroethene	**160**		2.7	2.7	ug/m3			09/08/17 19:25	2
Methyl Butyl Ketone (2-Hexanone)	4.1	U	4.1	4.1	ug/m3			09/08/17 19:25	2
1,2-Dibromoethane	3.1	U	3.1	3.1	ug/m3			09/08/17 19:25	2
Chlorobenzene	1.8	U	1.8	1.8	ug/m3			09/08/17 19:25	2
Ethylbenzene	**1.8**		1.7	1.7	ug/m3			09/08/17 19:25	2
m,p-Xylene	**6.3**		4.3	4.3	ug/m3			09/08/17 19:25	2
Xylene, o-	**1.7**		1.7	1.7	ug/m3			09/08/17 19:25	2
Styrene	1.7	U	1.7	1.7	ug/m3			09/08/17 19:25	2
Bromoform	4.1	U	4.1	4.1	ug/m3			09/08/17 19:25	2
1,1,2,2-Tetrachloroethane	2.7	U	2.7	2.7	ug/m3			09/08/17 19:25	2
4-Ethyltoluene	2.0	U	2.0	2.0	ug/m3			09/08/17 19:25	2
1,3,5-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/08/17 19:25	2
1,2,4-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/08/17 19:25	2
1,3-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 19:25	2
1,4-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 19:25	2
Benzyl chloride	2.1	U	2.1	2.1	ug/m3			09/08/17 19:25	2
1,2-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 19:25	2
1,2,4-Trichlorobenzene	7.4	U	7.4	7.4	ug/m3			09/08/17 19:25	2
Hexachlorobutadiene	4.3	U	4.3	4.3	ug/m3			09/08/17 19:25	2
Naphthalene	5.2	U	5.2	5.2	ug/m3			09/08/17 19:25	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
1-Propene, 2-methyl-	*9.4*	*J N*	*ppb v/v*		*3.65*	*115-11-7*		*09/08/17 19:25*	*2*
Unknown	*13*	*J*	*ppb v/v*		*3.97*			*09/08/17 19:25*	*2*
Unknown	*5.7*	*J*	*ppb v/v*		*7.02*			*09/08/17 19:25*	*2*
Cyclotrisiloxane, hexamethyl-	*7.9*	*J N*	*ppb v/v*		*15.03*	*541-05-9*		*09/08/17 19:25*	*2*
Unknown	*2.8*	*J*	*ppb v/v*		*20.17*			*09/08/17 19:25*	*2*
1-Decene	*4.1*	*J N*	*ppb v/v*		*20.27*	*872-05-9*		*09/08/17 19:25*	*2*
Decane	*8.2*	*J N*	*ppb v/v*		*20.33*	*124-18-5*		*09/08/17 19:25*	*2*
Unknown	*2.8*	*J*	*ppb v/v*		*21.24*			*09/08/17 19:25*	*2*
Unknown	*3.5*	*J*	*ppb v/v*		*22.54*			*09/08/17 19:25*	*2*

Client Sample ID: VP-5 (3-5)

Lab Sample ID: 200-39979-5

Date Collected: 08/30/17 12:48
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**42**		17	17	ug/m3			09/08/17 20:16	2
Dichlorodifluoromethane	**6.6**		4.9	4.9	ug/m3			09/08/17 20:16	2
1,2-Dichlorotetrafluoroethane	2.8	U	2.8	2.8	ug/m3			09/08/17 20:16	2
Chloromethane	2.1	U	2.1	2.1	ug/m3			09/08/17 20:16	2
Vinyl chloride	1.0	U	1.0	1.0	ug/m3			09/08/17 20:16	2
1,3-Butadiene	0.88	U	0.88	0.88	ug/m3			09/08/17 20:16	2
Bromomethane	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
Chloroethane	2.6	U	2.6	2.6	ug/m3			09/08/17 20:16	2
Trichlorofluoromethane	**87**		2.2	2.2	ug/m3			09/08/17 20:16	2

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-5 (3-5)

Lab Sample ID: 200-39979-5

Date Collected: 08/30/17 12:48
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	19	U	19	19	ug/m3			09/08/17 20:16	2
Freon TF	3.1	U	3.1	3.1	ug/m3			09/08/17 20:16	2
1,1-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
Acetone	**50**		24	24	ug/m3			09/08/17 20:16	2
Isopropyl alcohol	25	U	25	25	ug/m3			09/08/17 20:16	2
Carbon disulfide	3.1	U	3.1	3.1	ug/m3			09/08/17 20:16	2
Methylene Chloride	3.5	U	3.5	3.5	ug/m3			09/08/17 20:16	2
Methyl tert-butyl ether	1.4	U	1.4	1.4	ug/m3			09/08/17 20:16	2
trans-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
n-Hexane	**11**		1.4	1.4	ug/m3			09/08/17 20:16	2
1,1-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
Vinyl acetate	35	U	35	35	ug/m3			09/08/17 20:16	2
Ethyl acetate	36	U	36	36	ug/m3			09/08/17 20:16	2
Methyl Ethyl Ketone	**81**		2.9	2.9	ug/m3			09/08/17 20:16	2
cis-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
Chloroform	2.0	U	2.0	2.0	ug/m3			09/08/17 20:16	2
Tetrahydrofuran	29	U	29	29	ug/m3			09/08/17 20:16	2
1,1,1-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/08/17 20:16	2
Cyclohexane	**2.0**		1.4	1.4	ug/m3			09/08/17 20:16	2
Carbon tetrachloride	2.5	U	2.5	2.5	ug/m3			09/08/17 20:16	2
Benzene	**4.6**		1.3	1.3	ug/m3			09/08/17 20:16	2
1,2-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/08/17 20:16	2
n-Heptane	**2.0**		1.6	1.6	ug/m3			09/08/17 20:16	2
Trichloroethene	2.1	U	2.1	2.1	ug/m3			09/08/17 20:16	2
1,2-Dichloropropane	1.8	U	1.8	1.8	ug/m3			09/08/17 20:16	2
Bromodichloromethane	2.7	U	2.7	2.7	ug/m3			09/08/17 20:16	2
cis-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 20:16	2
Methyl isobutyl ketone	4.1	U	4.1	4.1	ug/m3			09/08/17 20:16	2
Toluene	**18**		1.5	1.5	ug/m3			09/08/17 20:16	2
trans-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/08/17 20:16	2
1,1,2-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/08/17 20:16	2
Tetrachloroethene	**83**		2.7	2.7	ug/m3			09/08/17 20:16	2
Methyl Butyl Ketone (2-Hexanone)	4.1	U	4.1	4.1	ug/m3			09/08/17 20:16	2
1,2-Dibromoethane	3.1	U	3.1	3.1	ug/m3			09/08/17 20:16	2
Chlorobenzene	1.8	U	1.8	1.8	ug/m3			09/08/17 20:16	2
Ethylbenzene	**5.6**		1.7	1.7	ug/m3			09/08/17 20:16	2
m,p-Xylene	**13**		4.3	4.3	ug/m3			09/08/17 20:16	2
Xylene, o-	**4.2**		1.7	1.7	ug/m3			09/08/17 20:16	2
Styrene	**6.5**		1.7	1.7	ug/m3			09/08/17 20:16	2
Bromoform	4.1	U	4.1	4.1	ug/m3			09/08/17 20:16	2
1,1,2,2-Tetrachloroethane	2.7	U	2.7	2.7	ug/m3			09/08/17 20:16	2
4-Ethyltoluene	2.0	U	2.0	2.0	ug/m3			09/08/17 20:16	2
1,3,5-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/08/17 20:16	2
1,2,4-Trimethylbenzene	**2.1**		2.0	2.0	ug/m3			09/08/17 20:16	2
1,3-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 20:16	2
1,4-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 20:16	2
Benzyl chloride	2.1	U	2.1	2.1	ug/m3			09/08/17 20:16	2
1,2-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/08/17 20:16	2

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-5 (3-5)

Lab Sample ID: 200-39979-5

Date Collected: 08/30/17 12:48
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	7.4	U	7.4	7.4	ug/m3			09/08/17 20:16	2
Hexachlorobutadiene	4.3	U	4.3	4.3	ug/m3			09/08/17 20:16	2
Naphthalene	5.2	U	5.2	5.2	ug/m3			09/08/17 20:16	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*5.9*	*J*	*ppb v/v*		*3.66*			*09/08/17 20:16*	*2*
Unknown	*3.4*	*J*	*ppb v/v*		*3.97*			*09/08/17 20:16*	*2*
Cyclotrisiloxane, hexamethyl-	*8.2*	*J N*	*ppb v/v*		*15.03*	*541-05-9*		*09/08/17 20:16*	*2*
Unknown	*3.2*	*J*	*ppb v/v*		*19.23*			*09/08/17 20:16*	*2*
1-Decene	*4.6*	*J N*	*ppb v/v*		*20.27*	*872-05-9*		*09/08/17 20:16*	*2*
Decane	*10*	*J N*	*ppb v/v*		*20.33*	*124-18-5*		*09/08/17 20:16*	*2*
Unknown	*7.9*	*J*	*ppb v/v*		*22.54*			*09/08/17 20:16*	*2*
Unknown	*4.2*	*J*	*ppb v/v*		*23.25*			*09/08/17 20:16*	*2*
Unknown	*6.5*	*J*	*ppb v/v*		*23.68*			*09/08/17 20:16*	*2*

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

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

Lab Sample ID: MB 200-120732/4
Matrix: Air
Analysis Batch: 120732

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	8.6	U	8.6	8.6	ug/m3			09/08/17 15:13	1
Dichlorodifluoromethane	2.5	U	2.5	2.5	ug/m3			09/08/17 15:13	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
Chloromethane	1.0	U	1.0	1.0	ug/m3			09/08/17 15:13	1
Vinyl chloride	0.51	U	0.51	0.51	ug/m3			09/08/17 15:13	1
1,3-Butadiene	0.44	U	0.44	0.44	ug/m3			09/08/17 15:13	1
Bromomethane	0.78	U	0.78	0.78	ug/m3			09/08/17 15:13	1
Chloroethane	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
Trichlorofluoromethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Ethanol	9.4	U	9.4	9.4	ug/m3			09/08/17 15:13	1
Freon TF	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
1,1-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
Acetone	12	U	12	12	ug/m3			09/08/17 15:13	1
Isopropyl alcohol	12	U	12	12	ug/m3			09/08/17 15:13	1
Carbon disulfide	1.6	U	1.6	1.6	ug/m3			09/08/17 15:13	1
Methylene Chloride	1.7	U	1.7	1.7	ug/m3			09/08/17 15:13	1
Methyl tert-butyl ether	0.72	U	0.72	0.72	ug/m3			09/08/17 15:13	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
n-Hexane	0.70	U	0.70	0.70	ug/m3			09/08/17 15:13	1
1,1-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/08/17 15:13	1
Vinyl acetate	18	U	18	18	ug/m3			09/08/17 15:13	1
Ethyl acetate	18	U	18	18	ug/m3			09/08/17 15:13	1
Methyl Ethyl Ketone	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
cis-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
Chloroform	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
Tetrahydrofuran	15	U	15	15	ug/m3			09/08/17 15:13	1
1,1,1-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Cyclohexane	0.69	U	0.69	0.69	ug/m3			09/08/17 15:13	1
Carbon tetrachloride	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
Benzene	0.64	U	0.64	0.64	ug/m3			09/08/17 15:13	1
1,2-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/08/17 15:13	1
n-Heptane	0.82	U	0.82	0.82	ug/m3			09/08/17 15:13	1
Trichloroethene	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
1,2-Dichloropropane	0.92	U	0.92	0.92	ug/m3			09/08/17 15:13	1
Bromodichloromethane	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/08/17 15:13	1
Methyl isobutyl ketone	2.0	U	2.0	2.0	ug/m3			09/08/17 15:13	1
Toluene	0.75	U	0.75	0.75	ug/m3			09/08/17 15:13	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/08/17 15:13	1
1,1,2-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Tetrachloroethene	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	2.0	ug/m3			09/08/17 15:13	1
1,2-Dibromoethane	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
Chlorobenzene	0.92	U	0.92	0.92	ug/m3			09/08/17 15:13	1
Ethylbenzene	0.87	U	0.87	0.87	ug/m3			09/08/17 15:13	1
m,p-Xylene	2.2	U	2.2	2.2	ug/m3			09/08/17 15:13	1
Xylene, o-	0.87	U	0.87	0.87	ug/m3			09/08/17 15:13	1
Styrene	0.85	U	0.85	0.85	ug/m3			09/08/17 15:13	1

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

Lab Sample ID: MB 200-120732/4
Matrix: Air
Analysis Batch: 120732

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	2.1	U	2.1	2.1	ug/m3			09/08/17 15:13	1
1,1,2,2-Tetrachloroethane	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
4-Ethyltoluene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,3-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
1,4-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
Benzyl chloride	1.0	U	1.0	1.0	ug/m3			09/08/17 15:13	1
1,2-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
1,2,4-Trichlorobenzene	3.7	U	3.7	3.7	ug/m3			09/08/17 15:13	1
Hexachlorobutadiene	2.1	U	2.1	2.1	ug/m3			09/08/17 15:13	1
Naphthalene	2.6	U	2.6	2.6	ug/m3			09/08/17 15:13	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*					*09/08/17 15:13*	*1*

Lab Sample ID: LCS 200-120732/3
Matrix: Air
Analysis Batch: 120732

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Propylene	17.2	18.3		ug/m3		106	58 - 129
Dichlorodifluoromethane	49.4	53.9		ug/m3		109	68 - 128
1,2-Dichlorotetrafluoroethane	69.9	83.6		ug/m3		120	78 - 138
Chloromethane	20.6	20.6		ug/m3		100	57 - 126
Vinyl chloride	25.6	26.9		ug/m3		105	62 - 125
1,3-Butadiene	22.1	22.1		ug/m3		100	59 - 125
Bromomethane	38.8	38.8		ug/m3		100	68 - 128
Chloroethane	26.4	24.7		ug/m3		94	65 - 125
Trichlorofluoromethane	56.2	56.4		ug/m3		100	67 - 127
Ethanol	28.3	28.9		ug/m3		102	28 - 168
Freon TF	76.6	78.5		ug/m3		102	68 - 128
1,1-Dichloroethene	39.6	37.9		ug/m3		96	67 - 127
Acetone	23.7	23.9		ug/m3		101	64 - 136
Isopropyl alcohol	24.6	21.4		ug/m3		87	55 - 124
Carbon disulfide	31.1	34.8		ug/m3		112	81 - 141
Methylene Chloride	34.7	34.7		ug/m3		100	62 - 122
Methyl tert-butyl ether	36.0	34.6		ug/m3		96	67 - 127
trans-1,2-Dichloroethene	39.6	40.3		ug/m3		102	72 - 132
n-Hexane	35.2	36.5		ug/m3		103	71 - 131
1,1-Dichloroethane	40.5	39.0		ug/m3		96	66 - 126
Vinyl acetate	35.2	35.1		ug/m3		100	62 - 130
Ethyl acetate	36.0	34.9		ug/m3		97	75 - 135
Methyl Ethyl Ketone	29.5	27.6		ug/m3		94	62 - 122
cis-1,2-Dichloroethene	39.6	36.8		ug/m3		93	67 - 127
Chloroform	48.8	46.1		ug/m3		94	69 - 129
Tetrahydrofuran	29.5	28.5		ug/m3		97	61 - 136
1,1,1-Trichloroethane	54.6	53.9		ug/m3		99	70 - 130

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

Lab Sample ID: LCS 200-120732/3
Matrix: Air
Analysis Batch: 120732

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyclohexane	34.4	33.7		ug/m3		98	69 - 129
Carbon tetrachloride	62.9	65.1		ug/m3		104	62 - 143
Benzene	31.9	30.0		ug/m3		94	67 - 127
1,2-Dichloroethane	40.5	40.2		ug/m3		99	67 - 132
n-Heptane	41.0	41.3		ug/m3		101	62 - 130
Trichloroethene	53.7	50.3		ug/m3		94	68 - 128
1,2-Dichloropropane	46.2	40.5		ug/m3		88	67 - 127
Bromodichloromethane	67.0	61.8		ug/m3		92	69 - 129
cis-1,3-Dichloropropene	45.4	44.3		ug/m3		98	70 - 130
Methyl isobutyl ketone	41.0	41.5		ug/m3		101	62 - 130
Toluene	37.7	34.8		ug/m3		92	67 - 127
trans-1,3-Dichloropropene	45.4	45.1		ug/m3		99	69 - 129
1,1,2-Trichloroethane	54.6	50.0		ug/m3		92	69 - 129
Tetrachloroethene	67.8	66.7		ug/m3		98	70 - 130
Methyl Butyl Ketone (2-Hexanone)	41.0	39.9		ug/m3		97	61 - 127
1,2-Dibromoethane	76.8	73.7		ug/m3		96	70 - 130
Chlorobenzene	46.0	42.4		ug/m3		92	68 - 128
Ethylbenzene	43.4	39.5		ug/m3		91	68 - 128
m,p-Xylene	86.8	81.3		ug/m3		94	68 - 128
Xylene, o-	43.4	40.4		ug/m3		93	67 - 127
Styrene	42.6	40.0		ug/m3		94	68 - 128
Bromoform	103	107		ug/m3		104	34 - 170
1,1,2,2-Tetrachloroethane	68.6	64.6		ug/m3		94	69 - 129
4-Ethyltoluene	49.2	50.6		ug/m3		103	69 - 129
1,3,5-Trimethylbenzene	49.2	46.0		ug/m3		94	65 - 125
1,2,4-Trimethylbenzene	49.2	46.0		ug/m3		94	65 - 125
1,3-Dichlorobenzene	60.1	62.7		ug/m3		104	67 - 127
1,4-Dichlorobenzene	60.1	60.0		ug/m3		100	66 - 126
Benzyl chloride	51.8	52.0		ug/m3		100	54 - 135
1,2-Dichlorobenzene	60.1	60.0		ug/m3		100	67 - 127
1,2,4-Trichlorobenzene	74.2	66.4		ug/m3		90	59 - 126
Hexachlorobutadiene	107	122		ug/m3		114	62 - 130
Naphthalene	52.4	43.2		ug/m3		83	50 - 121

Lab Sample ID: 200-39979-1 DU
Matrix: Air
Analysis Batch: 120732

Client Sample ID: VP-1 (3-5)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Propylene	160		180		ug/m3		12	25
Dichlorodifluoromethane	12	U	12	U	ug/m3		NC	25
1,2-Dichlorotetrafluoroethane	7.0	U	7.0	U	ug/m3		NC	25
Chloromethane	5.2	U	5.2	U	ug/m3		NC	25
Vinyl chloride	2.6	U	2.6	U	ug/m3		NC	25
1,3-Butadiene	8.0		9.10		ug/m3		13	25
Bromomethane	3.9	U	3.9	U	ug/m3		NC	25
Chloroethane	6.6	U	6.6	U	ug/m3		NC	25
Trichlorofluoromethane	5.6	U	5.6	U	ug/m3		NC	25

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

Lab Sample ID: 200-39979-1 DU
Matrix: Air
Analysis Batch: 120732

Client Sample ID: VP-1 (3-5)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Ethanol	47	U		47	U	ug/m3				NC	25
Freon TF	7.7	U		7.7	U	ug/m3				NC	25
1,1-Dichloroethene	4.0	U		4.0	U	ug/m3				NC	25
Acetone	120			134		ug/m3				12	25
Isopropyl alcohol	61	U		61	U	ug/m3				NC	25
Carbon disulfide	7.8	U		7.8	U	ug/m3				NC	25
Methylene Chloride	8.7	U		8.7	U	ug/m3				NC	25
Methyl tert-butyl ether	3.6	U		3.6	U	ug/m3				NC	25
trans-1,2-Dichloroethene	4.0	U		4.0	U	ug/m3				NC	25
n-Hexane	23			25.3		ug/m3				11	25
1,1-Dichloroethane	4.0	U		4.0	U	ug/m3				NC	25
Vinyl acetate	88	U		88	U	ug/m3				NC	25
Ethyl acetate	90	U		90	U	ug/m3				NC	25
Methyl Ethyl Ketone	19			22.3		ug/m3				16	25
cis-1,2-Dichloroethene	4.0	U		4.0	U	ug/m3				NC	25
Chloroform	4.9	U		4.9	U	ug/m3				NC	25
Tetrahydrofuran	74	U		74	U	ug/m3				NC	25
1,1,1-Trichloroethane	5.5	U		5.5	U	ug/m3				NC	25
Cyclohexane	3.8			4.73		ug/m3				22	25
Carbon tetrachloride	6.3	U		6.3	U	ug/m3				NC	25
Benzene	11			12.2		ug/m3				12	25
1,2-Dichloroethane	4.0	U		4.0	U	ug/m3				NC	25
n-Heptane	5.5			6.81		ug/m3				21	25
Trichloroethene	5.4	U		5.4	U	ug/m3				NC	25
1,2-Dichloropropane	4.6	U		4.6	U	ug/m3				NC	25
Bromodichloromethane	6.7	U		6.7	U	ug/m3				NC	25
cis-1,3-Dichloropropene	4.5	U		4.5	U	ug/m3				NC	25
Methyl isobutyl ketone	10	U		10	U	ug/m3				NC	25
Toluene	18			18.4		ug/m3				5	25
trans-1,3-Dichloropropene	4.5	U		4.5	U	ug/m3				NC	25
1,1,2-Trichloroethane	5.5	U		5.5	U	ug/m3				NC	25
Tetrachloroethene	11			11.6		ug/m3				4	25
Methyl Butyl Ketone (2-Hexanone)	10	U		10	U	ug/m3				NC	25
1,2-Dibromoethane	7.7	U		7.7	U	ug/m3				NC	25
Chlorobenzene	4.6	U		4.6	U	ug/m3				NC	25
Ethylbenzene	4.3	U		4.39		ug/m3				NC	25
m,p-Xylene	11			13.1		ug/m3				14	25
Xylene, o-	4.3	U		4.3	U	ug/m3				NC	25
Styrene	4.3	U		4.3	U	ug/m3				NC	25
Bromoform	10	U		10	U	ug/m3				NC	25
1,1,2,2-Tetrachloroethane	6.9	U		6.9	U	ug/m3				NC	25
4-Ethyltoluene	4.9	U		4.9	U	ug/m3				NC	25
1,3,5-Trimethylbenzene	4.9	U		4.9	U	ug/m3				NC	25
1,2,4-Trimethylbenzene	4.9	U		4.9	U	ug/m3				NC	25
1,3-Dichlorobenzene	6.0	U		6.0	U	ug/m3				NC	25
1,4-Dichlorobenzene	6.0	U		6.0	U	ug/m3				NC	25
Benzyl chloride	5.2	U		5.2	U	ug/m3				NC	25

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

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

Lab Sample ID: 200-39979-1 DU
Matrix: Air
Analysis Batch: 120732

Client Sample ID: VP-1 (3-5)
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
1,2-Dichlorobenzene	6.0	U		6.0	U	ug/m3				NC	25
1,2,4-Trichlorobenzene	19	U		19	U	ug/m3				NC	25
Hexachlorobutadiene	11	U		11	U	ug/m3				NC	25
Naphthalene	13	U		13	U	ug/m3				NC	25

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Air - GC/MS VOA

Analysis Batch: 120732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-39979-1	VP-1 (3-5)	Total/NA	Air	TO-15	
200-39979-2	VP-2 (3-5)	Total/NA	Air	TO-15	
200-39979-3	VP-3 (3-5)	Total/NA	Air	TO-15	
200-39979-5	VP-5 (3-5)	Total/NA	Air	TO-15	
MB 200-120732/4	Method Blank	Total/NA	Air	TO-15	
LCS 200-120732/3	Lab Control Sample	Total/NA	Air	TO-15	
200-39979-1 DU	VP-1 (3-5)	Total/NA	Air	TO-15	

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Client Sample ID: VP-1 (3-5)
Lab Sample ID: 200-39979-1

Date Collected: 08/30/17 11:33
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		5	120732	09/08/17 16:54	K1P	TAL BUR

Client Sample ID: VP-2 (3-5)
Lab Sample ID: 200-39979-2

Date Collected: 08/30/17 17:38
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		2	120732	09/08/17 18:35	K1P	TAL BUR

Client Sample ID: VP-3 (3-5)
Lab Sample ID: 200-39979-3

Date Collected: 08/31/17 08:07
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		2	120732	09/08/17 19:25	K1P	TAL BUR

Client Sample ID: VP-5 (3-5)
Lab Sample ID: 200-39979-5

Date Collected: 08/30/17 12:48
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		2	120732	09/08/17 20:16	K1P	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Laboratory: TestAmerica Burlington

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	050-999-436	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
TO-15		Air	Vinyl acetate

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato LSI

TestAmerica Job ID: 200-39979-1
SDG: 200-39979-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-39979-1	VP-1 (3-5)	Air	08/30/17 11:33	09/07/17 10:20
200-39979-2	VP-2 (3-5)	Air	08/30/17 17:38	09/07/17 10:20
200-39979-3	VP-3 (3-5)	Air	08/31/17 08:07	09/07/17 10:20
200-39979-5	VP-5 (3-5)	Air	08/30/17 12:48	09/07/17 10:20

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jenna Vujic	**Samples Collected By:** TB	1 of 1 COCs
Company: AET Mankato	Phone:		
Address:	Email:		
City/State/Zip			
Phone:	Site Contact:		
FAX:	TA Contact:		
Project Name: City of Mankato LSI	**Analysis Turnaround Time**		
Site:	Standard (Specify) X		
PO # 03-06706	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
VP-1 (3-5)	8/30	1103	1133	30	5	5294	5091	X											
VP-2 (3-5)	8/30	1708	1738	30	4	6131	4020	X											
VP-3 (3-5)	8/31	0737	0807	29	5	6121	5150	X											
* VP-4 (water in canister)																			
VP-5 (3-5)	8/30	1218	1248	29	4	4710	6014	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

200-39979 Chain of Custody

Special Instructions/QC Requirements & Comments:
* Water in VP-4. No sample collected, do not analyze!

Samples Shipped by:	Date/Time:	Samples Received by: TABUR 9/7/17 10:00
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only **Shipper Name:** BR **Opened by:** VLH **Condition:** Intact

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jenna Vujic	Samples Collected By: TB	1 of 1 COCs
Company: AET Mankato	Phone:		
Address:	Email:		
City/State/Zip			
Phone:	Site Contact:		
FAX:	TA Contact:		
Project Name: City of Mankato Ph. II	**Analysis Turnaround Time**		
Site:	Standard (Specify) X		
PO # 03-06166	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
VP-6 (3-5)	8/31	1101	1131	30	5	4687	3526	X											
VP-7 (3-5)	8/31	1145	1215	30	6	5371	4561	X											
VP-8 (3-5)	8/31	1230	1300	31	6	4698	5029	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: VLH TABUL 9/7/17 1070
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only **Shipper Name:** BR **Opened by:** VLH **Condition:** Intact

FROM: (507) 387-2222
american engineering
1730 first ave
Mankato MN 56001
US

SHIP DATE: 01SEP17
ACTWGT: 30.40 LB
CAD: 006994548/SSFE1802
DIMMED: 21 X 20 X 17 IN
BILL RECIPIENT

TO sample recieving
TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 05403 (US)
(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Ground

1 of 2
TRK# 7875 9320 5558
MASTER
05403
9622 0422 1 (000 000 0000) 0 00 7875 9320 5558

FROM: (507) 387-2222
american engineering
1730 first ave
Mankato MN 56001
US

SHIP DATE: 01SEP17
ACTWGT: 30.40 LB
CAD: 006994548/SSFE1802
DIMMED: 21 X 20 X 17 IN
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TO sample recieving
TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 05403 (US)
(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Ground

2 of 2
MPS# 7875 9320 5569
Mstr# 7875 9320 5558
05403
9622 0422 1 (000 000 0000) 0 00 7875 9320 5569

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 200-39979-1
SDG Number: 200-39979-1

Login Number: 39979
List Number: 1
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
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.	N/A	Thermal preservation not required.
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 (excluding tests with immediate HTs)	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.	N/A	
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	

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type:	
Bottom Rack	20	7/17/2017	EJE	1L	6L	Individual	Batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Initial Reading Date:	Initial Reading Time:	Initial Reading Tech:	Initial Reading Temp:	Final Reading Gauge:	Final Reading Date:	Final Reading Time:	Final Reading Tech:	Final Reading Temp:
1	5130	.04	.05	.01	-29.3	T	7/21/17	1200	—	23	6-25	7/22/17	1100	—	23
2	5404	.04	.05	.01	-29.5	625	7/18/17	10:30	EE	22		8.1.17	13:00	EE	23
3	2620		.05	.01	-29.5										
4	5717		.10	.06	-29.5										
5	5608		.05	.01	-29.5										
6	4277		.22	.18	-29.5										
7	5077		.05	.01	-29.5										
8	4020		.05	.01	-29.5										
9	6014		.22	.18	-29.5										
10	5091		.04	0	-29.5										
11	5720		.04	0	-29.5										
12	4561		.26	.22	-29.5										

[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.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (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** **Date:**

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	Secondary Review Limited	Review Date	Reviewer
5130	7/20/17	25955	BK		XXXX				7/20/17	WMD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

FAI023:04.26.17:10
TestAmerica Burlington

AET Project No. 03-06166
200-39337-A-1
5130
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 7/17/2017 12:00 AM 200-1054129
Loc: 200
39337
#1
A
Page 117 of 259

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type:	
Bottom Rack	25	7/21/2017	SML	1L	6L	Individual	Batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Initial Reading Date:	Initial Reading Time:	Initial Reading Tech:	Initial Reading Temp:	Final Reading Gauge:	Final Reading Date:	Final Reading Time:	Final Reading Tech:	Final Reading Temp:
1	4082	.04	.07	.03	-29.5	G25	8/2/17	1240	—	23	G25	8/3/17	0915	S—	23
2	5150	.04	.04	Ø	-29.5	G25	7/22/17	1400	S—	23	G25	8/1/17	14[illegible]	[illegible]	23
3	4555		-.06	.02	-29.5										
4	2602		.12	.18	-29.5										
5	2819		.05	.01	-29.5										
6	5052		.04	Ø	-29.5										
7	3232		.09	Ø	-29.5										
8	4455		.05	.01	-29.5										
9	4340		-.06	.02	-29.5										
10	3835		.12	.08	-29.5										
11	4323		-.06	-.02	-29.5										
12	3267		-.07	.03	-29.5										

[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.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (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** **Date:**

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	Secondary Review Limited	Review Date	Reviewer
4082	7/27/17	26071	KP		XXXX				7/28/17	PAD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

FAI023:04.26.17:10
TestAmerica Burlington

200-39421-A-1
4082
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 7/21/2017 12:00 AM 200-1056664

Loc: 200
39421
#1
A

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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	0.080	U	0.080	0.080
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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)	0.14	U	0.14	0.14
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\25955-15.d				
Lims ID:	200-39337-A-1				
Client ID:	5130				
Sample Type:	Client				
Inject. Date:	19-Jul-2017 05:33:30	ALS Bottle#:	14	Worklist Smp#:	15
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Sample Info:	200-0025955-15				
Operator ID:	ert	Instrument ID:	CHW.i		
Method:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\TO15_MasterMethod_(v1).m				
Limit Group:	AI_TO15_ICAL				
Last Update:	20-Jul-2017 13:29:54	Calib Date:	19-Jun-2017 20:48:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Burlington\ChromData\CHW.i\20170619-25526.b\25526-10.d				
Column 1 :	RTX-624 (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK023				

First Level Reviewer: puangmaleek Date: 20-Jul-2017 09:08:38

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		5.249				ND	
2 Dichlorodifluoromethane	85		5.367				ND	
3 Chlorodifluoromethane	51		5.447				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		5.779				ND	
5 Chloromethane	50		5.971				ND	
6 Butane	43		6.244				ND	
7 Vinyl chloride	62		6.303				ND	
8 Butadiene	54		6.399				ND	
10 Bromomethane	94		7.196				ND	
11 Chloroethane	64		7.453				ND	
13 Vinyl bromide	106		7.860				ND	
14 Trichlorofluoromethane	101		7.956				ND	
17 Ethanol	45		8.459				ND	
20 1,1,2-Trichloro-1,2,2-trif	101		8.962				ND	
21 1,1-Dichloroethene	96		9.026				ND	
22 Acetone	43	9.240	9.219	0.021	70	9955	0.3265	7
23 Carbon disulfide	76		9.422				ND	
24 Isopropyl alcohol	45	9.443	9.427	0.016	96	6933	0.1994	
25 3-Chloro-1-propene	41		9.727				ND	
27 Methylene Chloride	49		9.989				ND	
28 2-Methyl-2-propanol	59		10.112				ND	
S 30 1,2-Dichloroethene, Total	61		10.200				ND	
29 Methyl tert-butyl ether	73		10.331				ND	
31 trans-1,2-Dichloroethene	61		10.390				ND	
33 Hexane	57		10.717				ND	
34 1,1-Dichloroethane	63		11.193				ND	
35 Vinyl acetate	43		11.219				ND	
37 cis-1,2-Dichloroethene	96		12.204				ND	
38 2-Butanone (MEK)	72		12.220				ND	
39 Ethyl acetate	88		12.231				ND	
41 Tetrahydrofuran	42		12.632				ND	
* 40 Chlorobromomethane	128	12.626	12.637	-0.011	96	119067	10.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
42 Chloroform	83		12.723				ND	
43 Cyclohexane	84		12.990				ND	
44 1,1,1-Trichloroethane	97		13.006				ND	
45 Carbon tetrachloride	117		13.236				ND	
46 Isooctane	57		13.584				ND	
47 Benzene	78		13.654				ND	
48 1,2-Dichloroethane	62		13.798				ND	
49 n-Heptane	43		13.900				ND	
* 50 1,4-Difluorobenzene	114	14.338	14.344	-0.006	96	596946	10.0	
53 Trichloroethene	95		14.777				ND	
54 1,2-Dichloropropane	63		15.274				ND	
55 Methyl methacrylate	69		15.349				ND	
56 1,4-Dioxane	88		15.435				ND	
57 Dibromomethane	174		15.505				ND	
58 Dichlorobromomethane	83		15.729				ND	
60 cis-1,3-Dichloropropene	75		16.558				ND	
61 4-Methyl-2-pentanone (MIBK	43		16.788				ND	
65 Toluene	92		17.109				ND	
66 trans-1,3-Dichloropropene	75		17.628				ND	
67 1,1,2-Trichloroethane	83		17.987				ND	
68 Tetrachloroethene	166		18.110				ND	
69 2-Hexanone	43		18.372				ND	
71 Chlorodibromomethane	129		18.714				ND	
72 Ethylene Dibromide	107		18.993				ND	
* 74 Chlorobenzene-d5	117	19.832	19.832	0.000	90	514935	10.0	
75 Chlorobenzene	112		19.891				ND	
76 Ethylbenzene	91		20.020				ND	
S 73 Xylenes, Total	106		20.100				ND	
78 m-Xylene & p-Xylene	106		20.250				ND	
79 o-Xylene	106		20.999				ND	
80 Styrene	104		21.041				ND	
81 Bromoform	173		21.427				ND	
82 Isopropylbenzene	105		21.587				ND	
84 1,1,2,2-Tetrachloroethane	83		22.176				ND	
85 N-Propylbenzene	91		22.245				ND	
88 4-Ethyltoluene	105		22.422				ND	
89 2-Chlorotoluene	91		22.443				ND	
90 1,3,5-Trimethylbenzene	105		22.518				ND	
92 tert-Butylbenzene	119		22.989				ND	
93 1,2,4-Trimethylbenzene	105		23.074				ND	
94 sec-Butylbenzene	105		23.304				ND	
95 4-Isopropyltoluene	119		23.502				ND	
96 1,3-Dichlorobenzene	146		23.556				ND	
97 1,4-Dichlorobenzene	146		23.695				ND	
98 Benzyl chloride	91		23.904				ND	
100 n-Butylbenzene	91		24.112				ND	
101 1,2-Dichlorobenzene	146		24.273				ND	
103 1,2,4-Trichlorobenzene	180		27.017				ND	
104 Hexachlorobutadiene	225		27.210				ND	
105 Naphthalene	128		27.568				ND	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

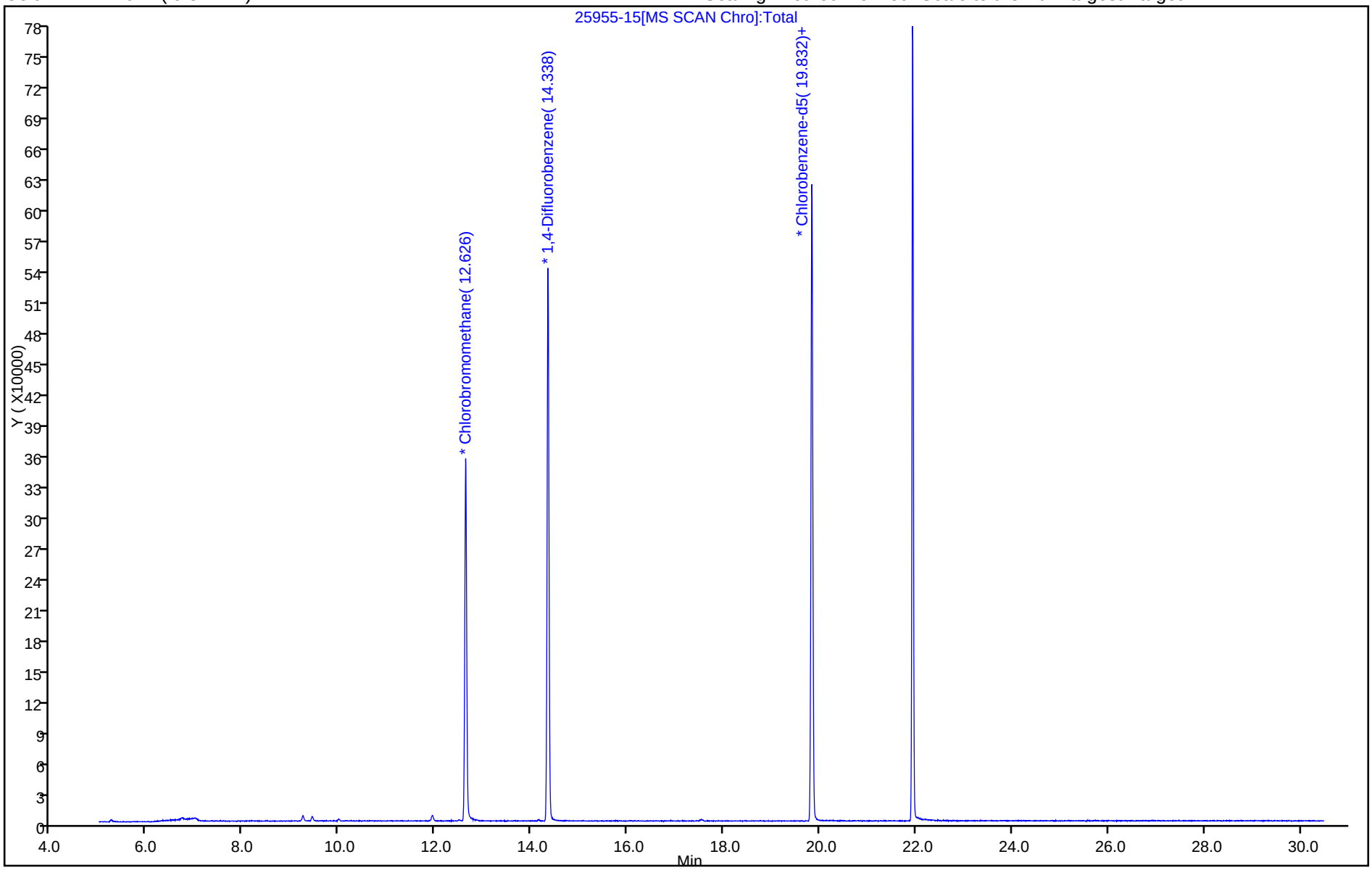
ATTO15WISs_00004 Amount Added: 20.00 Units: mL Run Reagent

Report Date: 20-Jul-2017 13:30:25 Chrom Revision: 2.2 26-Jun-2017 09:07:56

TestAmerica Burlington

Data File:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\25955-15.d				
Injection Date:	19-Jul-2017 05:33:30	Instrument ID:	CHW.i	Operator ID:	ert
Lims ID:	200-39337-A-1	Lab Sample ID:	200-39337-1	Worklist Smp#:	15
Client ID:	5130				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	14
Method:	TO15_MasterMethod_(v1)	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.: 200-39421-1
SDG No.:
Client Sample ID: 4082 Lab Sample ID: 200-39421-1
Matrix: Air Lab File ID: 26071-18.D
Analysis Method: TO-15 Date Collected: 07/21/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/27/2017 04:55
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.: 118994 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	0.080	U	0.080	0.080
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39421-1
SDG No.:
Client Sample ID: 4082 Lab Sample ID: 200-39421-1
Matrix: Air Lab File ID: 26071-18.D
Analysis Method: TO-15 Date Collected: 07/21/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/27/2017 04:55
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.: 118994 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)	0.14	U	0.14	0.14
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39421-1
SDG No.:
Client Sample ID: 4082 Lab Sample ID: 200-39421-1
Matrix: Air Lab File ID: 26071-18.D
Analysis Method: TO-15 Date Collected: 07/21/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/27/2017 04:55
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.: 118994 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: \\ChromNA\Burlington\ChromData\CHB.i\20170726-26071.b\26071-18.D
Lims ID: 200-39421-A-1
Client ID: 4082
Sample Type: Client
Inject. Date: 27-Jul-2017 04:55:30 ALS Bottle#: 18 Worklist Smp#: 18
Purge Vol: 200.000 mL Dil. Factor: 0.2000
Sample Info: 200-0026071-018
Misc. Info.: 39421-01
Operator ID: pad Instrument ID: CHB.i

Method: \\ChromNA\Burlington\ChromData\CHB.i\20170726-26071.b\TO15_LLNJ_TO3.m
Limit Group: AI_TO15_ICAL
Last Update: 28-Jul-2017 08:14:14 Calib Date: 09-Jun-2017 10:03:30
Integrator: RTE ID Type: Deconvolution ID
Quant Method: Internal/External Standard Quant By: Initial Calibration
Last ICal File: \\ChromNA\Burlington\ChromData\CHB.i\20170608-25406.b\25406-17.D

Column 1 : RTX-624 (0.32 mm) Det: MS SCAN
Process Host: XAWRK025

First Level Reviewer: puangmaleek Date: 28-Jul-2017 08:14:13

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		3.140				ND	
2 Dichlorodifluoromethane	85		3.199				ND	
3 Chlorodifluoromethane	51		3.236				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		3.423				ND	
5 Chloromethane	50		3.546				ND	
6 Butane	43		3.722				ND	
7 Vinyl chloride	62		3.759				ND	
8 Butadiene	54		3.823				ND	
10 Bromomethane	94		4.496				ND	
11 Chloroethane	64		4.725				ND	
13 Vinyl bromide	106		5.136				ND	
14 Trichlorofluoromethane	101		5.237				ND	
16 Ethanol	45		5.712				ND	
19 1,1,2-Trichloro-1,2,2-trif	101		6.267				ND	
20 1,1-Dichloroethene	96		6.337				ND	
21 Acetone	43		6.492				ND	
22 Isopropyl alcohol	45		6.721				ND	
23 Carbon disulfide	76		6.769				ND	
24 3-Chloro-1-propene	41		7.041				ND	
27 Methylene Chloride	49	7.297	7.297	0.000	49	3407	0.1155	7M
28 2-Methyl-2-propanol	59		7.425				ND	
29 Methyl tert-butyl ether	73		7.650				ND	
30 trans-1,2-Dichloroethene	61		7.708				ND	
32 Hexane	57		8.034				ND	
33 1,1-Dichloroethane	63		8.450				ND	
34 Vinyl acetate	43		8.456				ND	
36 2-Butanone (MEK)	72		9.341				ND	
37 cis-1,2-Dichloroethene	96		9.352				ND	
35 Ethyl acetate	88		9.357				ND	
* 39 Chlorobromomethane	128	9.715	9.720	-0.005	78	279653	10.0	
38 Tetrahydrofuran	42		9.731				ND	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
40 Chloroform	83		9.795				ND	
S 41 1,2-Dichloroethene, Total	61		10.000				ND	
42 1,1,1-Trichloroethane	97		10.051				ND	
43 Cyclohexane	84		10.062				ND	
44 Carbon tetrachloride	117		10.259				ND	
45 Isooctane	57		10.542				ND	
46 Benzene	78		10.585				ND	
47 1,2-Dichloroethane	62		10.681				ND	
48 n-Heptane	43		10.793				ND	
* 50 1,4-Difluorobenzene	114	11.119	11.124	-0.005	92	1398047	10.0	
53 Trichloroethene	95		11.492				ND	
54 1,2-Dichloropropane	63		11.866				ND	
55 Methyl methacrylate	69		11.898				ND	
56 1,4-Dioxane	88		11.989				ND	
57 Dibromomethane	174		12.053				ND	
58 Dichlorobromomethane	83		12.223				ND	
60 cis-1,3-Dichloropropene	75		12.848				ND	
61 4-Methyl-2-pentanone (MIBK	43		12.997				ND	
64 Toluene	92		13.280				ND	
66 trans-1,3-Dichloropropene	75		13.638				ND	
67 1,1,2-Trichloroethane	83		13.910				ND	
68 Tetrachloroethene	166	14.049	14.049	0.000	94	4594	0.0573	
69 2-Hexanone	43		14.171				ND	
70 Chlorodibromomethane	129		14.465				ND	
71 Ethylene Dibromide	107		14.668				ND	
* 72 Chlorobenzene-d5	117	15.223	15.228	-0.005	82	1168359	10.0	
73 Chlorobenzene	112		15.265				ND	
74 Ethylbenzene	91		15.335				ND	
76 m-Xylene & p-Xylene	106		15.479				ND	
78 o-Xylene	106		15.991				ND	
S 77 Xylenes, Total	106		16.000				ND	
79 Styrene	104		16.018				ND	
80 Bromoform	173		16.311				ND	
81 Isopropylbenzene	105		16.402				ND	
83 1,1,2,2-Tetrachloroethane	83		16.813				ND	
84 N-Propylbenzene	91		16.882				ND	
87 4-Ethyltoluene	105		17.005				ND	
88 2-Chlorotoluene	91		17.048				ND	
89 1,3,5-Trimethylbenzene	105		17.075				ND	
91 tert-Butylbenzene	119		17.448				ND	
92 1,2,4-Trimethylbenzene	105		17.518				ND	
93 sec-Butylbenzene	105		17.704				ND	
94 4-Isopropyltoluene	119		17.859				ND	
95 1,3-Dichlorobenzene	146		17.939				ND	
96 1,4-Dichlorobenzene	146		18.051				ND	
97 Benzyl chloride	91		18.201				ND	
99 n-Butylbenzene	91		18.366				ND	
100 1,2-Dichlorobenzene	146		18.537				ND	
103 1,2,4-Trichlorobenzene	180		20.901				ND	
104 Hexachlorobutadiene	225		21.067				ND	
105 Naphthalene	128		21.382				ND	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Review Flags

M - Manually Integrated

Reagents:

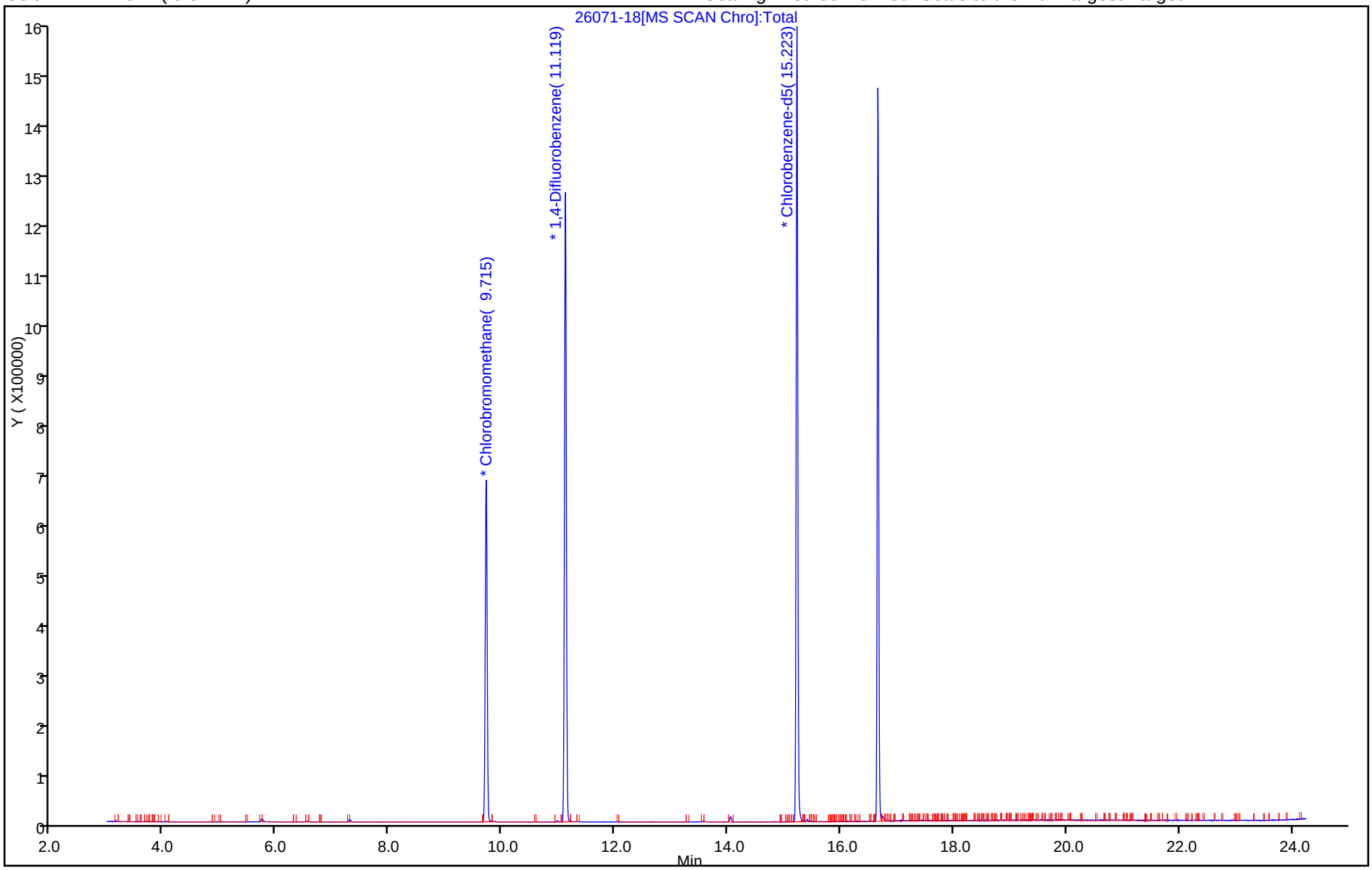
ATTO15BISs_00006	Amount Added: 20.00	Units: mL	Run Reagent

Report Date: 28-Jul-2017 08:14:20 Chrom Revision: 2.2 26-Jun-2017 09:07:56

TestAmerica Burlington

Data File:	\\ChromNA\Burlington\ChromData\CHB.i\20170726-26071.b\26071-18.D				
Injection Date:	27-Jul-2017 04:55:30	Instrument ID:	CHB.i	Operator ID:	pad
Lims ID:	200-39421-A-1	Lab Sample ID:	200-39421-1	Worklist Smp#:	18
Client ID:	4082				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	18
Method:	TO15_LLNJ_TO3	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



Manual Integration/User Assign Peak Report

TestAmerica Burlington

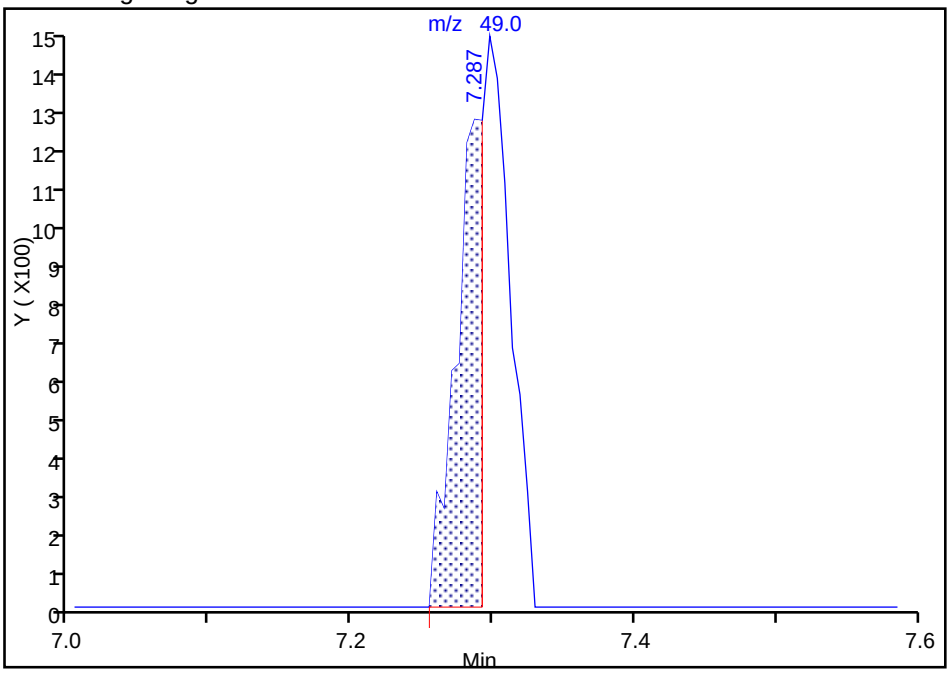
Data File:	\\ChromNA\Burlington\ChromData\CHB.i\20170726-26071.b\26071-18.D				
Injection Date:	27-Jul-2017 04:55:30	Instrument ID:	CHB.i		
Lims ID:	200-39421-A-1	Lab Sample ID:	200-39421-1		
Client ID:	4082				
Operator ID:	pad	ALS Bottle#:	18	Worklist Smp#:	18
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_LLNJ_TO3	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

27 Methylene Chloride, CAS: 75-09-2

Signal: 1

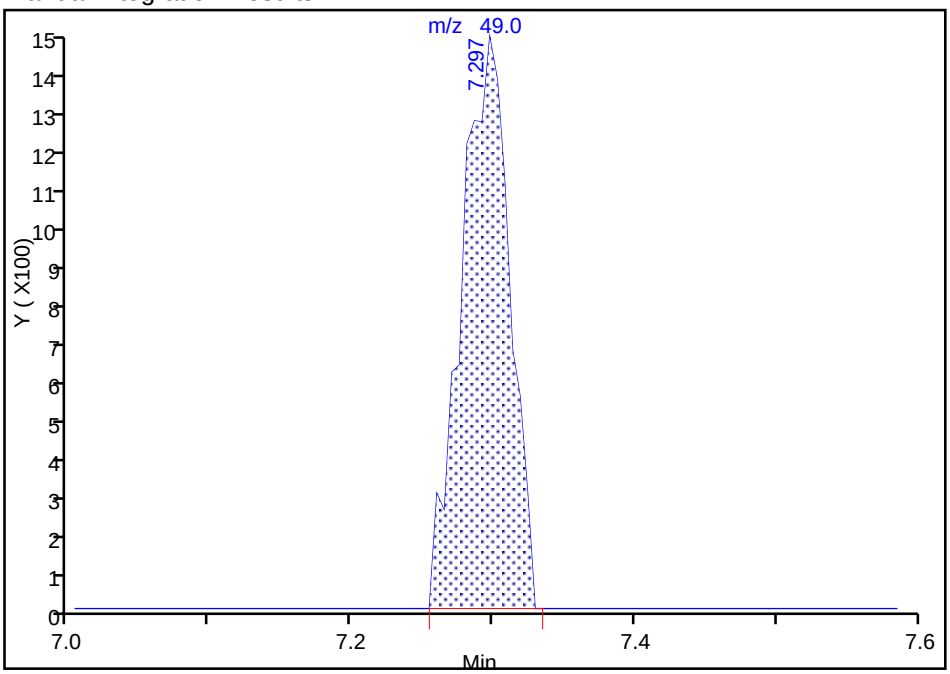
Processing Integration Results

RT: 7.29
Area: 1712
Amount: 0.058044
Amount Units: ppb v/v



Manual Integration Results

RT: 7.30
Area: 3407
Amount: 0.115512
Amount Units: ppb v/v



Reviewer: puangmaleek, 28-Jul-2017 08:12:52

Audit Action: Assigned Compound ID Audit Reason: Assign Peak

Manual Integration/User Assign Peak Report

TestAmerica Burlington

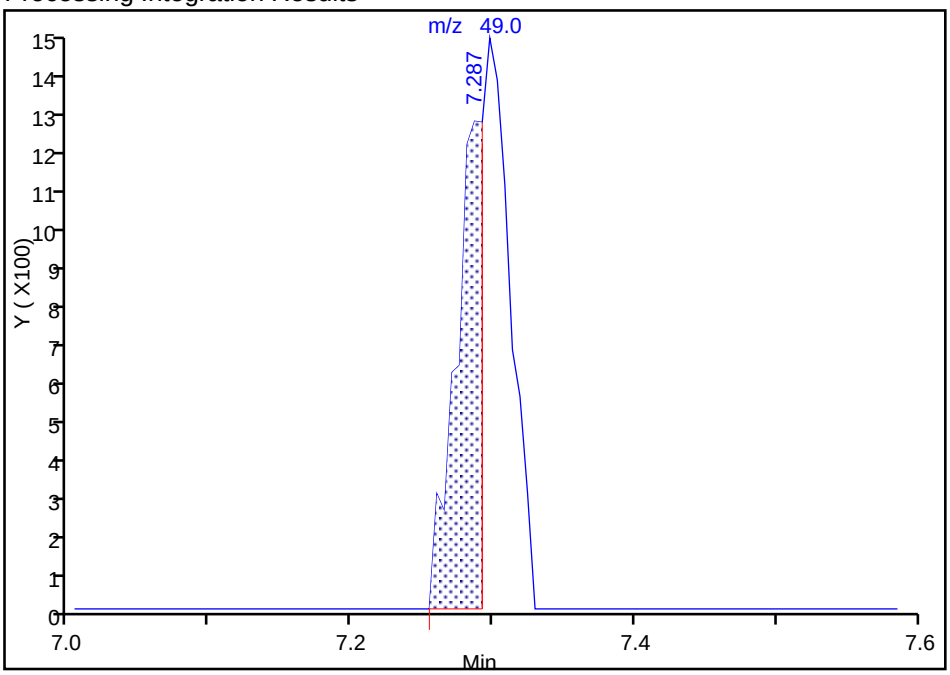
Data File:	\\ChromNA\Burlington\ChromData\CHB.i\20170726-26071.b\26071-18.D				
Injection Date:	27-Jul-2017 04:55:30	Instrument ID:	CHB.i		
Lims ID:	200-39421-A-1	Lab Sample ID:	200-39421-1		
Client ID:	4082				
Operator ID:	pad	ALS Bottle#:	18	Worklist Smp#:	18
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Method:	TO15_LLNJ_TO3	Limit Group:	AI_TO15_ICAL		
Column:	RTX-624 (0.32 mm)	Detector	MS SCAN		

27 Methylene Chloride, CAS: 75-09-2

Signal: 1

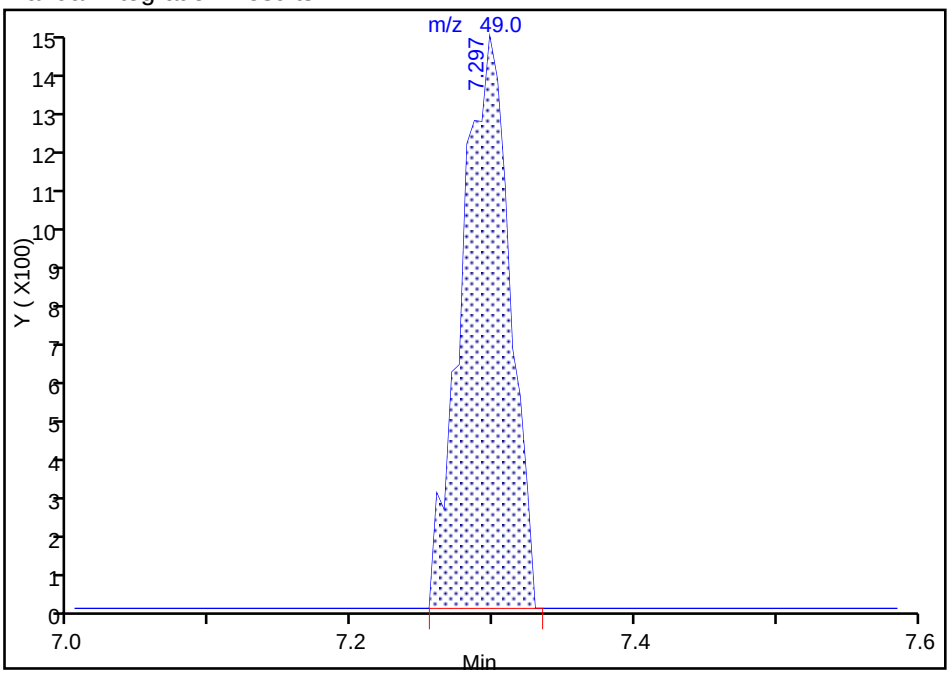
Processing Integration Results

RT: 7.29
Area: 1712
Amount: 0.058044
Amount Units: ppb v/v



Manual Integration Results

RT: 7.30
Area: 3407
Amount: 0.115512
Amount Units: ppb v/v



Reviewer: puangmaleek, 28-Jul-2017 08:13:06

Audit Action: Manually Integrated Audit Reason: Assign Peak

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TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

ANALYTICAL REPORT

TestAmerica Laboratories, Inc.
TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
Tel: (802)660-1990

TestAmerica Job ID: 200-39979-2
TestAmerica Sample Delivery Group: 200-39979-1
Client Project/Site: City of Mankato Ph. II

For:
American Engineering Testing Inc.
550 Cleveland Ave. North
St. Paul, Minnesota 55114

Attn: Mr. Trey Howard

Kathryn Kelly

Authorized for release by:
9/14/2017 8:20:41 PM

Kathryn Kelly, Project Manager I
(802)660-1990
kathryn.kelly@testamericainc.com

REVIEWED
By Tyler Boley at 1:57 pm, Sep 26, 2017

LINKS

Review your project results through TotalAccess

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Visit us at: www.testamericainc.com

The test results in this report meet all 2003 NELAC and 2009 TNI requirements for accredited parameters, exceptions are noted in this report. This report may not be reproduced except in full, and with written approval from the laboratory. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Definitions/Glossary 3
Case Narrative 4
Detection Summary 5
Client Sample Results 6
QC Sample Results 11
QC Association Summary 17
Lab Chronicle 18
Certification Summary 19
Method Summary 20
Sample Summary 21
Chain of Custody 22
Receipt Checklists 25
Clean Canister Certification 26
Pre-Ship Certification 26
Clean Canister Data 28

Qualifiers

Air - GC/MS VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Air - GC/MS VOA TICs

Qualifier	Qualifier Description
J	Indicates an Estimated Value for TICs
N	This flag indicates the presumptive evidence of a compound.

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Job ID: 200-39979-2

Laboratory: TestAmerica Burlington

Narrative

CASE NARRATIVE

Client: American Engineering Testing Inc.

Project: City of Mankato Ph. II

Report Number: 200-39979-2

With the exceptions noted as flags or footnotes, standard analytical protocols were followed in the analysis of the samples and no problems were encountered or anomalies observed. In addition all laboratory quality control samples were within established control limits, with any exceptions noted below. Each sample was analyzed to achieve the lowest possible reporting limit within the constraints of the method. In some cases, due to interference or analytes present at high concentrations, samples were diluted. For diluted samples, the reporting limits are adjusted relative to the dilution required.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT
The samples were received on 09/07/2017; the samples arrived in good condition.

VOLATILE ORGANIC COMPOUNDS
Samples VP-6 (3-5), VP-7 (3-5) and VP-8 (3-5) were analyzed for Volatile Organic Compounds in accordance with EPA Method TO-15. The samples were analyzed on 09/08/2017 and 09/11/2017.

Samples VP-6 (3-5)[10X], VP-7 (3-5)[2X] and VP-8 (3-5)[6.06X] required dilution prior to analysis. The reporting limits have been adjusted accordingly.

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

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-6 (3-5) — Lab Sample ID: 200-39979-6

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	460		86	86	ug/m3	10		TO-15	Total/NA
Dichlorodifluoromethane	660		25	25	ug/m3	10		TO-15	Total/NA
1,3-Butadiene	23		4.4	4.4	ug/m3	10		TO-15	Total/NA
Acetone	140		120	120	ug/m3	10		TO-15	Total/NA
n-Hexane	110		7.0	7.0	ug/m3	10		TO-15	Total/NA
Methyl Ethyl Ketone	48		15	15	ug/m3	10		TO-15	Total/NA
Cyclohexane	28		6.9	6.9	ug/m3	10		TO-15	Total/NA
Benzene	41		6.4	6.4	ug/m3	10		TO-15	Total/NA
n-Heptane	56		8.2	8.2	ug/m3	10		TO-15	Total/NA
Toluene	86		7.5	7.5	ug/m3	10		TO-15	Total/NA
Ethylbenzene	67		8.7	8.7	ug/m3	10		TO-15	Total/NA
Xylene, o-	8.8		8.7	8.7	ug/m3	10		TO-15	Total/NA

Client Sample ID: VP-7 (3-5) — Lab Sample ID: 200-39979-7

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	27		17	17	ug/m3	2		TO-15	Total/NA
1,3-Butadiene	2.5		0.88	0.88	ug/m3	2		TO-15	Total/NA
Trichlorofluoromethane	57		2.2	2.2	ug/m3	2		TO-15	Total/NA
Acetone	100		24	24	ug/m3	2		TO-15	Total/NA
n-Hexane	9.6		1.4	1.4	ug/m3	2		TO-15	Total/NA
Methyl Ethyl Ketone	27		2.9	2.9	ug/m3	2		TO-15	Total/NA
Cyclohexane	19		1.4	1.4	ug/m3	2		TO-15	Total/NA
Benzene	2.0		1.3	1.3	ug/m3	2		TO-15	Total/NA
Toluene	10		1.5	1.5	ug/m3	2		TO-15	Total/NA
trans-1,3-Dichloropropene	5.7		1.8	1.8	ug/m3	2		TO-15	Total/NA
Tetrachloroethene	3.5		2.7	2.7	ug/m3	2		TO-15	Total/NA
m,p-Xylene	4.8		4.3	4.3	ug/m3	2		TO-15	Total/NA

Client Sample ID: VP-8 (3-5) — Lab Sample ID: 200-39979-8

Analyte	Result	Qualifier	RL	RL	Unit	Dil Fac	D	Method	Prep Type
Propylene	240		52	52	ug/m3	6.06		TO-15	Total/NA
1,3-Butadiene	10		2.7	2.7	ug/m3	6.06		TO-15	Total/NA
Acetone	310		72	72	ug/m3	6.06		TO-15	Total/NA
n-Hexane	25		4.3	4.3	ug/m3	6.06		TO-15	Total/NA
Methyl Ethyl Ketone	86		8.9	8.9	ug/m3	6.06		TO-15	Total/NA
Benzene	8.6		3.9	3.9	ug/m3	6.06		TO-15	Total/NA
n-Heptane	5.5		5.0	5.0	ug/m3	6.06		TO-15	Total/NA
Toluene	15		4.6	4.6	ug/m3	6.06		TO-15	Total/NA
Ethylbenzene	5.9		5.3	5.3	ug/m3	6.06		TO-15	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-6 (3-5)

Lab Sample ID: 200-39979-6

Date Collected: 08/31/17 11:31
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**460**		86	86	ug/m3			09/08/17 21:06	10
Dichlorodifluoromethane	**660**		25	25	ug/m3			09/08/17 21:06	10
1,2-Dichlorotetrafluoroethane	14	U	14	14	ug/m3			09/08/17 21:06	10
Chloromethane	10	U	10	10	ug/m3			09/08/17 21:06	10
Vinyl chloride	5.1	U	5.1	5.1	ug/m3			09/08/17 21:06	10
1,3-Butadiene	**23**		4.4	4.4	ug/m3			09/08/17 21:06	10
Bromomethane	7.8	U	7.8	7.8	ug/m3			09/08/17 21:06	10
Chloroethane	13	U	13	13	ug/m3			09/08/17 21:06	10
Trichlorofluoromethane	11	U	11	11	ug/m3			09/08/17 21:06	10
Ethanol	94	U	94	94	ug/m3			09/08/17 21:06	10
Freon TF	15	U	15	15	ug/m3			09/08/17 21:06	10
1,1-Dichloroethene	7.9	U	7.9	7.9	ug/m3			09/08/17 21:06	10
Acetone	**140**		120	120	ug/m3			09/08/17 21:06	10
Isopropyl alcohol	120	U	120	120	ug/m3			09/08/17 21:06	10
Carbon disulfide	16	U	16	16	ug/m3			09/08/17 21:06	10
Methylene Chloride	17	U	17	17	ug/m3			09/08/17 21:06	10
Methyl tert-butyl ether	7.2	U	7.2	7.2	ug/m3			09/08/17 21:06	10
trans-1,2-Dichloroethene	7.9	U	7.9	7.9	ug/m3			09/08/17 21:06	10
n-Hexane	**110**		7.0	7.0	ug/m3			09/08/17 21:06	10
1,1-Dichloroethane	8.1	U	8.1	8.1	ug/m3			09/08/17 21:06	10
Vinyl acetate	180	U	180	180	ug/m3			09/08/17 21:06	10
Ethyl acetate	180	U	180	180	ug/m3			09/08/17 21:06	10
Methyl Ethyl Ketone	**48**		15	15	ug/m3			09/08/17 21:06	10
cis-1,2-Dichloroethene	7.9	U	7.9	7.9	ug/m3			09/08/17 21:06	10
Chloroform	9.8	U	9.8	9.8	ug/m3			09/08/17 21:06	10
Tetrahydrofuran	150	U	150	150	ug/m3			09/08/17 21:06	10
1,1,1-Trichloroethane	11	U	11	11	ug/m3			09/08/17 21:06	10
Cyclohexane	**28**		6.9	6.9	ug/m3			09/08/17 21:06	10
Carbon tetrachloride	13	U	13	13	ug/m3			09/08/17 21:06	10
Benzene	**41**		6.4	6.4	ug/m3			09/08/17 21:06	10
1,2-Dichloroethane	8.1	U	8.1	8.1	ug/m3			09/08/17 21:06	10
n-Heptane	**56**		8.2	8.2	ug/m3			09/08/17 21:06	10
Trichloroethene	11	U	11	11	ug/m3			09/08/17 21:06	10
1,2-Dichloropropane	9.2	U	9.2	9.2	ug/m3			09/08/17 21:06	10
Bromodichloromethane	13	U	13	13	ug/m3			09/08/17 21:06	10
cis-1,3-Dichloropropene	9.1	U	9.1	9.1	ug/m3			09/08/17 21:06	10
Methyl isobutyl ketone	20	U	20	20	ug/m3			09/08/17 21:06	10
Toluene	**86**		7.5	7.5	ug/m3			09/08/17 21:06	10
trans-1,3-Dichloropropene	9.1	U	9.1	9.1	ug/m3			09/08/17 21:06	10
1,1,2-Trichloroethane	11	U	11	11	ug/m3			09/08/17 21:06	10
Tetrachloroethene	14	U	14	14	ug/m3			09/08/17 21:06	10
Methyl Butyl Ketone (2-Hexanone)	20	U	20	20	ug/m3			09/08/17 21:06	10
1,2-Dibromoethane	15	U	15	15	ug/m3			09/08/17 21:06	10
Chlorobenzene	9.2	U	9.2	9.2	ug/m3			09/08/17 21:06	10
Ethylbenzene	**67**		8.7	8.7	ug/m3			09/08/17 21:06	10
m,p-Xylene	22	U	22	22	ug/m3			09/08/17 21:06	10
Xylene, o-	**8.8**		8.7	8.7	ug/m3			09/08/17 21:06	10
Styrene	8.5	U	8.5	8.5	ug/m3			09/08/17 21:06	10

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-6 (3-5)

Lab Sample ID: 200-39979-6

Date Collected: 08/31/17 11:31
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	21	U	21	21	ug/m3			09/08/17 21:06	10
1,1,2,2-Tetrachloroethane	14	U	14	14	ug/m3			09/08/17 21:06	10
4-Ethyltoluene	9.8	U	9.8	9.8	ug/m3			09/08/17 21:06	10
1,3,5-Trimethylbenzene	9.8	U	9.8	9.8	ug/m3			09/08/17 21:06	10
1,2,4-Trimethylbenzene	9.8	U	9.8	9.8	ug/m3			09/08/17 21:06	10
1,3-Dichlorobenzene	12	U	12	12	ug/m3			09/08/17 21:06	10
1,4-Dichlorobenzene	12	U	12	12	ug/m3			09/08/17 21:06	10
Benzyl chloride	10	U	10	10	ug/m3			09/08/17 21:06	10
1,2-Dichlorobenzene	12	U	12	12	ug/m3			09/08/17 21:06	10
1,2,4-Trichlorobenzene	37	U	37	37	ug/m3			09/08/17 21:06	10
Hexachlorobutadiene	21	U	21	21	ug/m3			09/08/17 21:06	10
Naphthalene	26	U	26	26	ug/m3			09/08/17 21:06	10

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*62*	*J*	*ppb v/v*		*3.42*			*09/08/17 21:06*	*10*
Unknown	*23*	*J*	*ppb v/v*		*3.45*			*09/08/17 21:06*	*10*
Unknown	*92*	*J*	*ppb v/v*		*3.67*			*09/08/17 21:06*	*10*
Unknown	*57*	*J*	*ppb v/v*		*4.55*			*09/08/17 21:06*	*10*
Pentane	*30*	*J N*	*ppb v/v*		*5.00*	*109-66-0*		*09/08/17 21:06*	*10*
Pentane, 2-methyl-	*21*	*J N*	*ppb v/v*		*6.61*	*107-83-5*		*09/08/17 21:06*	*10*
Unknown	*14*	*J*	*ppb v/v*		*7.03*			*09/08/17 21:06*	*10*
Cyclohexane, methyl-	*16*	*J N*	*ppb v/v*		*12.06*	*108-87-2*		*09/08/17 21:06*	*10*
1-Decene	*17*	*J N*	*ppb v/v*		*20.26*	*872-05-9*		*09/08/17 21:06*	*10*
Decane	*30*	*J N*	*ppb v/v*		*20.33*	*124-18-5*		*09/08/17 21:06*	*10*

Client Sample ID: VP-7 (3-5)

Lab Sample ID: 200-39979-7

Date Collected: 08/31/17 12:15
Matrix: Air
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**27**		17	17	ug/m3			09/11/17 14:15	2
Dichlorodifluoromethane	4.9	U	4.9	4.9	ug/m3			09/11/17 14:15	2
1,2-Dichlorotetrafluoroethane	2.8	U	2.8	2.8	ug/m3			09/11/17 14:15	2
Chloromethane	2.1	U	2.1	2.1	ug/m3			09/11/17 14:15	2
Vinyl chloride	1.0	U	1.0	1.0	ug/m3			09/11/17 14:15	2
1,3-Butadiene	**2.5**		0.88	0.88	ug/m3			09/11/17 14:15	2
Bromomethane	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
Chloroethane	2.6	U	2.6	2.6	ug/m3			09/11/17 14:15	2
Trichlorofluoromethane	**57**		2.2	2.2	ug/m3			09/11/17 14:15	2
Ethanol	19	U	19	19	ug/m3			09/11/17 14:15	2
Freon TF	3.1	U	3.1	3.1	ug/m3			09/11/17 14:15	2
1,1-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
Acetone	**100**		24	24	ug/m3			09/11/17 14:15	2
Isopropyl alcohol	25	U	25	25	ug/m3			09/11/17 14:15	2
Carbon disulfide	3.1	U	3.1	3.1	ug/m3			09/11/17 14:15	2
Methylene Chloride	3.5	U	3.5	3.5	ug/m3			09/11/17 14:15	2
Methyl tert-butyl ether	1.4	U	1.4	1.4	ug/m3			09/11/17 14:15	2

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-7 (3-5)

Lab Sample ID: 200-39979-7

Date Collected: 08/31/17 12:15
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
trans-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
n-Hexane	**9.6**		1.4	1.4	ug/m3			09/11/17 14:15	2
1,1-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
Vinyl acetate	35	U	35	35	ug/m3			09/11/17 14:15	2
Ethyl acetate	36	U	36	36	ug/m3			09/11/17 14:15	2
Methyl Ethyl Ketone	**27**		2.9	2.9	ug/m3			09/11/17 14:15	2
cis-1,2-Dichloroethene	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
Chloroform	2.0	U	2.0	2.0	ug/m3			09/11/17 14:15	2
Tetrahydrofuran	29	U	29	29	ug/m3			09/11/17 14:15	2
1,1,1-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/11/17 14:15	2
Cyclohexane	**19**		1.4	1.4	ug/m3			09/11/17 14:15	2
Carbon tetrachloride	2.5	U	2.5	2.5	ug/m3			09/11/17 14:15	2
Benzene	**2.0**		1.3	1.3	ug/m3			09/11/17 14:15	2
1,2-Dichloroethane	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
n-Heptane	1.6	U	1.6	1.6	ug/m3			09/11/17 14:15	2
Trichloroethene	2.1	U	2.1	2.1	ug/m3			09/11/17 14:15	2
1,2-Dichloropropane	1.8	U	1.8	1.8	ug/m3			09/11/17 14:15	2
Bromodichloromethane	2.7	U	2.7	2.7	ug/m3			09/11/17 14:15	2
cis-1,3-Dichloropropene	1.8	U	1.8	1.8	ug/m3			09/11/17 14:15	2
Methyl isobutyl ketone	4.1	U	4.1	4.1	ug/m3			09/11/17 14:15	2
Toluene	**10**		1.5	1.5	ug/m3			09/11/17 14:15	2
trans-1,3-Dichloropropene	**5.7**		1.8	1.8	ug/m3			09/11/17 14:15	2
1,1,2-Trichloroethane	2.2	U	2.2	2.2	ug/m3			09/11/17 14:15	2
Tetrachloroethene	**3.5**		2.7	2.7	ug/m3			09/11/17 14:15	2
Methyl Butyl Ketone (2-Hexanone)	4.1	U	4.1	4.1	ug/m3			09/11/17 14:15	2
1,2-Dibromoethane	3.1	U	3.1	3.1	ug/m3			09/11/17 14:15	2
Chlorobenzene	1.8	U	1.8	1.8	ug/m3			09/11/17 14:15	2
Ethylbenzene	1.7	U	1.7	1.7	ug/m3			09/11/17 14:15	2
m,p-Xylene	**4.8**		4.3	4.3	ug/m3			09/11/17 14:15	2
Xylene, o-	1.7	U	1.7	1.7	ug/m3			09/11/17 14:15	2
Styrene	1.7	U	1.7	1.7	ug/m3			09/11/17 14:15	2
Bromoform	4.1	U	4.1	4.1	ug/m3			09/11/17 14:15	2
1,1,2,2-Tetrachloroethane	2.7	U	2.7	2.7	ug/m3			09/11/17 14:15	2
4-Ethyltoluene	2.0	U	2.0	2.0	ug/m3			09/11/17 14:15	2
1,3,5-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/11/17 14:15	2
1,2,4-Trimethylbenzene	2.0	U	2.0	2.0	ug/m3			09/11/17 14:15	2
1,3-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/11/17 14:15	2
1,4-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/11/17 14:15	2
Benzyl chloride	2.1	U	2.1	2.1	ug/m3			09/11/17 14:15	2
1,2-Dichlorobenzene	2.4	U	2.4	2.4	ug/m3			09/11/17 14:15	2
1,2,4-Trichlorobenzene	7.4	U	7.4	7.4	ug/m3			09/11/17 14:15	2
Hexachlorobutadiene	4.3	U	4.3	4.3	ug/m3			09/11/17 14:15	2
Naphthalene	5.2	U	5.2	5.2	ug/m3			09/11/17 14:15	2

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*4.0*	*J*	*ppb v/v*		*3.64*			*09/11/17 14:15*	*2*
Unknown	*5.6*	*J*	*ppb v/v*		*3.95*			*09/11/17 14:15*	*2*
Unknown	*5.8*	*J*	*ppb v/v*		*8.88*			*09/11/17 14:15*	*2*
Nonane, 3-methyl-	*4.2*	*J N*	*ppb v/v*		*19.71*	*5911-04-6*		*09/11/17 14:15*	*2*

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-7 (3-5)

Lab Sample ID: 200-39979-7
Matrix: Air

Date Collected: 08/31/17 12:15
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Benzene, 1-bromo-3-fluoro-	*18*	*J N*	*ppb v/v*		*19.77*	*1073-06-9*		*09/11/17 14:15*	*2*
Heptane, 3-methylene-	*9.1*	*J N*	*ppb v/v*		*20.17*	*1632-16-2*		*09/11/17 14:15*	*2*
1-Decene	*14*	*J N*	*ppb v/v*		*20.26*	*872-05-9*		*09/11/17 14:15*	*2*
Unknown	*10*	*J*	*ppb v/v*		*22.54*			*09/11/17 14:15*	*2*
Unknown	*6.0*	*J*	*ppb v/v*		*23.25*			*09/11/17 14:15*	*2*
Unknown	*4.0*	*J*	*ppb v/v*		*23.68*			*09/11/17 14:15*	*2*

Client Sample ID: VP-8 (3-5)

Lab Sample ID: 200-39979-8
Matrix: Air

Date Collected: 08/31/17 13:00
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	**240**		52	52	ug/m3			09/08/17 22:47	6.06
Dichlorodifluoromethane	15	U	15	15	ug/m3			09/08/17 22:47	6.06
1,2-Dichlorotetrafluoroethane	8.5	U	8.5	8.5	ug/m3			09/08/17 22:47	6.06
Chloromethane	6.3	U	6.3	6.3	ug/m3			09/08/17 22:47	6.06
Vinyl chloride	3.1	U	3.1	3.1	ug/m3			09/08/17 22:47	6.06
1,3-Butadiene	**10**		2.7	2.7	ug/m3			09/08/17 22:47	6.06
Bromomethane	4.7	U	4.7	4.7	ug/m3			09/08/17 22:47	6.06
Chloroethane	8.0	U	8.0	8.0	ug/m3			09/08/17 22:47	6.06
Trichlorofluoromethane	6.8	U	6.8	6.8	ug/m3			09/08/17 22:47	6.06
Ethanol	57	U	57	57	ug/m3			09/08/17 22:47	6.06
Freon TF	9.3	U	9.3	9.3	ug/m3			09/08/17 22:47	6.06
1,1-Dichloroethene	4.8	U	4.8	4.8	ug/m3			09/08/17 22:47	6.06
Acetone	**310**		72	72	ug/m3			09/08/17 22:47	6.06
Isopropyl alcohol	74	U	74	74	ug/m3			09/08/17 22:47	6.06
Carbon disulfide	9.4	U	9.4	9.4	ug/m3			09/08/17 22:47	6.06
Methylene Chloride	11	U	11	11	ug/m3			09/08/17 22:47	6.06
Methyl tert-butyl ether	4.4	U	4.4	4.4	ug/m3			09/08/17 22:47	6.06
trans-1,2-Dichloroethene	4.8	U	4.8	4.8	ug/m3			09/08/17 22:47	6.06
n-Hexane	**25**		4.3	4.3	ug/m3			09/08/17 22:47	6.06
1,1-Dichloroethane	4.9	U	4.9	4.9	ug/m3			09/08/17 22:47	6.06
Vinyl acetate	110	U	110	110	ug/m3			09/08/17 22:47	6.06
Ethyl acetate	110	U	110	110	ug/m3			09/08/17 22:47	6.06
Methyl Ethyl Ketone	**86**		8.9	8.9	ug/m3			09/08/17 22:47	6.06
cis-1,2-Dichloroethene	4.8	U	4.8	4.8	ug/m3			09/08/17 22:47	6.06
Chloroform	5.9	U	5.9	5.9	ug/m3			09/08/17 22:47	6.06
Tetrahydrofuran	89	U	89	89	ug/m3			09/08/17 22:47	6.06
1,1,1-Trichloroethane	6.6	U	6.6	6.6	ug/m3			09/08/17 22:47	6.06
Cyclohexane	4.2	U	4.2	4.2	ug/m3			09/08/17 22:47	6.06
Carbon tetrachloride	7.6	U	7.6	7.6	ug/m3			09/08/17 22:47	6.06
Benzene	**8.6**		3.9	3.9	ug/m3			09/08/17 22:47	6.06
1,2-Dichloroethane	4.9	U	4.9	4.9	ug/m3			09/08/17 22:47	6.06
n-Heptane	**5.5**		5.0	5.0	ug/m3			09/08/17 22:47	6.06
Trichloroethene	6.5	U	6.5	6.5	ug/m3			09/08/17 22:47	6.06
1,2-Dichloropropane	5.6	U	5.6	5.6	ug/m3			09/08/17 22:47	6.06

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-8 (3-5)

Lab Sample ID: 200-39979-8

Date Collected: 08/31/17 13:00
Date Received: 09/07/17 10:20
Sample Container: Summa Canister 6L

Matrix: Air

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

Analyte	Result	Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromodichloromethane	8.1	U	8.1	8.1	ug/m3			09/08/17 22:47	6.06
cis-1,3-Dichloropropene	5.5	U	5.5	5.5	ug/m3			09/08/17 22:47	6.06
Methyl isobutyl ketone	12	U	12	12	ug/m3			09/08/17 22:47	6.06
Toluene	**15**		4.6	4.6	ug/m3			09/08/17 22:47	6.06
trans-1,3-Dichloropropene	5.5	U	5.5	5.5	ug/m3			09/08/17 22:47	6.06
1,1,2-Trichloroethane	6.6	U	6.6	6.6	ug/m3			09/08/17 22:47	6.06
Tetrachloroethene	8.2	U	8.2	8.2	ug/m3			09/08/17 22:47	6.06
Methyl Butyl Ketone (2-Hexanone)	12	U	12	12	ug/m3			09/08/17 22:47	6.06
1,2-Dibromoethane	9.3	U	9.3	9.3	ug/m3			09/08/17 22:47	6.06
Chlorobenzene	5.6	U	5.6	5.6	ug/m3			09/08/17 22:47	6.06
Ethylbenzene	**5.9**		5.3	5.3	ug/m3			09/08/17 22:47	6.06
m,p-Xylene	13	U	13	13	ug/m3			09/08/17 22:47	6.06
Xylene, o-	5.3	U	5.3	5.3	ug/m3			09/08/17 22:47	6.06
Styrene	5.2	U	5.2	5.2	ug/m3			09/08/17 22:47	6.06
Bromoform	13	U	13	13	ug/m3			09/08/17 22:47	6.06
1,1,2,2-Tetrachloroethane	8.3	U	8.3	8.3	ug/m3			09/08/17 22:47	6.06
4-Ethyltoluene	6.0	U	6.0	6.0	ug/m3			09/08/17 22:47	6.06
1,3,5-Trimethylbenzene	6.0	U	6.0	6.0	ug/m3			09/08/17 22:47	6.06
1,2,4-Trimethylbenzene	6.0	U	6.0	6.0	ug/m3			09/08/17 22:47	6.06
1,3-Dichlorobenzene	7.3	U	7.3	7.3	ug/m3			09/08/17 22:47	6.06
1,4-Dichlorobenzene	7.3	U	7.3	7.3	ug/m3			09/08/17 22:47	6.06
Benzyl chloride	6.3	U	6.3	6.3	ug/m3			09/08/17 22:47	6.06
1,2-Dichlorobenzene	7.3	U	7.3	7.3	ug/m3			09/08/17 22:47	6.06
1,2,4-Trichlorobenzene	22	U	22	22	ug/m3			09/08/17 22:47	6.06
Hexachlorobutadiene	13	U	13	13	ug/m3			09/08/17 22:47	6.06
Naphthalene	16	U	16	16	ug/m3			09/08/17 22:47	6.06

Tentatively Identified Compound	*Est. Result*	*Qualifier*	*Unit*	*D*	*RT*	*CAS No.*	*Prepared*	*Analyzed*	*Dil Fac*
Unknown	*7.8*	*J*	*ppb v/v*		*3.42*			*09/08/17 22:47*	*6.06*
1-Propene, 2-methyl-	*31*	*J N*	*ppb v/v*		*3.65*	*115-11-7*		*09/08/17 22:47*	*6.06*
Unknown	*17*	*J*	*ppb v/v*		*3.96*			*09/08/17 22:47*	*6.06*
Unknown	*6.2*	*J*	*ppb v/v*		*4.56*			*09/08/17 22:47*	*6.06*
Cyclotrisiloxane, hexamethyl-	*9.6*	*J N*	*ppb v/v*		*15.03*	*541-05-9*		*09/08/17 22:47*	*6.06*
Nonane, 3-methylene-	*6.1*	*J N*	*ppb v/v*		*20.17*	*51655-64-2*		*09/08/17 22:47*	*6.06*
1-Decene	*9.7*	*J N*	*ppb v/v*		*20.27*	*872-05-9*		*09/08/17 22:47*	*6.06*
Decane	*17*	*J N*	*ppb v/v*		*20.33*	*124-18-5*		*09/08/17 22:47*	*6.06*
Unknown	*7.3*	*J*	*ppb v/v*		*22.54*			*09/08/17 22:47*	*6.06*

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

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

Lab Sample ID: MB 200-120732/4
Matrix: Air
Analysis Batch: 120732

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	8.6	U	8.6	8.6	ug/m3			09/08/17 15:13	1
Dichlorodifluoromethane	2.5	U	2.5	2.5	ug/m3			09/08/17 15:13	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
Chloromethane	1.0	U	1.0	1.0	ug/m3			09/08/17 15:13	1
Vinyl chloride	0.51	U	0.51	0.51	ug/m3			09/08/17 15:13	1
1,3-Butadiene	0.44	U	0.44	0.44	ug/m3			09/08/17 15:13	1
Bromomethane	0.78	U	0.78	0.78	ug/m3			09/08/17 15:13	1
Chloroethane	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
Trichlorofluoromethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Ethanol	9.4	U	9.4	9.4	ug/m3			09/08/17 15:13	1
Freon TF	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
1,1-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
Acetone	12	U	12	12	ug/m3			09/08/17 15:13	1
Isopropyl alcohol	12	U	12	12	ug/m3			09/08/17 15:13	1
Carbon disulfide	1.6	U	1.6	1.6	ug/m3			09/08/17 15:13	1
Methylene Chloride	1.7	U	1.7	1.7	ug/m3			09/08/17 15:13	1
Methyl tert-butyl ether	0.72	U	0.72	0.72	ug/m3			09/08/17 15:13	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
n-Hexane	0.70	U	0.70	0.70	ug/m3			09/08/17 15:13	1
1,1-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/08/17 15:13	1
Vinyl acetate	18	U	18	18	ug/m3			09/08/17 15:13	1
Ethyl acetate	18	U	18	18	ug/m3			09/08/17 15:13	1
Methyl Ethyl Ketone	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
cis-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/08/17 15:13	1
Chloroform	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
Tetrahydrofuran	15	U	15	15	ug/m3			09/08/17 15:13	1
1,1,1-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Cyclohexane	0.69	U	0.69	0.69	ug/m3			09/08/17 15:13	1
Carbon tetrachloride	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
Benzene	0.64	U	0.64	0.64	ug/m3			09/08/17 15:13	1
1,2-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/08/17 15:13	1
n-Heptane	0.82	U	0.82	0.82	ug/m3			09/08/17 15:13	1
Trichloroethene	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
1,2-Dichloropropane	0.92	U	0.92	0.92	ug/m3			09/08/17 15:13	1
Bromodichloromethane	1.3	U	1.3	1.3	ug/m3			09/08/17 15:13	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/08/17 15:13	1
Methyl isobutyl ketone	2.0	U	2.0	2.0	ug/m3			09/08/17 15:13	1
Toluene	0.75	U	0.75	0.75	ug/m3			09/08/17 15:13	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/08/17 15:13	1
1,1,2-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/08/17 15:13	1
Tetrachloroethene	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	2.0	ug/m3			09/08/17 15:13	1
1,2-Dibromoethane	1.5	U	1.5	1.5	ug/m3			09/08/17 15:13	1
Chlorobenzene	0.92	U	0.92	0.92	ug/m3			09/08/17 15:13	1
Ethylbenzene	0.87	U	0.87	0.87	ug/m3			09/08/17 15:13	1
m,p-Xylene	2.2	U	2.2	2.2	ug/m3			09/08/17 15:13	1
Xylene, o-	0.87	U	0.87	0.87	ug/m3			09/08/17 15:13	1
Styrene	0.85	U	0.85	0.85	ug/m3			09/08/17 15:13	1

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

Lab Sample ID: MB 200-120732/4
Matrix: Air
Analysis Batch: 120732

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Bromoform	2.1	U	2.1	2.1	ug/m3			09/08/17 15:13	1
1,1,2,2-Tetrachloroethane	1.4	U	1.4	1.4	ug/m3			09/08/17 15:13	1
4-Ethyltoluene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/08/17 15:13	1
1,3-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
1,4-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
Benzyl chloride	1.0	U	1.0	1.0	ug/m3			09/08/17 15:13	1
1,2-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/08/17 15:13	1
1,2,4-Trichlorobenzene	3.7	U	3.7	3.7	ug/m3			09/08/17 15:13	1
Hexachlorobutadiene	2.1	U	2.1	2.1	ug/m3			09/08/17 15:13	1
Naphthalene	2.6	U	2.6	2.6	ug/m3			09/08/17 15:13	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*					*09/08/17 15:13*	*1*

Lab Sample ID: LCS 200-120732/3
Matrix: Air
Analysis Batch: 120732

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Propylene	17.2	18.3		ug/m3		106	58 - 129
Dichlorodifluoromethane	49.4	53.9		ug/m3		109	68 - 128
1,2-Dichlorotetrafluoroethane	69.9	83.6		ug/m3		120	78 - 138
Chloromethane	20.6	20.6		ug/m3		100	57 - 126
Vinyl chloride	25.6	26.9		ug/m3		105	62 - 125
1,3-Butadiene	22.1	22.1		ug/m3		100	59 - 125
Bromomethane	38.8	38.8		ug/m3		100	68 - 128
Chloroethane	26.4	24.7		ug/m3		94	65 - 125
Trichlorofluoromethane	56.2	56.4		ug/m3		100	67 - 127
Ethanol	28.3	28.9		ug/m3		102	28 - 168
Freon TF	76.6	78.5		ug/m3		102	68 - 128
1,1-Dichloroethene	39.6	37.9		ug/m3		96	67 - 127
Acetone	23.7	23.9		ug/m3		101	64 - 136
Isopropyl alcohol	24.6	21.4		ug/m3		87	55 - 124
Carbon disulfide	31.1	34.8		ug/m3		112	81 - 141
Methylene Chloride	34.7	34.7		ug/m3		100	62 - 122
Methyl tert-butyl ether	36.0	34.6		ug/m3		96	67 - 127
trans-1,2-Dichloroethene	39.6	40.3		ug/m3		102	72 - 132
n-Hexane	35.2	36.5		ug/m3		103	71 - 131
1,1-Dichloroethane	40.5	39.0		ug/m3		96	66 - 126
Vinyl acetate	35.2	35.1		ug/m3		100	62 - 130
Ethyl acetate	36.0	34.9		ug/m3		97	75 - 135
Methyl Ethyl Ketone	29.5	27.6		ug/m3		94	62 - 122
cis-1,2-Dichloroethene	39.6	36.8		ug/m3		93	67 - 127
Chloroform	48.8	46.1		ug/m3		94	69 - 129
Tetrahydrofuran	29.5	28.5		ug/m3		97	61 - 136
1,1,1-Trichloroethane	54.6	53.9		ug/m3		99	70 - 130

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

Lab Sample ID: LCS 200-120732/3
Matrix: Air
Analysis Batch: 120732

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Cyclohexane	34.4	33.7		ug/m3		98	69 - 129
Carbon tetrachloride	62.9	65.1		ug/m3		104	62 - 143
Benzene	31.9	30.0		ug/m3		94	67 - 127
1,2-Dichloroethane	40.5	40.2		ug/m3		99	67 - 132
n-Heptane	41.0	41.3		ug/m3		101	62 - 130
Trichloroethene	53.7	50.3		ug/m3		94	68 - 128
1,2-Dichloropropane	46.2	40.5		ug/m3		88	67 - 127
Bromodichloromethane	67.0	61.8		ug/m3		92	69 - 129
cis-1,3-Dichloropropene	45.4	44.3		ug/m3		98	70 - 130
Methyl isobutyl ketone	41.0	41.5		ug/m3		101	62 - 130
Toluene	37.7	34.8		ug/m3		92	67 - 127
trans-1,3-Dichloropropene	45.4	45.1		ug/m3		99	69 - 129
1,1,2-Trichloroethane	54.6	50.0		ug/m3		92	69 - 129
Tetrachloroethene	67.8	66.7		ug/m3		98	70 - 130
Methyl Butyl Ketone (2-Hexanone)	41.0	39.9		ug/m3		97	61 - 127
1,2-Dibromoethane	76.8	73.7		ug/m3		96	70 - 130
Chlorobenzene	46.0	42.4		ug/m3		92	68 - 128
Ethylbenzene	43.4	39.5		ug/m3		91	68 - 128
m,p-Xylene	86.8	81.3		ug/m3		94	68 - 128
Xylene, o-	43.4	40.4		ug/m3		93	67 - 127
Styrene	42.6	40.0		ug/m3		94	68 - 128
Bromoform	103	107		ug/m3		104	34 - 170
1,1,2,2-Tetrachloroethane	68.6	64.6		ug/m3		94	69 - 129
4-Ethyltoluene	49.2	50.6		ug/m3		103	69 - 129
1,3,5-Trimethylbenzene	49.2	46.0		ug/m3		94	65 - 125
1,2,4-Trimethylbenzene	49.2	46.0		ug/m3		94	65 - 125
1,3-Dichlorobenzene	60.1	62.7		ug/m3		104	67 - 127
1,4-Dichlorobenzene	60.1	60.0		ug/m3		100	66 - 126
Benzyl chloride	51.8	52.0		ug/m3		100	54 - 135
1,2-Dichlorobenzene	60.1	60.0		ug/m3		100	67 - 127
1,2,4-Trichlorobenzene	74.2	66.4		ug/m3		90	59 - 126
Hexachlorobutadiene	107	122		ug/m3		114	62 - 130
Naphthalene	52.4	43.2		ug/m3		83	50 - 121

Lab Sample ID: MB 200-120760/4
Matrix: Air
Analysis Batch: 120760

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Propylene	8.6	U	8.6	8.6	ug/m3			09/11/17 11:13	1
Dichlorodifluoromethane	2.5	U	2.5	2.5	ug/m3			09/11/17 11:13	1
1,2-Dichlorotetrafluoroethane	1.4	U	1.4	1.4	ug/m3			09/11/17 11:13	1
Chloromethane	1.0	U	1.0	1.0	ug/m3			09/11/17 11:13	1
Vinyl chloride	0.51	U	0.51	0.51	ug/m3			09/11/17 11:13	1
1,3-Butadiene	0.44	U	0.44	0.44	ug/m3			09/11/17 11:13	1
Bromomethane	0.78	U	0.78	0.78	ug/m3			09/11/17 11:13	1
Chloroethane	1.3	U	1.3	1.3	ug/m3			09/11/17 11:13	1
Trichlorofluoromethane	1.1	U	1.1	1.1	ug/m3			09/11/17 11:13	1

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

Lab Sample ID: MB 200-120760/4
Matrix: Air
Analysis Batch: 120760

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ethanol	9.4	U	9.4	9.4	ug/m3			09/11/17 11:13	1
Freon TF	1.5	U	1.5	1.5	ug/m3			09/11/17 11:13	1
1,1-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/11/17 11:13	1
Acetone	12	U	12	12	ug/m3			09/11/17 11:13	1
Isopropyl alcohol	12	U	12	12	ug/m3			09/11/17 11:13	1
Carbon disulfide	1.6	U	1.6	1.6	ug/m3			09/11/17 11:13	1
Methylene Chloride	1.7	U	1.7	1.7	ug/m3			09/11/17 11:13	1
Methyl tert-butyl ether	0.72	U	0.72	0.72	ug/m3			09/11/17 11:13	1
trans-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/11/17 11:13	1
n-Hexane	0.70	U	0.70	0.70	ug/m3			09/11/17 11:13	1
1,1-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/11/17 11:13	1
Vinyl acetate	18	U	18	18	ug/m3			09/11/17 11:13	1
Ethyl acetate	18	U	18	18	ug/m3			09/11/17 11:13	1
Methyl Ethyl Ketone	1.5	U	1.5	1.5	ug/m3			09/11/17 11:13	1
cis-1,2-Dichloroethene	0.79	U	0.79	0.79	ug/m3			09/11/17 11:13	1
Chloroform	0.98	U	0.98	0.98	ug/m3			09/11/17 11:13	1
Tetrahydrofuran	15	U	15	15	ug/m3			09/11/17 11:13	1
1,1,1-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/11/17 11:13	1
Cyclohexane	0.69	U	0.69	0.69	ug/m3			09/11/17 11:13	1
Carbon tetrachloride	1.3	U	1.3	1.3	ug/m3			09/11/17 11:13	1
Benzene	0.64	U	0.64	0.64	ug/m3			09/11/17 11:13	1
1,2-Dichloroethane	0.81	U	0.81	0.81	ug/m3			09/11/17 11:13	1
n-Heptane	0.82	U	0.82	0.82	ug/m3			09/11/17 11:13	1
Trichloroethene	1.1	U	1.1	1.1	ug/m3			09/11/17 11:13	1
1,2-Dichloropropane	0.92	U	0.92	0.92	ug/m3			09/11/17 11:13	1
Bromodichloromethane	1.3	U	1.3	1.3	ug/m3			09/11/17 11:13	1
cis-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/11/17 11:13	1
Methyl isobutyl ketone	2.0	U	2.0	2.0	ug/m3			09/11/17 11:13	1
Toluene	0.75	U	0.75	0.75	ug/m3			09/11/17 11:13	1
trans-1,3-Dichloropropene	0.91	U	0.91	0.91	ug/m3			09/11/17 11:13	1
1,1,2-Trichloroethane	1.1	U	1.1	1.1	ug/m3			09/11/17 11:13	1
Tetrachloroethene	1.4	U	1.4	1.4	ug/m3			09/11/17 11:13	1
Methyl Butyl Ketone (2-Hexanone)	2.0	U	2.0	2.0	ug/m3			09/11/17 11:13	1
1,2-Dibromoethane	1.5	U	1.5	1.5	ug/m3			09/11/17 11:13	1
Chlorobenzene	0.92	U	0.92	0.92	ug/m3			09/11/17 11:13	1
Ethylbenzene	0.87	U	0.87	0.87	ug/m3			09/11/17 11:13	1
m,p-Xylene	2.2	U	2.2	2.2	ug/m3			09/11/17 11:13	1
Xylene, o-	0.87	U	0.87	0.87	ug/m3			09/11/17 11:13	1
Styrene	0.85	U	0.85	0.85	ug/m3			09/11/17 11:13	1
Bromoform	2.1	U	2.1	2.1	ug/m3			09/11/17 11:13	1
1,1,2,2-Tetrachloroethane	1.4	U	1.4	1.4	ug/m3			09/11/17 11:13	1
4-Ethyltoluene	0.98	U	0.98	0.98	ug/m3			09/11/17 11:13	1
1,3,5-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/11/17 11:13	1
1,2,4-Trimethylbenzene	0.98	U	0.98	0.98	ug/m3			09/11/17 11:13	1
1,3-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/11/17 11:13	1
1,4-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/11/17 11:13	1
Benzyl chloride	1.0	U	1.0	1.0	ug/m3			09/11/17 11:13	1
1,2-Dichlorobenzene	1.2	U	1.2	1.2	ug/m3			09/11/17 11:13	1

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

Lab Sample ID: MB 200-120760/4
Matrix: Air
Analysis Batch: 120760

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

Analyte	MB Result	MB Qualifier	RL	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,2,4-Trichlorobenzene	3.7	U	3.7	3.7	ug/m3			09/11/17 11:13	1
Hexachlorobutadiene	2.1	U	2.1	2.1	ug/m3			09/11/17 11:13	1
Naphthalene	2.6	U	2.6	2.6	ug/m3			09/11/17 11:13	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*					*09/11/17 11:13*	*1*

Lab Sample ID: LCS 200-120760/3
Matrix: Air
Analysis Batch: 120760

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Propylene	17.2	16.0		ug/m3		93	58 - 129
Dichlorodifluoromethane	49.4	46.5		ug/m3		94	68 - 128
1,2-Dichlorotetrafluoroethane	69.9	72.6		ug/m3		104	78 - 138
Chloromethane	20.6	17.7		ug/m3		86	57 - 126
Vinyl chloride	25.6	22.7		ug/m3		89	62 - 125
1,3-Butadiene	22.1	19.0		ug/m3		86	59 - 125
Bromomethane	38.8	34.1		ug/m3		88	68 - 128
Chloroethane	26.4	19.6		ug/m3		74	65 - 125
Trichlorofluoromethane	56.2	50.8		ug/m3		91	67 - 127
Ethanol	28.3	24.7		ug/m3		87	28 - 168
Freon TF	76.6	72.6		ug/m3		95	68 - 128
1,1-Dichloroethene	39.6	36.4		ug/m3		92	67 - 127
Acetone	23.7	21.0		ug/m3		88	64 - 136
Isopropyl alcohol	24.6	18.7		ug/m3		76	55 - 124
Carbon disulfide	31.1	32.2		ug/m3		103	81 - 141
Methylene Chloride	34.7	31.0		ug/m3		89	62 - 122
Methyl tert-butyl ether	36.0	32.5		ug/m3		90	67 - 127
trans-1,2-Dichloroethene	39.6	38.0		ug/m3		96	72 - 132
n-Hexane	35.2	34.1		ug/m3		97	71 - 131
1,1-Dichloroethane	40.5	37.1		ug/m3		92	66 - 126
Vinyl acetate	35.2	32.4		ug/m3		92	62 - 130
Ethyl acetate	36.0	34.7		ug/m3		96	75 - 135
Methyl Ethyl Ketone	29.5	25.0		ug/m3		85	62 - 122
cis-1,2-Dichloroethene	39.6	35.7		ug/m3		90	67 - 127
Chloroform	48.8	45.1		ug/m3		92	69 - 129
Tetrahydrofuran	29.5	24.2		ug/m3		82	61 - 136
1,1,1-Trichloroethane	54.6	48.6		ug/m3		89	70 - 130
Cyclohexane	34.4	31.3		ug/m3		91	69 - 129
Carbon tetrachloride	62.9	59.3		ug/m3		94	62 - 143
Benzene	31.9	27.6		ug/m3		86	67 - 127
1,2-Dichloroethane	40.5	37.1		ug/m3		92	67 - 132
n-Heptane	41.0	36.0		ug/m3		88	62 - 130
Trichloroethene	53.7	47.6		ug/m3		89	68 - 128
1,2-Dichloropropane	46.2	42.6		ug/m3		92	67 - 127
Bromodichloromethane	67.0	61.6		ug/m3		92	69 - 129
cis-1,3-Dichloropropene	45.4	44.3		ug/m3		98	70 - 130

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

Lab Sample ID: LCS 200-120760/3
Matrix: Air
Analysis Batch: 120760

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Methyl isobutyl ketone	41.0	33.8		ug/m3		83	62 - 130
Toluene	37.7	34.5		ug/m3		92	67 - 127
trans-1,3-Dichloropropene	45.4	43.3		ug/m3		96	69 - 129
1,1,2-Trichloroethane	54.6	51.3		ug/m3		94	69 - 129
Tetrachloroethene	67.8	65.1		ug/m3		96	70 - 130
Methyl Butyl Ketone (2-Hexanone)	41.0	33.1		ug/m3		81	61 - 127
1,2-Dibromoethane	76.8	75.4		ug/m3		98	70 - 130
Chlorobenzene	46.0	44.3		ug/m3		96	68 - 128
Ethylbenzene	43.4	39.9		ug/m3		92	68 - 128
m,p-Xylene	86.8	79.5		ug/m3		92	68 - 128
Xylene, o-	43.4	39.9		ug/m3		92	67 - 127
Styrene	42.6	39.5		ug/m3		93	68 - 128
Bromoform	103	106		ug/m3		103	34 - 170
1,1,2,2-Tetrachloroethane	68.6	62.5		ug/m3		91	69 - 129
4-Ethyltoluene	49.2	47.8		ug/m3		97	69 - 129
1,3,5-Trimethylbenzene	49.2	45.3		ug/m3		92	65 - 125
1,2,4-Trimethylbenzene	49.2	45.7		ug/m3		93	65 - 125
1,3-Dichlorobenzene	60.1	58.9		ug/m3		98	67 - 127
1,4-Dichlorobenzene	60.1	57.3		ug/m3		95	66 - 126
Benzyl chloride	51.8	49.1		ug/m3		95	54 - 135
1,2-Dichlorobenzene	60.1	57.8		ug/m3		96	67 - 127
1,2,4-Trichlorobenzene	74.2	63.2		ug/m3		85	59 - 126
Hexachlorobutadiene	107	113		ug/m3		106	62 - 130
Naphthalene	52.4	36.6		ug/m3		70	50 - 121

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Air - GC/MS VOA

Analysis Batch: 120732

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-39979-6	VP-6 (3-5)	Total/NA	Air	TO-15	
200-39979-8	VP-8 (3-5)	Total/NA	Air	TO-15	
MB 200-120732/4	Method Blank	Total/NA	Air	TO-15	
LCS 200-120732/3	Lab Control Sample	Total/NA	Air	TO-15	

Analysis Batch: 120760

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
200-39979-7	VP-7 (3-5)	Total/NA	Air	TO-15	
MB 200-120760/4	Method Blank	Total/NA	Air	TO-15	
LCS 200-120760/3	Lab Control Sample	Total/NA	Air	TO-15	

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Client Sample ID: VP-6 (3-5)

Lab Sample ID: 200-39979-6
Date Collected: 08/31/17 11:31
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		10	120732	09/08/17 21:06	K1P	TAL BUR

Client Sample ID: VP-7 (3-5)

Lab Sample ID: 200-39979-7
Date Collected: 08/31/17 12:15
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		2	120760	09/11/17 14:15	K1P	TAL BUR

Client Sample ID: VP-8 (3-5)

Lab Sample ID: 200-39979-8
Date Collected: 08/31/17 13:00
Matrix: Air
Date Received: 09/07/17 10:20

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	TO-15		6.06	120732	09/08/17 22:47	K1P	TAL BUR

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Laboratory: TestAmerica Burlington

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	050-999-436	12-31-17

The following analytes are included in this report, but are not accredited/certified under this accreditation/certification:

Analysis Method	Prep Method	Matrix	Analyte
TO-15		Air	Vinyl acetate

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Method	Method Description	Protocol	Laboratory
TO-15	Volatile Organic Compounds in Ambient Air	EPA	TAL BUR

Protocol References:

EPA = US Environmental Protection Agency

Laboratory References:

TAL BUR = TestAmerica Burlington, 30 Community Drive, Suite 11, South Burlington, VT 05403, TEL (802)660-1990

Sample Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Ph. II

TestAmerica Job ID: 200-39979-2
SDG: 200-39979-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
200-39979-6	VP-6 (3-5)	Air	08/31/17 11:31	09/07/17 10:20
200-39979-7	VP-7 (3-5)	Air	08/31/17 12:15	09/07/17 10:20
200-39979-8	VP-8 (3-5)	Air	08/31/17 13:00	09/07/17 10:20

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jenna Vujic	**Samples Collected By:** TB	1 of 1 COCs
Company: AET Mankato	Phone:		
Address:	Email:		
City/State/Zip			
Phone:	Site Contact:		
FAX:	TA Contact:		
Project Name: City of Mankato LSI	**Analysis Turnaround Time**		
Site:	Standard (Specify) X		
PO # 03-06706	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, "Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
VP-1 (3-5)	8/30	1103	1133	30	5	5294	5091	X											
VP-2 (3-5)	8/30	1708	1738	30	4	6131	4020	X											
VP-3 (3-5)	8/31	0737	0807	29	5	6121	5150	X											
* VP-4 (water in canister)																			
VP-5 (3-5)	8/30	1218	1248	29	4	4710	6014	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (Inches of Hg)	Interior	Ambient	
Start			
Stop			

200-39979 Chain of Custody

Special Instructions/QC Requirements & Comments:
* Water in VP-4. No sample collected. do not analyze!

Samples Shipped by:	Date/Time:	Samples Received by: TABUR 9/7/17 10:00
Samples Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

Lab Use Only **Shipper Name:** BR **Opened by:** VLH **Condition:** Intact

TestAmerica Burlington
30 Community Drive
Suite 11
South Burlington, VT 05403
phone 802-660-1990 fax 802-660-1919

Canister Samples Chain of Custody Record

TestAmerica Analytical Testing Corp. assumes no liability with respect to the collection and shipment of these samples.

Client Contact Information	Project Manager: Jenna Vujic	**Samples Collected By:** TB	1 of 1 COCs
Company: AET Mankato	Phone:		
Address:	Email:		
City/State/Zip			
Phone:	Site Contact:		
FAX:	TA Contact:		
Project Name: City of Mankato Ph. II	**Analysis Turnaround Time**		
Site:	Standard (Specify) X		
PO # 03-06166	Rush (Specify)		

Sample Identification	Sample Date(s)	Time Start	Time Stop	Canister Vacuum in Field, "Hg (Start)	Canister Vacuum in Field, 'Hg (Stop)	Flow Controller ID	Canister ID	TO-15	MA-APH	EPA 3C	EPA 25C	ASTM D-1946	Other (Please specify in notes section)	Sample Type	Indoor Air	Ambient Air	Soil Gas	Landfill Gas	Other (Please specify in notes section)
VP-6 (3-5)	8/31	1101	1131	30	5	4687	3526	X											
VP-7 (3-5)	8/31	1145	1215	30	6	5371	4561	X											
VP-8 (3-5)	8/31	1230	1300	31	6	4698	5029	X											

Temperature (Fahrenheit)	Interior	Ambient	
Start			
Stop			

Pressure (inches of Hg)	Interior	Ambient	
Start			
Stop			

Special Instructions/QC Requirements & Comments:

Samples Shipped by:	Date/Time:	Samples Received by: VLH TABUL 9/7/17 1070	
Samples Relinquished by:	Date/Time:	Received by:	
Relinquished by:	Date/Time:	Received by:	

Lab Use Only **Shipper Name:** BR **Opened by:** VLH **Condition:** Intact

FROM: (507) 387-2222
american engineering
1730 first ave
Mankato MN 56001
US

SHIP DATE: 01SEP17
ACTWGT: 30.40 LB
CAD: 006994548/SSFE1802
DIMMED: 21 X 20 X 17 IN
BILL RECIPIENT

TO sample recieving
TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 05403 (US)
(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Ground

1 of 2
TRK# 7875 9320 5558
MASTER
05403
9622 0422 1 (000 000 0000) 0 00 7875 9320 5558

FROM: (507) 387-2222
american engineering
1730 first ave
Mankato MN 56001
US

SHIP DATE: 01SEP17
ACTWGT: 30.40 LB
CAD: 006994548/SSFE1802
DIMMED: 21 X 20 X 17 IN
BILL RECIPIENT

TO sample recieving
TEST AMERICA BURLINGTON
30 COMMUNITY DR
STE 11
SOUTH BURLINGTON VT 05403 (US)
(802) 660-1990 REF:
INV:
PO: DEPT:

FedEx Ground

2 of 2
MPS# 7875 9320 5569
Mstr# 7875 9320 5558
05403
9622 0422 1 (000 000 0000) 0 00 7875 9320 5569

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 200-39979-2
SDG Number: 200-39979-1

Login Number: 39979
List Number: 1
Creator: Lavigne, Scott M

List Source: TestAmerica Burlington

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	True	Lab does not accept radioactive samples.
The cooler's custody seal, if present, is intact.	True	Not present
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.	N/A	Thermal preservation not required.
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 (excluding tests with immediate HTs)	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.	N/A	
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	

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type:	
Bottom Rack	20	7/17/2017	EJE	1L	6L	Individual	Batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Date:	Time:	Tech:	Temp:	Final Reading Gauge:	Date:	Time:	Tech:	Temp:
1	5130	.04	.05	.01	-29.3	T	7/21/17	1200	—	23	G-25	7/22/17	1100	—	23
2	5404	.04	.05	.01	-29.5	G25	7.18.17	10:30	EE	22		8.1.17	13:00	EE	23
3	2620		.05	.01	-29.5										
4	5717		.10	.06	-29.5										
5	5608		.05	.01	-29.5										
6	4277		.22	.18	-29.5										
7	5077		.05	.01	-29.5										
8	4020		.05	.01	-29.5										
9	6014		.22	.18	-29.5										
10	5091		.04	0	-29.5										
11	5720		.04	0	-29.5										
12	4561		.26	.22	-29.5										

[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.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (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** **Date:**

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	Secondary Review Limited	Review Date	Reviewer
5130	7/20/17	25955	BK		XXXX				7/20/17	WMD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

FAI023:04.26.17:10
TestAmerica Burlington

AET Project No. 03-06166

200-39337-A-1
5130
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 7/17/2017 12:00 AM 200-1054129

Loc: 200
39337
#1
A

Pre-Shipment Clean Canister Certification Report

Canister Cleaning & Pre-Shipment Leak Test

System ID	# Cycles	Cleaning Date	Technician	Canister Size		Certification Type	
Top Rack	20	7/18/2017	EJE	1L	6L	Individual	Batch

Port	Can ID	Initial[1] (psia)	Final (psia)	Diff.[3]	Final ("Hg)	Initial Reading Gauge:	Initial Reading Date:	Initial Reading Time:	Initial Reading Tech:	Initial Reading Temp:	Final Reading Gauge:	Final Reading Date:	Final Reading Time:	Final Reading Tech:	Final Reading Temp:
1	4380	.04	.22	.18	-29.5	G25	8/2/17	1200	SW	23	G25	8/3/17	0915	SW	23
2	3398	.04	.04	Ø	-29.5	G25	7.20.17	11:15	CE	22	G25	8.1.17	13:30	CE	23
3	~~4153~~														
4	~~4920~~														
5	3044	.04	.07	.03	-29.5			11:15			G25	8.1.17	13:30	CE	23
6	3526		.16	.12	-29.5										
7	4115		.06	.02	-29.5										
8	5458		.04	Ø	-29.5										
9	5054		.13	.09	-29.5										
10	5029		.04	Ø	-29.5										
11	4821		.04	Ø	-29.5										
12	4317		.05	.01	-29.5										

EE 7.20 EJT

[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.

[3] Difference = Final Pressure - Initial Pressure . Acceptance Criteria: (1) The difference must be less than or equal to + 0.25psi. (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** **Date:**

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	Secondary Review Limited	Review Date	Reviewer
4380	7/22/17	26014	KP		XXXX				7/26/17	PAD

Inventory Level 1: Individual Canister Certification (TO15LL 0.01).

Inventory Level 2: Individual or Batch Certification (TO15 0.04 ppbv).

Inventory Level 3: Individual or Batch Certification (TO15 0.2 ppbv).

Inventory Level 4: Individual or Batch Certification (TO15LLNJ 0.08 ppbv).

Inventory Level Limited: Canisters may only be used for certain projects.

Comments:

FAI023:04.26.17:10
TestAmerica Burlington

9/14/2017

200-39345-A-1
4380
Location: Air-Storage
Bottle: Summa Canister 6L
Sampled: 7/18/2017 12:00 AM 200-1054638

39345
#1
A

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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	0.080	U	0.080	0.080
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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)	0.14	U	0.14	0.14
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39337-1
SDG No.:
Client Sample ID: 5130 Lab Sample ID: 200-39337-1
Matrix: Air Lab File ID: 25955-15.d
Analysis Method: TO-15 Date Collected: 07/17/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/19/2017 05:33
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.: 118667 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:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\25955-15.d				
Lims ID:	200-39337-A-1				
Client ID:	5130				
Sample Type:	Client				
Inject. Date:	19-Jul-2017 05:33:30	ALS Bottle#:	14	Worklist Smp#:	15
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Sample Info:	200-0025955-15				
Operator ID:	ert	Instrument ID:	CHW.i		
Method:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\TO15_MasterMethod_(v1).m				
Limit Group:	AI_TO15_ICAL				
Last Update:	20-Jul-2017 13:29:54	Calib Date:	19-Jun-2017 20:48:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Burlington\ChromData\CHW.i\20170619-25526.b\25526-10.d				
Column 1 :	RTX-624 (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK023				

First Level Reviewer: puangmaleek Date: 20-Jul-2017 09:08:38

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		5.249				ND	
2 Dichlorodifluoromethane	85		5.367				ND	
3 Chlorodifluoromethane	51		5.447				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		5.779				ND	
5 Chloromethane	50		5.971				ND	
6 Butane	43		6.244				ND	
7 Vinyl chloride	62		6.303				ND	
8 Butadiene	54		6.399				ND	
10 Bromomethane	94		7.196				ND	
11 Chloroethane	64		7.453				ND	
13 Vinyl bromide	106		7.860				ND	
14 Trichlorofluoromethane	101		7.956				ND	
17 Ethanol	45		8.459				ND	
20 1,1,2-Trichloro-1,2,2-trif	101		8.962				ND	
21 1,1-Dichloroethene	96		9.026				ND	
22 Acetone	43	9.240	9.219	0.021	70	9955	0.3265	7
23 Carbon disulfide	76		9.422				ND	
24 Isopropyl alcohol	45	9.443	9.427	0.016	96	6933	0.1994	
25 3-Chloro-1-propene	41		9.727				ND	
27 Methylene Chloride	49		9.989				ND	
28 2-Methyl-2-propanol	59		10.112				ND	
S 30 1,2-Dichloroethene, Total	61		10.200				ND	
29 Methyl tert-butyl ether	73		10.331				ND	
31 trans-1,2-Dichloroethene	61		10.390				ND	
33 Hexane	57		10.717				ND	
34 1,1-Dichloroethane	63		11.193				ND	
35 Vinyl acetate	43		11.219				ND	
37 cis-1,2-Dichloroethene	96		12.204				ND	
38 2-Butanone (MEK)	72		12.220				ND	
39 Ethyl acetate	88		12.231				ND	
41 Tetrahydrofuran	42		12.632				ND	
* 40 Chlorobromomethane	128	12.626	12.637	-0.011	96	119067	10.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
42 Chloroform	83		12.723				ND	
43 Cyclohexane	84		12.990				ND	
44 1,1,1-Trichloroethane	97		13.006				ND	
45 Carbon tetrachloride	117		13.236				ND	
46 Isooctane	57		13.584				ND	
47 Benzene	78		13.654				ND	
48 1,2-Dichloroethane	62		13.798				ND	
49 n-Heptane	43		13.900				ND	
* 50 1,4-Difluorobenzene	114	14.338	14.344	-0.006	96	596946	10.0	
53 Trichloroethene	95		14.777				ND	
54 1,2-Dichloropropane	63		15.274				ND	
55 Methyl methacrylate	69		15.349				ND	
56 1,4-Dioxane	88		15.435				ND	
57 Dibromomethane	174		15.505				ND	
58 Dichlorobromomethane	83		15.729				ND	
60 cis-1,3-Dichloropropene	75		16.558				ND	
61 4-Methyl-2-pentanone (MIBK	43		16.788				ND	
65 Toluene	92		17.109				ND	
66 trans-1,3-Dichloropropene	75		17.628				ND	
67 1,1,2-Trichloroethane	83		17.987				ND	
68 Tetrachloroethene	166		18.110				ND	
69 2-Hexanone	43		18.372				ND	
71 Chlorodibromomethane	129		18.714				ND	
72 Ethylene Dibromide	107		18.993				ND	
* 74 Chlorobenzene-d5	117	19.832	19.832	0.000	90	514935	10.0	
75 Chlorobenzene	112		19.891				ND	
76 Ethylbenzene	91		20.020				ND	
S 73 Xylenes, Total	106		20.100				ND	
78 m-Xylene & p-Xylene	106		20.250				ND	
79 o-Xylene	106		20.999				ND	
80 Styrene	104		21.041				ND	
81 Bromoform	173		21.427				ND	
82 Isopropylbenzene	105		21.587				ND	
84 1,1,2,2-Tetrachloroethane	83		22.176				ND	
85 N-Propylbenzene	91		22.245				ND	
88 4-Ethyltoluene	105		22.422				ND	
89 2-Chlorotoluene	91		22.443				ND	
90 1,3,5-Trimethylbenzene	105		22.518				ND	
92 tert-Butylbenzene	119		22.989				ND	
93 1,2,4-Trimethylbenzene	105		23.074				ND	
94 sec-Butylbenzene	105		23.304				ND	
95 4-Isopropyltoluene	119		23.502				ND	
96 1,3-Dichlorobenzene	146		23.556				ND	
97 1,4-Dichlorobenzene	146		23.695				ND	
98 Benzyl chloride	91		23.904				ND	
100 n-Butylbenzene	91		24.112				ND	
101 1,2-Dichlorobenzene	146		24.273				ND	
103 1,2,4-Trichlorobenzene	180		27.017				ND	
104 Hexachlorobutadiene	225		27.210				ND	
105 Naphthalene	128		27.568				ND	

QC Flag Legend

Processing Flags

7 - Failed Limit of Detection

Reagents:

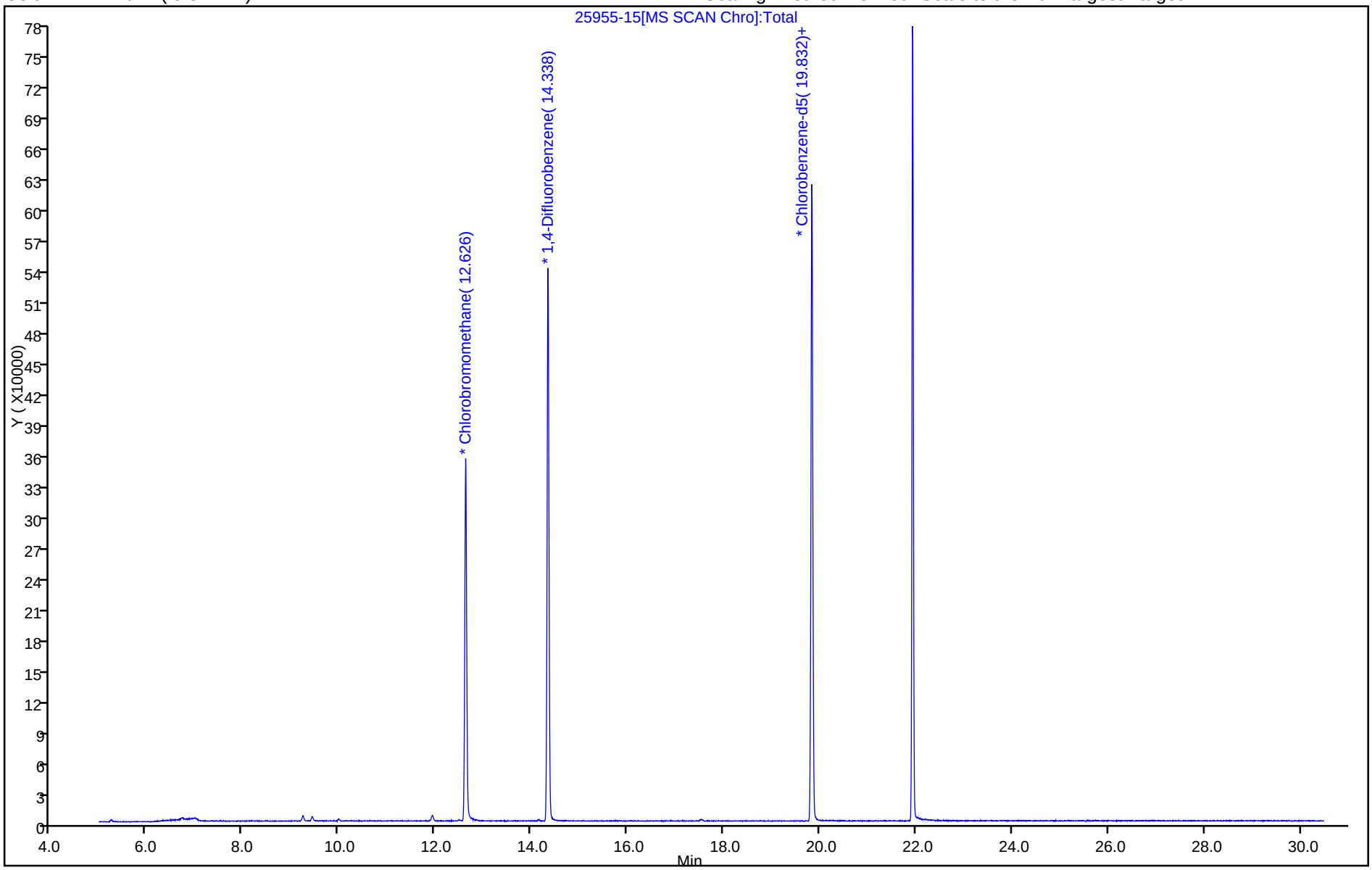
ATTO15WISs_00004	Amount Added: 20.00	Units: mL	Run Reagent

Report Date: 20-Jul-2017 13:30:25 Chrom Revision: 2.2 26-Jun-2017 09:07:56

TestAmerica Burlington

Data File:	\\ChromNA\Burlington\ChromData\CHW.i\20170718-25955.b\25955-15.d				
Injection Date:	19-Jul-2017 05:33:30	Instrument ID:	CHW.i	Operator ID:	ert
Lims ID:	200-39337-A-1	Lab Sample ID:	200-39337-1	Worklist Smp#:	15
Client ID:	5130				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	14
Method:	TO15_MasterMethod_(v1)	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.: 200-39345-1
SDG No.:
Client Sample ID: 4380 Lab Sample ID: 200-39345-1
Matrix: Air Lab File ID: 26014_13.D
Analysis Method: TO-15 Date Collected: 07/18/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/21/2017 21:44
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.: 118814 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	0.080	U	0.080	0.080
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39345-1
SDG No.:
Client Sample ID: 4380 Lab Sample ID: 200-39345-1
Matrix: Air Lab File ID: 26014_13.D
Analysis Method: TO-15 Date Collected: 07/18/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/21/2017 21:44
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.: 118814 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)	0.14	U	0.14	0.14
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 TO-15

FORM I
AIR - GC/MS VOA ORGANICS ANALYSIS DATA SHEET

Lab Name: TestAmerica Burlington Job No.: 200-39345-1
SDG No.:
Client Sample ID: 4380 Lab Sample ID: 200-39345-1
Matrix: Air Lab File ID: 26014_13.D
Analysis Method: TO-15 Date Collected: 07/18/2017 00:00
Sample wt/vol: 1000(mL) Date Analyzed: 07/21/2017 21:44
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.: 118814 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:	\\ChromNA\Burlington\ChromData\CHC.i\20170721-26014.b\26014_13.D				
Lims ID:	200-39345-A-1				
Client ID:	4380				
Sample Type:	Client				
Inject. Date:	21-Jul-2017 21:44:30	ALS Bottle#:	12	Worklist Smp#:	13
Purge Vol:	200.000 mL	Dil. Factor:	0.2000		
Sample Info:	200-0026014-013				
Operator ID:	pad	Instrument ID:	CHC.i		
Method:	\\ChromNA\Burlington\ChromData\CHC.i\20170721-26014.b\TO15_MasterMethod_(v1)_CHC.i.m				
Limit Group:	AI_TO15_ICAL				
Last Update:	24-Jul-2017 14:26:10	Calib Date:	08-Jun-2017 10:01:30		
Integrator:	RTE	ID Type:	Deconvolution ID		
Quant Method:	Internal Standard	Quant By:	Initial Calibration		
Last ICal File:	\\ChromNA\Burlington\ChromData\CHC.i\20170607-25386.b\25386_18.D				
Column 1 :	RTX-624 (0.32 mm)		Det: MS SCAN		
Process Host:	XAWRK004				

First Level Reviewer: puangmaleek Date: 24-Jul-2017 14:27:33

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
1 Propene	41		2.978				ND	
2 Dichlorodifluoromethane	85		3.048				ND	
3 Chlorodifluoromethane	51		3.101				ND	
4 1,2-Dichloro-1,1,2,2-tetra	85		3.314				ND	
5 Chloromethane	50		3.442				ND	
6 Butane	43		3.645				ND	
7 Vinyl chloride	62		3.688				ND	
8 Butadiene	54		3.763				ND	
10 Bromomethane	94		4.440				ND	
11 Chloroethane	64		4.686				ND	
13 Vinyl bromide	106		5.076				ND	
14 Trichlorofluoromethane	101		5.182				ND	
17 Ethanol	45		5.780				ND	
20 1,1,2-Trichloro-1,2,2-trif	101		6.282				ND	
21 1,1-Dichloroethene	96		6.314				ND	
22 Acetone	43		6.549				ND	
23 Carbon disulfide	76		6.693				ND	
24 Isopropyl alcohol	45		6.874				ND	
25 3-Chloro-1-propene	41		7.114				ND	
27 Methylene Chloride	49		7.413				ND	
28 2-Methyl-2-propanol	59		7.659				ND	
29 Methyl tert-butyl ether	73		7.824				ND	
31 trans-1,2-Dichloroethene	61		7.861				ND	
33 Hexane	57		8.262				ND	
34 1,1-Dichloroethane	63		8.737				ND	
35 Vinyl acetate	43		8.822				ND	
37 cis-1,2-Dichloroethene	96		9.863				ND	
38 2-Butanone (MEK)	72		9.900				ND	
39 Ethyl acetate	88		9.959				ND	
S 30 1,2-Dichloroethene, Total	61		10.200				ND	
41 Tetrahydrofuran	42		10.327				ND	
* 40 Chlorobromomethane	128	10.322	10.327	-0.005	88	172891	10.0	

Compound	Sig	RT (min.)	Adj RT (min.)	Dlt RT (min.)	Q	Response	OnCol Amt ppb v/v	Flags
42 Chloroform	83		10.471				ND	
43 Cyclohexane	84		10.711				ND	
44 1,1,1-Trichloroethane	97		10.738				ND	
45 Carbon tetrachloride	117		10.989				ND	
46 Isooctane	57		11.442				ND	
47 Benzene	78		11.453				ND	
48 1,2-Dichloroethane	62		11.640				ND	
49 n-Heptane	43		11.848				ND	
* 50 1,4-Difluorobenzene	114	12.312	12.318	-0.006	98	993170	10.0	
53 Trichloroethene	95		12.787				ND	
54 1,2-Dichloropropane	63		13.342				ND	
55 Methyl methacrylate	69		13.529				ND	
56 1,4-Dioxane	88		13.572				ND	
57 Dibromomethane	174		13.604				ND	
58 Dichlorobromomethane	83		13.913				ND	
60 cis-1,3-Dichloropropene	75		14.863				ND	
61 4-Methyl-2-pentanone (MIBK	43		15.152				ND	
65 Toluene	92		15.456				ND	
66 trans-1,3-Dichloropropene	75		16.064				ND	
67 1,1,2-Trichloroethane	83		16.432				ND	
68 Tetrachloroethene	166		16.550				ND	
69 2-Hexanone	43		16.881				ND	
71 Chlorodibromomethane	129		17.196				ND	
72 Ethylene Dibromide	107		17.457				ND	
* 74 Chlorobenzene-d5	117	18.359	18.359	0.000	92	963692	10.0	
75 Chlorobenzene	112		18.418				ND	
76 Ethylbenzene	91		18.578				ND	
78 m-Xylene & p-Xylene	106		18.823				ND	
79 o-Xylene	106		19.661				ND	
80 Styrene	104		19.715				ND	
S 73 Xylenes, Total	106		20.100				ND	
81 Bromoform	173		20.147				ND	
82 Isopropylbenzene	105		20.360				ND	
84 1,1,2,2-Tetrachloroethane	83		21.028				ND	
85 N-Propylbenzene	91		21.097				ND	
88 4-Ethyltoluene	105		21.289				ND	
89 2-Chlorotoluene	91		21.294				ND	
90 1,3,5-Trimethylbenzene	105		21.396				ND	
92 tert-Butylbenzene	119		21.887				ND	
93 1,2,4-Trimethylbenzene	105		21.983				ND	
94 sec-Butylbenzene	105		22.218				ND	
95 4-Isopropyltoluene	119		22.420				ND	
96 1,3-Dichlorobenzene	146		22.447				ND	
97 1,4-Dichlorobenzene	146		22.586				ND	
98 Benzyl chloride	91		22.773				ND	
100 n-Butylbenzene	91		22.986				ND	
101 1,2-Dichlorobenzene	146		23.104				ND	
103 1,2,4-Trichlorobenzene	180		25.537				ND	
104 Hexachlorobutadiene	225		25.724				ND	
105 Naphthalene	128		25.996				ND	

Reagents:

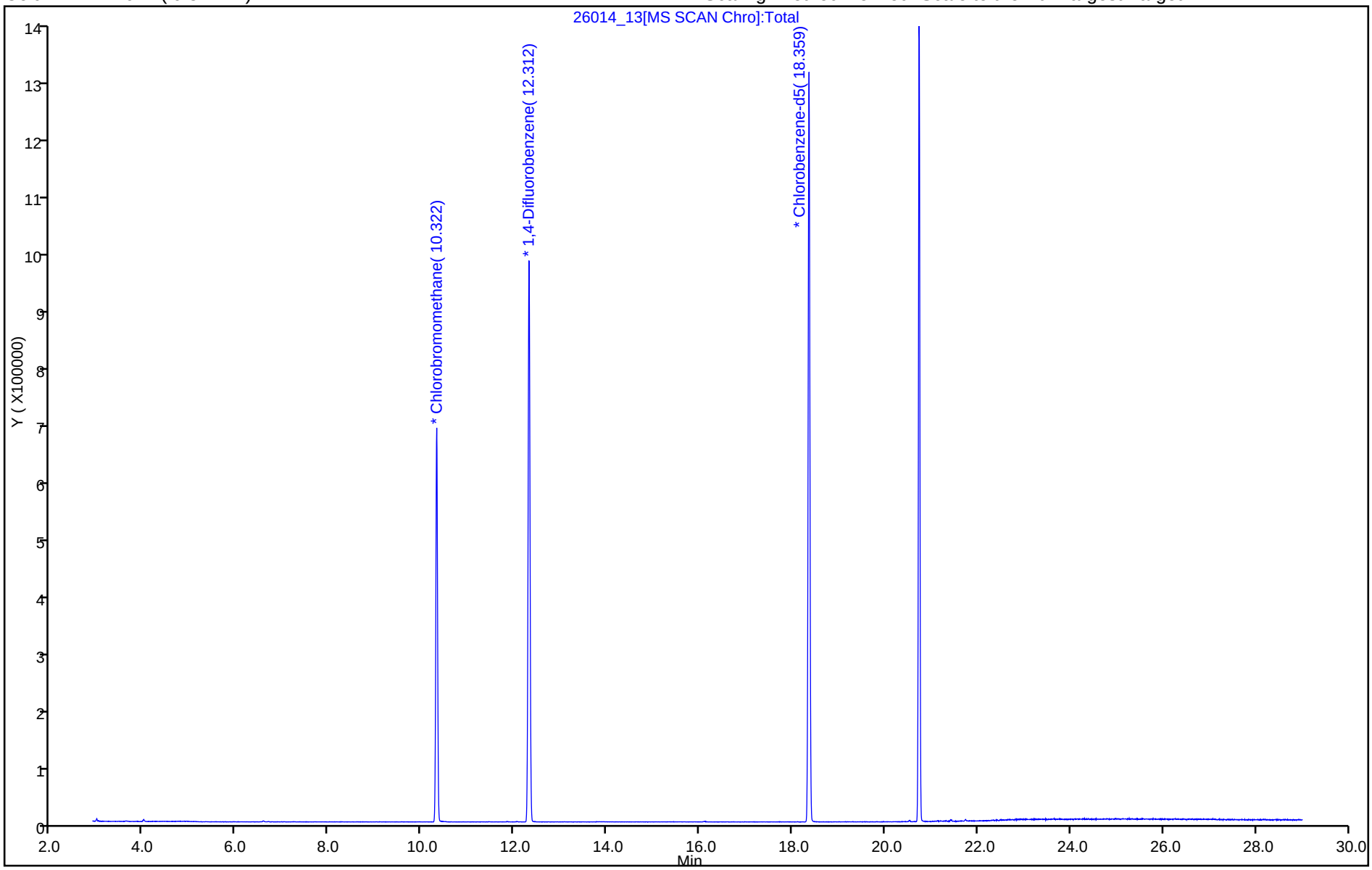
ATTO15CISs_00010 Amount Added: 20.00 Units: mL Run Reagent

Report Date: 24-Jul-2017 14:27:33 Chrom Revision: 2.2 26-Jun-2017 09:07:56

TestAmerica Burlington

Data File:	\\ChromNA\Burlington\ChromData\CHC.i\20170721-26014.b\26014_13.D				
Injection Date:	21-Jul-2017 21:44:30	Instrument ID:	CHC.i	Operator ID:	pad
Lims ID:	200-39345-A-1	Lab Sample ID:	200-39345-1	Worklist Smp#:	13
Client ID:	4380				
Purge Vol:	200.000 mL	Dil. Factor:	0.2000	ALS Bottle#:	12
Method:	TO15_MasterMethod_(v1)_CHC.i	Limit Group:	AI_TO15_ICAL		

Column: RTX-624 (0.32 mm) Y Scaling: Method Defined: Scale to the Nth Largest Target: 1



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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: 310-113424-1
TestAmerica Sample Delivery Group: 03-06166
Client Project/Site: City of Mankato Phase II

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/8/2017 2:44:16 PM

Zach Bindert, Project Manager I
(319)277-2401
zach.bindert@testamericainc.com

REVIEWED
By Tyler Boley at 9:47 am, Sep 25, 2017

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Detection Summary 5
Client Sample Results 7
Definitions 14
QC Sample Results 15
QC Association 17
Chronicle 19
Certification Summary 22
Method Summary 23
Chain of Custody 24
Receipt Checklists 26

Job ID: 310-113424-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-113424-1

Comments
No additional comments.

Receipt
The samples were received on 9/2/2017 9:15 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 10.8º C.

Metals
Method(s) 6010C: The following sample was diluted due to the presence of an interferent: GP-1 (1-2) (310-113424-1). Elevated reporting limits (RLs) are provided.

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

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

Sample Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-113424-1	GP-1 (1-2)	Soil	08/30/17 11:35	09/02/17 09:15
310-113424-2	GP-1 (8-10)	Soil	08/30/17 11:40	09/02/17 09:15
310-113424-3	GP-2 (14-16)	Soil	08/30/17 17:30	09/02/17 09:15
310-113424-4	GP-2 (22-24)	Soil	08/30/17 18:10	09/02/17 09:15
310-113424-5	GP-3 (8-10)	Soil	08/31/17 07:50	09/02/17 09:15
310-113424-6	GP-4 (8-10)	Soil	08/31/17 09:50	09/02/17 09:15
310-113424-7	GP-5 (8-10)	Soil	08/30/17 14:00	09/02/17 09:15

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-1 (1-2) — Lab Sample ID: 310-113424-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	59.4	F1	0.778		mg/Kg	2	☼	6010C	Total/NA
Chromium	8.20		1.56		mg/Kg	2	☼	6010C	Total/NA
Lead	21.7		7.78		mg/Kg	2	☼	6010C	Total/NA
Arsenic	2.30		0.463		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-1 (8-10) — Lab Sample ID: 310-113424-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	84.0		0.470		mg/Kg	1	☼	6010C	Total/NA
Chromium	12.9		0.939		mg/Kg	1	☼	6010C	Total/NA
Lead	6.52		4.70		mg/Kg	1	☼	6010C	Total/NA
Arsenic	3.50		0.567		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-2 (14-16) — Lab Sample ID: 310-113424-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	60.4		0.490		mg/Kg	1	☼	6010C	Total/NA
Chromium	13.5		0.980		mg/Kg	1	☼	6010C	Total/NA
Lead	6.17		4.90		mg/Kg	1	☼	6010C	Total/NA
Arsenic	1.88		0.513		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-2 (22-24) — Lab Sample ID: 310-113424-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	64.8		0.448		mg/Kg	1	☼	6010C	Total/NA
Cadmium	1.01		0.896		mg/Kg	1	☼	6010C	Total/NA
Chromium	16.3		0.896		mg/Kg	1	☼	6010C	Total/NA
Lead	9.75		4.48		mg/Kg	1	☼	6010C	Total/NA
Arsenic	7.10		0.618		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-3 (8-10) — Lab Sample ID: 310-113424-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	82.6		0.425		mg/Kg	1	☼	6010C	Total/NA
Chromium	13.5		0.849		mg/Kg	1	☼	6010C	Total/NA
Lead	6.77		4.25		mg/Kg	1	☼	6010C	Total/NA
Arsenic	3.24		0.618		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-4 (8-10) — Lab Sample ID: 310-113424-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	42.9		0.457		mg/Kg	1	☼	6010C	Total/NA
Chromium	10.3		0.913		mg/Kg	1	☼	6010C	Total/NA
Lead	5.58		4.57		mg/Kg	1	☼	6010C	Total/NA
Arsenic	1.89		0.574		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-5 (8-10) — Lab Sample ID: 310-113424-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Barium	64.0		0.439		mg/Kg	1	☼	6010C	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-5 (8-10) (Continued)

Lab Sample ID: 310-113424-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Chromium	10.8		0.878		mg/Kg	1	☼	6010C	Total/NA
Lead	5.50		4.39		mg/Kg	1	☼	6010C	Total/NA
Arsenic	2.78		0.478		mg/Kg	12	☼	7010	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-1 (1-2)

Lab Sample ID: 310-113424-1

Date Collected: 08/30/17 11:35

Matrix: Soil

Date Received: 09/02/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**59.4**	**F1**	0.778		mg/Kg	☼	09/06/17 10:00	09/07/17 14:36	2
Cadmium	<1.56		1.56		mg/Kg	☼	09/06/17 10:00	09/07/17 14:36	2
Chromium	**8.20**		1.56		mg/Kg	☼	09/06/17 10:00	09/07/17 14:36	2
Lead	**21.7**		7.78		mg/Kg	☼	09/06/17 10:00	09/07/17 14:36	2
Silver	<1.56		1.56		mg/Kg	☼	09/06/17 10:00	09/07/17 14:36	2

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.30**		0.463		mg/Kg	☼	09/06/17 10:00	09/06/17 16:26	12
Selenium	<0.772		0.772		mg/Kg	☼	09/06/17 10:00	09/06/17 19:57	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0206		0.0206		mg/Kg	☼	09/07/17 13:32	09/08/17 11:54	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-1 (8-10)

Lab Sample ID: 310-113424-2

Date Collected: 08/30/17 11:40

Matrix: Soil

Date Received: 09/02/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**84.0**		0.470		mg/Kg	☼	09/06/17 10:00	09/07/17 14:00	1
Cadmium	<0.939		0.939		mg/Kg	☼	09/06/17 10:00	09/07/17 14:00	1
Chromium	**12.9**		0.939		mg/Kg	☼	09/06/17 10:00	09/07/17 14:00	1
Lead	**6.52**		4.70		mg/Kg	☼	09/06/17 10:00	09/07/17 14:00	1
Silver	<0.939		0.939		mg/Kg	☼	09/06/17 10:00	09/07/17 14:00	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.50**		0.567		mg/Kg	☼	09/06/17 10:00	09/06/17 16:38	12
Selenium	<0.945		0.945		mg/Kg	☼	09/06/17 10:00	09/06/17 20:01	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0237		0.0237		mg/Kg	☼	09/07/17 13:32	09/08/17 11:59	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-2 (14-16)

Lab Sample ID: 310-113424-3

Date Collected: 08/30/17 17:30
Date Received: 09/02/17 09:15

Matrix: Soil

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**60.4**		0.490		mg/Kg	☼	09/06/17 10:00	09/07/17 14:06	1
Cadmium	<0.980		0.980		mg/Kg	☼	09/06/17 10:00	09/07/17 14:06	1
Chromium	**13.5**		0.980		mg/Kg	☼	09/06/17 10:00	09/07/17 14:06	1
Lead	**6.17**		4.90		mg/Kg	☼	09/06/17 10:00	09/07/17 14:06	1
Silver	<0.980		0.980		mg/Kg	☼	09/06/17 10:00	09/07/17 14:06	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.88**		0.513		mg/Kg	☼	09/05/17 14:56	09/06/17 16:42	12
Selenium	<0.855		0.855		mg/Kg	☼	09/05/17 14:56	09/06/17 20:04	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0248		0.0248		mg/Kg	☼	09/07/17 13:32	09/08/17 12:00	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-2 (22-24)

Lab Sample ID: 310-113424-4

Date Collected: 08/30/17 18:10
Date Received: 09/02/17 09:15

Matrix: Soil

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**64.8**		0.448		mg/Kg	☼	09/06/17 10:00	09/07/17 14:08	1
Cadmium	**1.01**		0.896		mg/Kg	☼	09/06/17 10:00	09/07/17 14:08	1
Chromium	**16.3**		0.896		mg/Kg	☼	09/06/17 10:00	09/07/17 14:08	1
Lead	**9.75**		4.48		mg/Kg	☼	09/06/17 10:00	09/07/17 14:08	1
Silver	<0.896		0.896		mg/Kg	☼	09/06/17 10:00	09/07/17 14:08	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.10**		0.618		mg/Kg	☼	09/05/17 14:56	09/06/17 16:46	12
Selenium	<1.03		1.03		mg/Kg	☼	09/05/17 14:56	09/06/17 20:08	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0252		0.0252		mg/Kg	☼	09/07/17 13:32	09/08/17 12:02	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-3 (8-10)

Lab Sample ID: 310-113424-5

Date Collected: 08/31/17 07:50

Matrix: Soil

Date Received: 09/02/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**82.6**		0.425		mg/Kg	☼	09/06/17 10:00	09/07/17 14:10	1
Cadmium	<0.849		0.849		mg/Kg	☼	09/06/17 10:00	09/07/17 14:10	1
Chromium	**13.5**		0.849		mg/Kg	☼	09/06/17 10:00	09/07/17 14:10	1
Lead	**6.77**		4.25		mg/Kg	☼	09/06/17 10:00	09/07/17 14:10	1
Silver	<0.849		0.849		mg/Kg	☼	09/06/17 10:00	09/07/17 14:10	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.24**		0.618		mg/Kg	☼	09/05/17 14:56	09/06/17 16:50	12
Selenium	<1.03		1.03		mg/Kg	☼	09/05/17 14:56	09/06/17 20:18	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0199		0.0199		mg/Kg	☼	09/07/17 13:32	09/08/17 12:04	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-4 (8-10)

Lab Sample ID: 310-113424-6

Date Collected: 08/31/17 09:50

Matrix: Soil

Date Received: 09/02/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**42.9**		0.457		mg/Kg	☼	09/06/17 10:00	09/07/17 14:12	1
Cadmium	<0.913		0.913		mg/Kg	☼	09/06/17 10:00	09/07/17 14:12	1
Chromium	**10.3**		0.913		mg/Kg	☼	09/06/17 10:00	09/07/17 14:12	1
Lead	**5.58**		4.57		mg/Kg	☼	09/06/17 10:00	09/07/17 14:12	1
Silver	<0.913		0.913		mg/Kg	☼	09/06/17 10:00	09/07/17 14:12	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**1.89**		0.574		mg/Kg	☼	09/05/17 14:56	09/06/17 16:54	12
Selenium	<0.956		0.956		mg/Kg	☼	09/05/17 14:56	09/06/17 20:21	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0207		0.0207		mg/Kg	☼	09/07/17 13:32	09/08/17 12:05	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-5 (8-10)

Lab Sample ID: 310-113424-7

Date Collected: 08/30/17 14:00

Matrix: Soil

Date Received: 09/02/17 09:15

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**64.0**		0.439		mg/Kg	☼	09/06/17 10:00	09/07/17 14:15	1
Cadmium	<0.878		0.878		mg/Kg	☼	09/06/17 10:00	09/07/17 14:15	1
Chromium	**10.8**		0.878		mg/Kg	☼	09/06/17 10:00	09/07/17 14:15	1
Lead	**5.50**		4.39		mg/Kg	☼	09/06/17 10:00	09/07/17 14:15	1
Silver	<0.878		0.878		mg/Kg	☼	09/06/17 10:00	09/07/17 14:15	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.78**		0.478		mg/Kg	☼	09/05/17 14:56	09/06/17 16:58	12
Selenium	<0.797		0.797		mg/Kg	☼	09/05/17 14:56	09/06/17 20:25	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0227		0.0227		mg/Kg	☼	09/07/17 13:32	09/08/17 12:10	1

Definitions/Glossary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Qualifiers

Metals

Qualifier	Qualifier Description
F1	MS and/or MSD Recovery is outside acceptance limits.

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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)

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-177811/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178198 — **Prep Batch: 177811**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.464		0.464		mg/Kg		09/06/17 10:00	09/07/17 13:39	1
Cadmium	<0.928		0.928		mg/Kg		09/06/17 10:00	09/07/17 13:39	1
Chromium	<0.928		0.928		mg/Kg		09/06/17 10:00	09/07/17 13:39	1
Lead	<4.64		4.64		mg/Kg		09/06/17 10:00	09/07/17 13:39	1
Silver	<0.928		0.928		mg/Kg		09/06/17 10:00	09/07/17 13:39	1

Lab Sample ID: LCS 310-177811/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178198 — **Prep Batch: 177811**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	77.3	77.03		mg/Kg		100	80 - 120
Cadmium	77.3	76.87		mg/Kg		99	80 - 120
Chromium	77.3	76.36		mg/Kg		99	80 - 120
Lead	155	158.3		mg/Kg		102	80 - 120
Silver	77.3	80.02		mg/Kg		104	80 - 120

Lab Sample ID: 310-113424-1 MS — **Client Sample ID: GP-1 (1-2)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178198 — **Prep Batch: 177811**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	59.4	F1	75.2	114.9	F1	mg/Kg	☼	74	75 - 125
Cadmium	<1.56		75.2	69.82		mg/Kg	☼	92	75 - 125
Chromium	8.20		75.2	79.54		mg/Kg	☼	95	75 - 125
Lead	21.7		150	161.1		mg/Kg	☼	93	75 - 125
Silver	<1.56		75.2	74.02		mg/Kg	☼	98	75 - 125

Lab Sample ID: 310-113424-1 MSD — **Client Sample ID: GP-1 (1-2)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178198 — **Prep Batch: 177811**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Barium	59.4	F1	70.5	105.4	F1	mg/Kg	☼	65	75 - 125	9	20
Cadmium	<1.56		70.5	67.83		mg/Kg	☼	95	75 - 125	3	20
Chromium	8.20		70.5	71.30		mg/Kg	☼	89	75 - 125	11	20
Lead	21.7		141	158.9		mg/Kg	☼	97	75 - 125	1	20
Silver	<1.56		70.5	73.46		mg/Kg	☼	104	75 - 125	1	20

Lab Sample ID: 310-113424-7 DU — **Client Sample ID: GP-5 (8-10)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178198 — **Prep Batch: 177811**

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Barium	64.0		64.03		mg/Kg	☼	0.05	20
Cadmium	<0.878		<0.862		mg/Kg	☼	NC	20
Chromium	10.8		10.30		mg/Kg	☼	5	20
Lead	5.50		5.554		mg/Kg	☼	0.9	20
Silver	<0.878		<0.862		mg/Kg	☼	NC	20

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Method: 7010 - Metals (GFAA)

Lab Sample ID: MB 310-177774/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 177985 — **Prep Batch: 177774**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0429		0.0429		mg/Kg		09/06/17 10:00	09/06/17 15:00	1

Lab Sample ID: LCS 310-177774/2-A ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 177985 — **Prep Batch: 177774**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.73	1.916		mg/Kg		110	80 - 120

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 310-178087/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178202 — **Prep Batch: 178087**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0170		0.0170		mg/Kg		09/07/17 13:32	09/08/17 11:51	1

Lab Sample ID: LCS 310-178087/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178202 — **Prep Batch: 178087**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.157	0.1426		mg/Kg		91	80 - 120

Lab Sample ID: 310-113424-1 MS — **Client Sample ID: GP-1 (1-2)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178202 — **Prep Batch: 178087**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	<0.0206		0.155	0.1497		mg/Kg	☼	97	80 - 120

Lab Sample ID: 310-113424-1 MSD — **Client Sample ID: GP-1 (1-2)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178202 — **Prep Batch: 178087**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Mercury	<0.0206		0.143	0.1489		mg/Kg	☼	104	80 - 120	1	20

QC Association Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Metals

Prep Batch: 177774

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	3050B	
310-113424-2	GP-1 (8-10)	Total/NA	Soil	3050B	
310-113424-3	GP-2 (14-16)	Total/NA	Soil	3050B	
310-113424-4	GP-2 (22-24)	Total/NA	Soil	3050B	
310-113424-5	GP-3 (8-10)	Total/NA	Soil	3050B	
310-113424-6	GP-4 (8-10)	Total/NA	Soil	3050B	
310-113424-7	GP-5 (8-10)	Total/NA	Soil	3050B	
MB 310-177774/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-177774/2-A ^2	Lab Control Sample	Total/NA	Solid	3050B	

Prep Batch: 177811

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	3050B	
310-113424-2	GP-1 (8-10)	Total/NA	Soil	3050B	
310-113424-3	GP-2 (14-16)	Total/NA	Soil	3050B	
310-113424-4	GP-2 (22-24)	Total/NA	Soil	3050B	
310-113424-5	GP-3 (8-10)	Total/NA	Soil	3050B	
310-113424-6	GP-4 (8-10)	Total/NA	Soil	3050B	
310-113424-7	GP-5 (8-10)	Total/NA	Soil	3050B	
MB 310-177811/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-177811/2-A	Lab Control Sample	Total/NA	Solid	3050B	
310-113424-1 MS	GP-1 (1-2)	Total/NA	Soil	3050B	
310-113424-1 MSD	GP-1 (1-2)	Total/NA	Soil	3050B	
310-113424-7 DU	GP-5 (8-10)	Total/NA	Soil	3050B	

Analysis Batch: 177985

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	7010	177774
310-113424-2	GP-1 (8-10)	Total/NA	Soil	7010	177774
310-113424-3	GP-2 (14-16)	Total/NA	Soil	7010	177774
310-113424-4	GP-2 (22-24)	Total/NA	Soil	7010	177774
310-113424-5	GP-3 (8-10)	Total/NA	Soil	7010	177774
310-113424-6	GP-4 (8-10)	Total/NA	Soil	7010	177774
310-113424-7	GP-5 (8-10)	Total/NA	Soil	7010	177774
MB 310-177774/1-A	Method Blank	Total/NA	Solid	7010	177774
LCS 310-177774/2-A ^2	Lab Control Sample	Total/NA	Solid	7010	177774

Analysis Batch: 178014

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	7010	177774
310-113424-2	GP-1 (8-10)	Total/NA	Soil	7010	177774
310-113424-3	GP-2 (14-16)	Total/NA	Soil	7010	177774
310-113424-4	GP-2 (22-24)	Total/NA	Soil	7010	177774
310-113424-5	GP-3 (8-10)	Total/NA	Soil	7010	177774
310-113424-6	GP-4 (8-10)	Total/NA	Soil	7010	177774
310-113424-7	GP-5 (8-10)	Total/NA	Soil	7010	177774

Prep Batch: 178087

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	7471B	
310-113424-2	GP-1 (8-10)	Total/NA	Soil	7471B	

Metals (Continued)

Prep Batch: 178087 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-3	GP-2 (14-16)	Total/NA	Soil	7471B	
310-113424-4	GP-2 (22-24)	Total/NA	Soil	7471B	
310-113424-5	GP-3 (8-10)	Total/NA	Soil	7471B	
310-113424-6	GP-4 (8-10)	Total/NA	Soil	7471B	
310-113424-7	GP-5 (8-10)	Total/NA	Soil	7471B	
MB 310-178087/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 310-178087/2-A	Lab Control Sample	Total/NA	Solid	7471B	
310-113424-1 MS	GP-1 (1-2)	Total/NA	Soil	7471B	
310-113424-1 MSD	GP-1 (1-2)	Total/NA	Soil	7471B	

Analysis Batch: 178198

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	6010C	177811
310-113424-2	GP-1 (8-10)	Total/NA	Soil	6010C	177811
310-113424-3	GP-2 (14-16)	Total/NA	Soil	6010C	177811
310-113424-4	GP-2 (22-24)	Total/NA	Soil	6010C	177811
310-113424-5	GP-3 (8-10)	Total/NA	Soil	6010C	177811
310-113424-6	GP-4 (8-10)	Total/NA	Soil	6010C	177811
310-113424-7	GP-5 (8-10)	Total/NA	Soil	6010C	177811
MB 310-177811/1-A	Method Blank	Total/NA	Solid	6010C	177811
LCS 310-177811/2-A	Lab Control Sample	Total/NA	Solid	6010C	177811
310-113424-1 MS	GP-1 (1-2)	Total/NA	Soil	6010C	177811
310-113424-1 MSD	GP-1 (1-2)	Total/NA	Soil	6010C	177811
310-113424-7 DU	GP-5 (8-10)	Total/NA	Soil	6010C	177811

Analysis Batch: 178202

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113424-1	GP-1 (1-2)	Total/NA	Soil	7471B	178087
310-113424-2	GP-1 (8-10)	Total/NA	Soil	7471B	178087
310-113424-3	GP-2 (14-16)	Total/NA	Soil	7471B	178087
310-113424-4	GP-2 (22-24)	Total/NA	Soil	7471B	178087
310-113424-5	GP-3 (8-10)	Total/NA	Soil	7471B	178087
310-113424-6	GP-4 (8-10)	Total/NA	Soil	7471B	178087
310-113424-7	GP-5 (8-10)	Total/NA	Soil	7471B	178087
MB 310-178087/1-A	Method Blank	Total/NA	Solid	7471B	178087
LCS 310-178087/2-A	Lab Control Sample	Total/NA	Solid	7471B	178087
310-113424-1 MS	GP-1 (1-2)	Total/NA	Soil	7471B	178087
310-113424-1 MSD	GP-1 (1-2)	Total/NA	Soil	7471B	178087

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-1 (1-2)

Lab Sample ID: 310-113424-1

Date Collected: 08/30/17 11:35
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		2	178198	09/07/17 14:36	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:26	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 19:57	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 11:54	MEG	TAL CF

Client Sample ID: GP-1 (8-10)

Lab Sample ID: 310-113424-2

Date Collected: 08/30/17 11:40
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178198	09/07/17 14:00	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:38	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:01	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 11:59	MEG	TAL CF

Client Sample ID: GP-2 (14-16)

Lab Sample ID: 310-113424-3

Date Collected: 08/30/17 17:30
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178198	09/07/17 14:06	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:42	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:04	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 12:00	MEG	TAL CF

Client Sample ID: GP-2 (22-24)

Lab Sample ID: 310-113424-4

Date Collected: 08/30/17 18:10
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-2 (22-24)

Lab Sample ID: 310-113424-4

Date Collected: 08/30/17 18:10
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	6010C		1	178198	09/07/17 14:08	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:46	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:08	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 12:02	MEG	TAL CF

Client Sample ID: GP-3 (8-10)

Lab Sample ID: 310-113424-5

Date Collected: 08/31/17 07:50
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178198	09/07/17 14:10	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:50	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:18	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 12:04	MEG	TAL CF

Client Sample ID: GP-4 (8-10)

Lab Sample ID: 310-113424-6

Date Collected: 08/31/17 09:50
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178198	09/07/17 14:12	SAD	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:54	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:21	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 12:05	MEG	TAL CF

Client Sample ID: GP-5 (8-10)

Lab Sample ID: 310-113424-7

Date Collected: 08/30/17 14:00
Matrix: Soil
Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177811	09/06/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178198	09/07/17 14:15	SAD	TAL CF

Lab Chronicle

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Client Sample ID: GP-5 (8-10)

Lab Sample ID: 310-113424-7

Date Collected: 08/30/17 14:00

Matrix: Soil

Date Received: 09/02/17 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		12	177985	09/06/17 16:58	MEG	TAL CF
Total/NA	Prep	3050B			177774	09/05/17 14:56	JNR	TAL CF
Total/NA	Analysis	7010		4	178014	09/06/17 20:25	SAD	TAL CF
Total/NA	Prep	7471B			178087	09/07/17 13:32	JIS	TAL CF
Total/NA	Analysis	7471B		1	178202	09/08/17 12:10	MEG	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-17

Analysis Method	Prep Method	Matrix	Analyte

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113424-1
SDG: 03-06166

Method	Method Description	Protocol	Laboratory
6010C	Metals (ICP)	SW846	TAL CF
7010	Metals (GFAA)	SW846	TAL CF
7471B	Mercury (CVAA)	SW846	TAL CF

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
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310-113424 Chain of Custody

Cooler/Sample Receipt and Temperatu

Client Information

Client: AET

City/State: Mankato, MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9.2.17 915 | Received By: BKM

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☐ Yes	☑ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: 14 | Correction Factor (°C): 0.0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 10.8 | Corrected Temp (°C): 10.8

• Sample Container Temperature

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER AET- Mankato

ADDRESS:

PHONE:

№ 21795

PAGE 1 OF 1

AET PROJECT NUMBER 03-06166

PROJECT NAME/LOCATION City of Mankato Phase II

AET PROJECT MANAGER Jenna Vujic

SEND REPORT TO Jenna Vujic & Tyler Boley

SAMPLED BY (PRINT) Tyler Boley

SAMPLER SIGNATURE Tyl Bg

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	MeOH	HCL	H_2SO_4	HNO_3		FIELD FILTERED Y/N	ANALYSIS: 8 RCRA Metals	REMARKS
01	GP-1 (1-2)	8/30	1135	Soil	1	1						N	X	
02	GP-1 (8-10)	8/30	1140										X	
03	GP-2 (14-16)	8/30	1730										X	
04	GP-2 (22-24)	8/30	1810										X	
05	GP-3 (8-10)	8/31	0770										X	
06	GP-4 (8-10)	8/31	0950										X	
07	GP-5 (8-10)	8/70	1400										X	

NOTE:

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
01-07	Tyl Bg / AET	Jammy Hagen	9/1/17	15:00
		Brittany Myl	9.2.17	9:15

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 310-113424-1
SDG Number: 03-06166

Login Number: 113424
List Number: 1
Creator: Leitz, Gemma H

List Source: TestAmerica Cedar Falls

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.	N/A	
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.	False	Cooler temperature outside required temperature criteria.
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	

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ANALYTICAL REPORT

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

TestAmerica Job ID: 310-113888-1
TestAmerica Sample Delivery Group: 03-06166
Client Project/Site: City of Mankato Phase II

For:
American Engineering Testing Inc.
1730 First Avenue
Mankato, Minnesota 56001

Attn: Jenna Vujic

Authorized for release by:
9/15/2017 9:32:09 AM

Zach Bindert, Project Manager I
(319)277-2401
zach.bindert@testamericainc.com

REVIEWED
By Tyler Boley at 10:00 am, Sep 25, 2017

LINKS

Review your project results through TotalAccess

Have a Question? Ask The Expert

Visit us at: www.testamericainc.com

This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Table of Contents

Cover Page 1
Table of Contents 2
Case Narrative 3
Sample Summary 4
Detection Summary 5
Client Sample Results 8
Definitions 32
Surrogate Summary 33
QC Sample Results 35
QC Association 45
Chronicle 49
Certification Summary 53
Method Summary 54
Chain of Custody 55
Receipt Checklists 58

Job ID: 310-113888-1

Laboratory: TestAmerica Cedar Falls

Narrative

Job Narrative
310-113888-1

Comments
No additional comments.

Receipt
The samples were received on 9/9/2017 9:30 AM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperatures of the 2 coolers at receipt time were 0.9º C and 5.9º C.

GC/MS VOA
Method 8260B: The method blank for preparation batch 310-178564 contained Methylene Chloride above the reporting limit (RL). None of the samples associated with this method blank contained the target compound; therefore, re-extraction and/or re-analysis of samples were not performed.

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

GC/MS Semi VOA
Method 8270D SIM: The following sample was diluted due to the nature of the sample matrix: GP-12 (3-5) (310-113888-8). Elevated reporting limits (RLs) are provided.

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

GC Semi VOA
Method WI-DRO: Significant peaks, readily distinguished from background, were detected in the following samples within five minutes after the end of the analytical window defined by the last component eluting in the Diesel Range Organics (DRO) mix (i.e., n-Octacosane): GP-6 (3-5) (310-113888-1), GP-6 (16-18) (310-113888-2), GP-7 (3-5) (310-113888-3), GP-8 (3-5) (310-113888-4), GP-9 (3-5) (310-113888-5), GP-10 (3-5) (310-113888-6) and GP-12 (3-5) (310-113888-8).

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

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

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: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-113888-1	GP-6 (3-5)	Soil	09/05/17 09:50	09/09/17 09:30
310-113888-2	GP-6 (16-18)	Soil	09/05/17 10:00	09/09/17 09:30
310-113888-3	GP-7 (3-5)	Soil	09/05/17 10:30	09/09/17 09:30
310-113888-4	GP-8 (3-5)	Soil	09/05/17 12:05	09/09/17 09:30
310-113888-5	GP-9 (3-5)	Soil	09/05/17 13:25	09/09/17 09:30
310-113888-6	GP-10 (3-5)	Soil	09/05/17 14:35	09/09/17 09:30
310-113888-7	GP-11 (3-5)	Soil	09/05/17 15:35	09/09/17 09:30
310-113888-8	GP-12 (3-5)	Soil	09/05/17 16:55	09/09/17 09:30

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (3-5) — Lab Sample ID: 310-113888-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.0175		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Anthracene	0.0141		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]anthracene	0.0873		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.0945		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.130		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.0544		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.0407		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Chrysene	0.0886		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.0163		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Fluoranthene	0.157		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.0537		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Phenanthrene	0.0516		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.154		0.0119		mg/Kg	1	☼	8270D SIM	Total/NA
Barium	89.4		0.516		mg/Kg	1	☼	6010C	Total/NA
Chromium	12.4		1.03		mg/Kg	1	☼	6010C	Total/NA
Lead	7.47		5.16		mg/Kg	1	☼	6010C	Total/NA
Arsenic	4.55		0.560		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-6 (16-18) — Lab Sample ID: 310-113888-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Anthracene	0.0151		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.0172		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.0318		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.0225		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.0162		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.0166		0.0110		mg/Kg	1	☼	8270D SIM	Total/NA
Diesel Range Organics (DRO)	43.2		6.00		mg/Kg	1	☼	WI-DRO	Total/NA
Barium	75.1		0.484		mg/Kg	1	☼	6010C	Total/NA
Chromium	10.4		0.969		mg/Kg	1	☼	6010C	Total/NA
Lead	8.45		4.84		mg/Kg	1	☼	6010C	Total/NA
Arsenic	4.42		0.503		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-7 (3-5) — Lab Sample ID: 310-113888-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.0114		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.0114		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.0149		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Fluoranthene	0.0209		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.0186		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Barium	76.2		0.488		mg/Kg	1	☼	6010C	Total/NA
Chromium	10.6		0.976		mg/Kg	1	☼	6010C	Total/NA
Lead	10.7		4.88		mg/Kg	1	☼	6010C	Total/NA
Arsenic	3.74		0.627		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-8 (3-5) — Lab Sample ID: 310-113888-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthylene	0.0136		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-8 (3-5) (Continued) — Lab Sample ID: 310-113888-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]anthracene	0.0153		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.0227		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.0352		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.0212		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.0117		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Chrysene	0.0202		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Fluoranthene	0.0345		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.0177		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Phenanthrene	0.0157		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.0312		0.0108		mg/Kg	1	☼	8270D SIM	Total/NA
Barium	54.1		0.483		mg/Kg	1	☼	6010C	Total/NA
Chromium	12.2		0.967		mg/Kg	1	☼	6010C	Total/NA
Arsenic	2.75		0.565		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-9 (3-5) — Lab Sample ID: 310-113888-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Dibenz(a,h)anthracene	0.0143		0.0112		mg/Kg	1	☼	8270D SIM	Total/NA
Diesel Range Organics (DRO)	7.89		6.16		mg/Kg	1	☼	WI-DRO	Total/NA
Barium	56.0		0.456		mg/Kg	1	☼	6010C	Total/NA
Chromium	12.6		0.913		mg/Kg	1	☼	6010C	Total/NA
Lead	141		4.56		mg/Kg	1	☼	6010C	Total/NA
Arsenic	5.04		0.587		mg/Kg	12	☼	7010	Total/NA

Client Sample ID: GP-10 (3-5) — Lab Sample ID: 310-113888-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Acenaphthene	0.0220		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Acenaphthylene	0.0114		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Anthracene	0.0268		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]anthracene	0.0662		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[a]pyrene	0.0647		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.0957		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[g,h,i]perylene	0.0426		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[k]fluoranthene	0.0348		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Chrysene	0.0698		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Dibenz(a,h)anthracene	0.0128		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Fluoranthene	0.164		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Fluorene	0.0303		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Indeno[1,2,3-cd]pyrene	0.0400		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
2-Methylnaphthalene	0.0587		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Naphthalene	0.0287		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Phenanthrene	0.128		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.141		0.0109		mg/Kg	1	☼	8270D SIM	Total/NA
Diesel Range Organics (DRO)	9.76		5.87		mg/Kg	1	☼	WI-DRO	Total/NA
Barium	76.6		0.498		mg/Kg	1	☼	6010C	Total/NA
Chromium	11.3		0.995		mg/Kg	1	☼	6010C	Total/NA
Lead	47.5		4.98		mg/Kg	1	☼	6010C	Total/NA
Arsenic	7.09		0.542		mg/Kg	12	☼	7010	Total/NA
Mercury	0.0224		0.0203		mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Detection Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-11 (3-5) — Lab Sample ID: 310-113888-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzo[a]pyrene	0.0121		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Benzo[b]fluoranthene	0.0180		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Fluoranthene	0.0197		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Phenanthrene	0.0114		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Pyrene	0.0189		0.0114		mg/Kg	1	☼	8270D SIM	Total/NA
Barium	89.6		0.414		mg/Kg	1	☼	6010C	Total/NA
Chromium	10.6		0.829		mg/Kg	1	☼	6010C	Total/NA
Lead	10.6		4.14		mg/Kg	1	☼	6010C	Total/NA
Arsenic	3.63		0.563		mg/Kg	12	☼	7010	Total/NA
Mercury	0.0320		0.0212		mg/Kg	1	☼	7471B	Total/NA

Client Sample ID: GP-12 (3-5) — Lab Sample ID: 310-113888-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Fluoranthene	0.113		0.113		mg/Kg	10	☼	8270D SIM	Total/NA
Pyrene	0.140		0.113		mg/Kg	10	☼	8270D SIM	Total/NA
Barium	116		0.501		mg/Kg	1	☼	6010C	Total/NA
Chromium	12.7		1.00		mg/Kg	1	☼	6010C	Total/NA
Lead	93.1		5.01		mg/Kg	1	☼	6010C	Total/NA
Arsenic	5.32		0.577		mg/Kg	12	☼	7010	Total/NA
Mercury	0.0583		0.0223		mg/Kg	1	☼	7471B	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (3-5)

Lab Sample ID: 310-113888-1

Date Collected: 09/05/17 09:50

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.553		0.553		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Allyl chloride	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Benzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Bromobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Bromochloromethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Bromodichloromethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Bromoform	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Bromomethane	<0.553		0.553		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
2-Butanone (MEK)	<0.277		0.277		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
n-Butylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
sec-Butylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
tert-Butylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Carbon tetrachloride	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Chlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Chlorodibromomethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Dichlorofluoromethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Chloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Chloroform	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Chloromethane	<0.277		0.277		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
4-Chlorotoluene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
2-Chlorotoluene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2-Dibromo-3-Chloropropane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2-Dibromoethane (EDB)	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2-Dichlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,3-Dichlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,4-Dichlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Dichlorodifluoromethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2-Dichloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1-Dichloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1-Dichloroethene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
cis-1,2-Dichloroethene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
trans-1,2-Dichloroethene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2-Dichloropropane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,3-Dichloropropane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
2,2-Dichloropropane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1-Dichloropropene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
cis-1,3-Dichloropropene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
trans-1,3-Dichloropropene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Diethyl ether	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Ethylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Hexachlorobutadiene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Isopropylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
p-Isopropyltoluene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
4-Methyl-2-pentanone (MIBK)	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Methylene Chloride	<0.277		0.277		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Methyl tert-butyl ether	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Naphthalene	<0.277		0.277		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
N-Propylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Styrene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (3-5)

Date Collected: 09/05/17 09:50
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-1

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1,2,2-Tetrachloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Tetrachloroethene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Tetrahydrofuran	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Toluene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2,3-Trichlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2,4-Trichlorobenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1,1-Trichloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1,2-Trichloroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Trichloroethene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Trichlorofluoromethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2,3-Trichloropropane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,1,2-Trichlorotrifluoroethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,2,4-Trimethylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
1,3,5-Trimethylbenzene	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Vinyl chloride	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Xylenes, Total	<0.166		0.166		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1
Dibromomethane	<0.111		0.111		mg/Kg	☼	09/13/17 06:14	09/13/17 12:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*09/13/17 06:14*	*09/13/17 12:01*	*1*
Dibromofluoromethane (Surr)	*99*		*75 - 115*	*09/13/17 06:14*	*09/13/17 12:01*	*1*
Toluene-d8 (Surr)	*100*		*78 - 118*	*09/13/17 06:14*	*09/13/17 12:01*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0119		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Acenaphthylene	**0.0175**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Anthracene	**0.0141**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Benzo[a]anthracene	**0.0873**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Benzo[a]pyrene	**0.0945**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Benzo[b]fluoranthene	**0.130**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Benzo[g,h,i]perylene	**0.0544**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Benzo[k]fluoranthene	**0.0407**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Chrysene	**0.0886**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Dibenz(a,h)anthracene	**0.0163**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Fluoranthene	**0.157**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Fluorene	<0.0119		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Indeno[1,2,3-cd]pyrene	**0.0537**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
2-Methylnaphthalene	<0.0119		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Naphthalene	<0.0119		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Phenanthrene	**0.0516**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1
Pyrene	**0.154**		0.0119		mg/Kg	☼	09/11/17 14:11	09/12/17 20:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*77*		*32 - 110*	*09/11/17 14:11*	*09/12/17 20:37*	*1*
Nitrobenzene-d5 (Surr)	*73*		*15 - 113*	*09/11/17 14:11*	*09/12/17 20:37*	*1*
Terphenyl-d14 (Surr)	*71*		*31 - 110*	*09/11/17 14:11*	*09/12/17 20:37*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (3-5)

Lab Sample ID: 310-113888-1

Date Collected: 09/05/17 09:50

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.48		6.48		mg/Kg	☼	09/11/17 14:16	09/12/17 15:04	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**89.4**		0.516		mg/Kg	☼	09/13/17 10:00	09/13/17 17:52	1
Cadmium	<1.03		1.03		mg/Kg	☼	09/13/17 10:00	09/13/17 17:52	1
Chromium	**12.4**		1.03		mg/Kg	☼	09/13/17 10:00	09/13/17 17:52	1
Lead	**7.47**		5.16		mg/Kg	☼	09/13/17 10:00	09/13/17 17:52	1
Silver	<1.03		1.03		mg/Kg	☼	09/13/17 10:00	09/13/17 17:52	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**4.55**		0.560		mg/Kg	☼	09/13/17 10:00	09/13/17 14:59	12
Selenium	<0.933		0.933		mg/Kg	☼	09/13/17 10:00	09/13/17 18:01	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0226		0.0226		mg/Kg	☼	09/13/17 13:50	09/14/17 14:05	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (16-18)

Date Collected: 09/05/17 10:00
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-2

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.575		0.575		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Allyl chloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Benzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Bromobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Bromochloromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Bromodichloromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Bromoform	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Bromomethane	<0.575		0.575		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
2-Butanone (MEK)	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
n-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
sec-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
tert-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Carbon tetrachloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Chlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Chlorodibromomethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Dichlorofluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Chloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Chloroform	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Chloromethane	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
4-Chlorotoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
2-Chlorotoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2-Dibromo-3-Chloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2-Dibromoethane (EDB)	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,3-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,4-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Dichlorodifluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2-Dichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1-Dichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
cis-1,2-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
trans-1,2-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,3-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
2,2-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
cis-1,3-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
trans-1,3-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Diethyl ether	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Ethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Hexachlorobutadiene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Isopropylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
p-Isopropyltoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
4-Methyl-2-pentanone (MIBK)	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Methylene Chloride	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Methyl tert-butyl ether	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Naphthalene	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
N-Propylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Styrene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (16-18)

Date Collected: 09/05/17 10:00
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-2

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1,2,2-Tetrachloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Tetrachloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Tetrahydrofuran	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Toluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2,3-Trichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2,4-Trichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1,1-Trichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1,2-Trichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Trichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Trichlorofluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2,3-Trichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,1,2-Trichlorotrifluoroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,2,4-Trimethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
1,3,5-Trimethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Vinyl chloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Xylenes, Total	<0.172		0.172		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1
Dibromomethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 12:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*09/13/17 06:14*	*09/13/17 12:25*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 115*	*09/13/17 06:14*	*09/13/17 12:25*	*1*
Toluene-d8 (Surr)	*98*		*78 - 118*	*09/13/17 06:14*	*09/13/17 12:25*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Acenaphthylene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Anthracene	**0.0151**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Benzo[a]anthracene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Benzo[a]pyrene	**0.0172**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Benzo[b]fluoranthene	**0.0318**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Benzo[g,h,i]perylene	**0.0225**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Benzo[k]fluoranthene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Chrysene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Dibenz(a,h)anthracene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Fluoranthene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Fluorene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Indeno[1,2,3-cd]pyrene	**0.0162**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
2-Methylnaphthalene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Naphthalene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Phenanthrene	<0.0110		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1
Pyrene	**0.0166**		0.0110		mg/Kg	☼	09/11/17 14:11	09/12/17 21:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*76*		*32 - 110*	*09/11/17 14:11*	*09/12/17 21:03*	*1*
Nitrobenzene-d5 (Surr)	*72*		*15 - 113*	*09/11/17 14:11*	*09/12/17 21:03*	*1*
Terphenyl-d14 (Surr)	*72*		*31 - 110*	*09/11/17 14:11*	*09/12/17 21:03*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-6 (16-18)

Lab Sample ID: 310-113888-2

Date Collected: 09/05/17 10:00

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	43.2		6.00		mg/Kg	☼	09/11/17 14:16	09/12/17 18:12	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	75.1		0.484		mg/Kg	☼	09/13/17 10:00	09/13/17 17:58	1
Cadmium	<0.969		0.969		mg/Kg	☼	09/13/17 10:00	09/13/17 17:58	1
Chromium	10.4		0.969		mg/Kg	☼	09/13/17 10:00	09/13/17 17:58	1
Lead	8.45		4.84		mg/Kg	☼	09/13/17 10:00	09/13/17 17:58	1
Silver	<0.969		0.969		mg/Kg	☼	09/13/17 10:00	09/13/17 17:58	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	4.42		0.503		mg/Kg	☼	09/13/17 10:00	09/13/17 15:15	12
Selenium	<0.839		0.839		mg/Kg	☼	09/13/17 10:00	09/13/17 18:21	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0199		0.0199		mg/Kg	☼	09/13/17 13:50	09/14/17 14:06	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-7 (3-5)

Lab Sample ID: 310-113888-3

Date Collected: 09/05/17 10:30

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.508		0.508		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Allyl chloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Benzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Bromobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Bromochloromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Bromodichloromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Bromoform	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Bromomethane	<0.508		0.508		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
2-Butanone (MEK)	<0.254		0.254		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
n-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
sec-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
tert-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Carbon tetrachloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Chlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Chlorodibromomethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Dichlorofluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Chloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Chloroform	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Chloromethane	<0.254		0.254		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
4-Chlorotoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
2-Chlorotoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2-Dibromo-3-Chloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2-Dibromoethane (EDB)	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,3-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,4-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Dichlorodifluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2-Dichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1-Dichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
cis-1,2-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
trans-1,2-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,3-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
2,2-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
cis-1,3-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
trans-1,3-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Diethyl ether	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Ethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Hexachlorobutadiene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Isopropylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
p-Isopropyltoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
4-Methyl-2-pentanone (MIBK)	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Methylene Chloride	<0.254		0.254		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Methyl tert-butyl ether	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Naphthalene	<0.254		0.254		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
N-Propylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Styrene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-7 (3-5)

Date Collected: 09/05/17 10:30
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-3

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1,2,2-Tetrachloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Tetrachloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Tetrahydrofuran	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Toluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2,3-Trichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2,4-Trichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1,1-Trichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1,2-Trichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Trichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Trichlorofluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2,3-Trichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,1,2-Trichlorotrifluoroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,2,4-Trimethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
1,3,5-Trimethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Vinyl chloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Xylenes, Total	<0.152		0.152		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1
Dibromomethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 12:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*09/13/17 06:14*	*09/13/17 12:49*	*1*
Dibromofluoromethane (Surr)	*96*		*75 - 115*	*09/13/17 06:14*	*09/13/17 12:49*	*1*
Toluene-d8 (Surr)	*101*		*78 - 118*	*09/13/17 06:14*	*09/13/17 12:49*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Acenaphthylene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Anthracene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Benzo[a]anthracene	**0.0114**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Benzo[a]pyrene	**0.0114**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Benzo[b]fluoranthene	**0.0149**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Benzo[g,h,i]perylene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Benzo[k]fluoranthene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Chrysene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Dibenz(a,h)anthracene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Fluoranthene	**0.0209**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Fluorene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Indeno[1,2,3-cd]pyrene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
2-Methylnaphthalene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Naphthalene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Phenanthrene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1
Pyrene	**0.0186**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 21:29	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*64*		*32 - 110*	*09/11/17 14:11*	*09/12/17 21:29*	*1*
Nitrobenzene-d5 (Surr)	*62*		*15 - 113*	*09/11/17 14:11*	*09/12/17 21:29*	*1*
Terphenyl-d14 (Surr)	*53*		*31 - 110*	*09/11/17 14:11*	*09/12/17 21:29*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-7 (3-5)

Lab Sample ID: 310-113888-3

Date Collected: 09/05/17 10:30

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.32		6.32		mg/Kg	☼	09/11/17 14:16	09/12/17 15:31	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**76.2**		0.488		mg/Kg	☼	09/13/17 10:00	09/13/17 18:00	1
Cadmium	<0.976		0.976		mg/Kg	☼	09/13/17 10:00	09/13/17 18:00	1
Chromium	**10.6**		0.976		mg/Kg	☼	09/13/17 10:00	09/13/17 18:00	1
Lead	**10.7**		4.88		mg/Kg	☼	09/13/17 10:00	09/13/17 18:00	1
Silver	<0.976		0.976		mg/Kg	☼	09/13/17 10:00	09/13/17 18:00	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.74**		0.627		mg/Kg	☼	09/13/17 10:00	09/13/17 15:19	12
Selenium	<1.04		1.04		mg/Kg	☼	09/13/17 10:00	09/13/17 18:24	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0231		0.0231		mg/Kg	☼	09/13/17 13:50	09/14/17 14:08	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-8 (3-5)

Lab Sample ID: 310-113888-4

Date Collected: 09/05/17 12:05

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.510		0.510		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Allyl chloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Benzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Bromobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Bromochloromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Bromodichloromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Bromoform	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Bromomethane	<0.510		0.510		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
2-Butanone (MEK)	<0.255		0.255		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
n-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
sec-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
tert-Butylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Carbon tetrachloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Chlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Chlorodibromomethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Dichlorofluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Chloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Chloroform	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Chloromethane	<0.255		0.255		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
4-Chlorotoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
2-Chlorotoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2-Dibromo-3-Chloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2-Dibromoethane (EDB)	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,3-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,4-Dichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Dichlorodifluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2-Dichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1-Dichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
cis-1,2-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
trans-1,2-Dichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,3-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
2,2-Dichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
cis-1,3-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
trans-1,3-Dichloropropene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Diethyl ether	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Ethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Hexachlorobutadiene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Isopropylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
p-Isopropyltoluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
4-Methyl-2-pentanone (MIBK)	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Methylene Chloride	<0.255		0.255		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Methyl tert-butyl ether	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Naphthalene	<0.255		0.255		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
N-Propylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Styrene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-8 (3-5)

Date Collected: 09/05/17 12:05
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-4

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1,2,2-Tetrachloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Tetrachloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Tetrahydrofuran	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Toluene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2,3-Trichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2,4-Trichlorobenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1,1-Trichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1,2-Trichloroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Trichloroethene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Trichlorofluoromethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2,3-Trichloropropane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,1,2-Trichlorotrifluoroethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,2,4-Trimethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
1,3,5-Trimethylbenzene	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Vinyl chloride	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Xylenes, Total	<0.153		0.153		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1
Dibromomethane	<0.102		0.102		mg/Kg	☼	09/13/17 06:14	09/13/17 13:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*09/13/17 06:14*	*09/13/17 13:13*	*1*
Dibromofluoromethane (Surr)	*97*		*75 - 115*	*09/13/17 06:14*	*09/13/17 13:13*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 13:13*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Acenaphthylene	**0.0136**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Anthracene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Benzo[a]anthracene	**0.0153**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Benzo[a]pyrene	**0.0227**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Benzo[b]fluoranthene	**0.0352**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Benzo[g,h,i]perylene	**0.0212**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Benzo[k]fluoranthene	**0.0117**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Chrysene	**0.0202**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Dibenz(a,h)anthracene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Fluoranthene	**0.0345**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Fluorene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Indeno[1,2,3-cd]pyrene	**0.0177**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
2-Methylnaphthalene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Naphthalene	<0.0108		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Phenanthrene	**0.0157**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1
Pyrene	**0.0312**		0.0108		mg/Kg	☼	09/11/17 14:11	09/12/17 21:55	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*79*		*32 - 110*	*09/11/17 14:11*	*09/12/17 21:55*	*1*
Nitrobenzene-d5 (Surr)	*71*		*15 - 113*	*09/11/17 14:11*	*09/12/17 21:55*	*1*
Terphenyl-d14 (Surr)	*76*		*31 - 110*	*09/11/17 14:11*	*09/12/17 21:55*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-8 (3-5)

Lab Sample ID: 310-113888-4

Date Collected: 09/05/17 12:05

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<5.83		5.83		mg/Kg	☼	09/11/17 14:16	09/12/17 15:58	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**54.1**		0.483		mg/Kg	☼	09/13/17 10:00	09/13/17 18:02	1
Cadmium	<0.967		0.967		mg/Kg	☼	09/13/17 10:00	09/13/17 18:02	1
Chromium	**12.2**		0.967		mg/Kg	☼	09/13/17 10:00	09/13/17 18:02	1
Lead	<4.83		4.83		mg/Kg	☼	09/13/17 10:00	09/13/17 18:02	1
Silver	<0.967		0.967		mg/Kg	☼	09/13/17 10:00	09/13/17 18:02	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**2.75**		0.565		mg/Kg	☼	09/13/17 10:00	09/13/17 15:23	12
Selenium	<0.941		0.941		mg/Kg	☼	09/13/17 10:00	09/13/17 18:27	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0198		0.0198		mg/Kg	☼	09/13/17 13:50	09/14/17 14:09	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-9 (3-5)

Lab Sample ID: 310-113888-5

Date Collected: 09/05/17 13:25

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.567		0.567		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Allyl chloride	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Benzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Bromobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Bromochloromethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Bromodichloromethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Bromoform	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Bromomethane	<0.567		0.567		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
2-Butanone (MEK)	<0.284		0.284		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
n-Butylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
sec-Butylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
tert-Butylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Carbon tetrachloride	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Chlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Chlorodibromomethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Dichlorofluoromethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Chloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Chloroform	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Chloromethane	<0.284		0.284		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
4-Chlorotoluene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
2-Chlorotoluene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2-Dibromo-3-Chloropropane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2-Dibromoethane (EDB)	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2-Dichlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,3-Dichlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,4-Dichlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Dichlorodifluoromethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2-Dichloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1-Dichloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1-Dichloroethene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
cis-1,2-Dichloroethene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
trans-1,2-Dichloroethene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2-Dichloropropane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,3-Dichloropropane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
2,2-Dichloropropane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1-Dichloropropene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
cis-1,3-Dichloropropene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
trans-1,3-Dichloropropene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Diethyl ether	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Ethylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Hexachlorobutadiene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Isopropylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
p-Isopropyltoluene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
4-Methyl-2-pentanone (MIBK)	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Methylene Chloride	<0.284		0.284		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Methyl tert-butyl ether	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Naphthalene	<0.284		0.284		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
N-Propylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Styrene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-9 (3-5)

Date Collected: 09/05/17 13:25
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-5

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1,2,2-Tetrachloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Tetrachloroethene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Tetrahydrofuran	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Toluene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2,3-Trichlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2,4-Trichlorobenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1,1-Trichloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1,2-Trichloroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Trichloroethene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Trichlorofluoromethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2,3-Trichloropropane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,1,2-Trichlorotrifluoroethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,2,4-Trimethylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
1,3,5-Trimethylbenzene	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Vinyl chloride	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Xylenes, Total	<0.170		0.170		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1
Dibromomethane	<0.113		0.113		mg/Kg	☼	09/13/17 06:14	09/13/17 13:37	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*09/13/17 06:14*	*09/13/17 13:37*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 115*	*09/13/17 06:14*	*09/13/17 13:37*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 13:37*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Acenaphthylene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Anthracene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Benzo[a]anthracene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Benzo[a]pyrene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Benzo[b]fluoranthene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Benzo[g,h,i]perylene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Benzo[k]fluoranthene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Chrysene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Dibenz(a,h)anthracene	**0.0143**		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Fluoranthene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Fluorene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Indeno[1,2,3-cd]pyrene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
2-Methylnaphthalene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Naphthalene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Phenanthrene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1
Pyrene	<0.0112		0.0112		mg/Kg	☼	09/11/17 14:11	09/12/17 22:21	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*66*		*32 - 110*	*09/11/17 14:11*	*09/12/17 22:21*	*1*
Nitrobenzene-d5 (Surr)	*69*		*15 - 113*	*09/11/17 14:11*	*09/12/17 22:21*	*1*
Terphenyl-d14 (Surr)	*66*		*31 - 110*	*09/11/17 14:11*	*09/12/17 22:21*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-9 (3-5)

Lab Sample ID: 310-113888-5

Date Collected: 09/05/17 13:25

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**7.89**		6.16		mg/Kg	☼	09/11/17 14:16	09/12/17 17:45	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**56.0**		0.456		mg/Kg	☼	09/13/17 10:00	09/13/17 18:04	1
Cadmium	<0.913		0.913		mg/Kg	☼	09/13/17 10:00	09/13/17 18:04	1
Chromium	**12.6**		0.913		mg/Kg	☼	09/13/17 10:00	09/13/17 18:04	1
Lead	**141**		4.56		mg/Kg	☼	09/13/17 10:00	09/13/17 18:04	1
Silver	<0.913		0.913		mg/Kg	☼	09/13/17 10:00	09/13/17 18:04	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**5.04**		0.587		mg/Kg	☼	09/13/17 10:00	09/13/17 15:27	12
Selenium	<0.978		0.978		mg/Kg	☼	09/13/17 10:00	09/13/17 18:31	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0228		0.0228		mg/Kg	☼	09/13/17 13:50	09/14/17 14:11	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-10 (3-5)

Lab Sample ID: 310-113888-6

Date Collected: 09/05/17 14:35

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.573		0.573		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Allyl chloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Benzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Bromobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Bromochloromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Bromodichloromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Bromoform	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Bromomethane	<0.573		0.573		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
2-Butanone (MEK)	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
n-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
sec-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
tert-Butylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Carbon tetrachloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Chlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Chlorodibromomethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Dichlorofluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Chloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Chloroform	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Chloromethane	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
4-Chlorotoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
2-Chlorotoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2-Dibromo-3-Chloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2-Dibromoethane (EDB)	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,3-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,4-Dichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Dichlorodifluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2-Dichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1-Dichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
cis-1,2-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
trans-1,2-Dichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,3-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
2,2-Dichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
cis-1,3-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
trans-1,3-Dichloropropene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Diethyl ether	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Ethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Hexachlorobutadiene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Isopropylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
p-Isopropyltoluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
4-Methyl-2-pentanone (MIBK)	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Methylene Chloride	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Methyl tert-butyl ether	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Naphthalene	<0.287		0.287		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
N-Propylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Styrene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-10 (3-5)

Date Collected: 09/05/17 14:35
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-6

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1,2,2-Tetrachloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Tetrachloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Tetrahydrofuran	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Toluene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2,3-Trichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2,4-Trichlorobenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1,1-Trichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1,2-Trichloroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Trichloroethene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Trichlorofluoromethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2,3-Trichloropropane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,1,2-Trichlorotrifluoroethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,2,4-Trimethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
1,3,5-Trimethylbenzene	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Vinyl chloride	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Xylenes, Total	<0.172		0.172		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1
Dibromomethane	<0.115		0.115		mg/Kg	☼	09/13/17 06:14	09/13/17 14:01	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*09/13/17 06:14*	*09/13/17 14:01*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 115*	*09/13/17 06:14*	*09/13/17 14:01*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 14:01*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	**0.0220**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Acenaphthylene	**0.0114**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Anthracene	**0.0268**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Benzo[a]anthracene	**0.0662**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Benzo[a]pyrene	**0.0647**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Benzo[b]fluoranthene	**0.0957**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Benzo[g,h,i]perylene	**0.0426**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Benzo[k]fluoranthene	**0.0348**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Chrysene	**0.0698**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Dibenz(a,h)anthracene	**0.0128**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Fluoranthene	**0.164**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Fluorene	**0.0303**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Indeno[1,2,3-cd]pyrene	**0.0400**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
2-Methylnaphthalene	**0.0587**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Naphthalene	**0.0287**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Phenanthrene	**0.128**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1
Pyrene	**0.141**		0.0109		mg/Kg	☼	09/11/17 14:11	09/12/17 22:47	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*70*		*32 - 110*	*09/11/17 14:11*	*09/12/17 22:47*	*1*
Nitrobenzene-d5 (Surr)	*68*		*15 - 113*	*09/11/17 14:11*	*09/12/17 22:47*	*1*
Terphenyl-d14 (Surr)	*78*		*31 - 110*	*09/11/17 14:11*	*09/12/17 22:47*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-10 (3-5)

Lab Sample ID: 310-113888-6

Date Collected: 09/05/17 14:35

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	**9.76**		5.87		mg/Kg	☼	09/11/17 14:16	09/12/17 16:25	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**76.6**		0.498		mg/Kg	☼	09/13/17 10:00	09/13/17 18:07	1
Cadmium	<0.995		0.995		mg/Kg	☼	09/13/17 10:00	09/13/17 18:07	1
Chromium	**11.3**		0.995		mg/Kg	☼	09/13/17 10:00	09/13/17 18:07	1
Lead	**47.5**		4.98		mg/Kg	☼	09/13/17 10:00	09/13/17 18:07	1
Silver	<0.995		0.995		mg/Kg	☼	09/13/17 10:00	09/13/17 18:07	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**7.09**		0.542		mg/Kg	☼	09/13/17 10:00	09/13/17 15:39	12
Selenium	<0.904		0.904		mg/Kg	☼	09/13/17 10:00	09/13/17 18:34	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0224**		0.0203		mg/Kg	☼	09/13/17 13:50	09/14/17 14:13	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-11 (3-5)

Lab Sample ID: 310-113888-7

Date Collected: 09/05/17 15:35

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.539		0.539		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Allyl chloride	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Benzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Bromobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Bromochloromethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Bromodichloromethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Bromoform	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Bromomethane	<0.539		0.539		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
2-Butanone (MEK)	<0.270		0.270		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
n-Butylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
sec-Butylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
tert-Butylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Carbon tetrachloride	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Chlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Chlorodibromomethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Dichlorofluoromethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Chloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Chloroform	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Chloromethane	<0.270		0.270		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
4-Chlorotoluene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
2-Chlorotoluene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2-Dibromo-3-Chloropropane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2-Dibromoethane (EDB)	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2-Dichlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,3-Dichlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,4-Dichlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Dichlorodifluoromethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2-Dichloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1-Dichloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1-Dichloroethene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
cis-1,2-Dichloroethene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
trans-1,2-Dichloroethene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2-Dichloropropane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,3-Dichloropropane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
2,2-Dichloropropane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1-Dichloropropene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
cis-1,3-Dichloropropene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
trans-1,3-Dichloropropene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Diethyl ether	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Ethylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Hexachlorobutadiene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Isopropylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
p-Isopropyltoluene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
4-Methyl-2-pentanone (MIBK)	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Methylene Chloride	<0.270		0.270		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Methyl tert-butyl ether	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Naphthalene	<0.270		0.270		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
N-Propylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Styrene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-11 (3-5)

Date Collected: 09/05/17 15:35
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-7

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1,2,2-Tetrachloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Tetrachloroethene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Tetrahydrofuran	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Toluene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2,3-Trichlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2,4-Trichlorobenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1,1-Trichloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1,2-Trichloroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Trichloroethene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Trichlorofluoromethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2,3-Trichloropropane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,1,2-Trichlorotrifluoroethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,2,4-Trimethylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
1,3,5-Trimethylbenzene	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Vinyl chloride	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Xylenes, Total	<0.162		0.162		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1
Dibromomethane	<0.108		0.108		mg/Kg	☼	09/13/17 06:14	09/13/17 14:25	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*101*		*79 - 119*	*09/13/17 06:14*	*09/13/17 14:25*	*1*
Dibromofluoromethane (Surr)	*100*		*75 - 115*	*09/13/17 06:14*	*09/13/17 14:25*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 14:25*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Acenaphthylene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Anthracene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Benzo[a]anthracene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Benzo[a]pyrene	**0.0121**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Benzo[b]fluoranthene	**0.0180**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Benzo[g,h,i]perylene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Benzo[k]fluoranthene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Chrysene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Dibenz(a,h)anthracene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Fluoranthene	**0.0197**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Fluorene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Indeno[1,2,3-cd]pyrene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
2-Methylnaphthalene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Naphthalene	<0.0114		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Phenanthrene	**0.0114**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1
Pyrene	**0.0189**		0.0114		mg/Kg	☼	09/11/17 14:11	09/12/17 23:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*71*		*32 - 110*	*09/11/17 14:11*	*09/12/17 23:13*	*1*
Nitrobenzene-d5 (Surr)	*70*		*15 - 113*	*09/11/17 14:11*	*09/12/17 23:13*	*1*
Terphenyl-d14 (Surr)	*76*		*31 - 110*	*09/11/17 14:11*	*09/12/17 23:13*	*1*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-11 (3-5)

Lab Sample ID: 310-113888-7

Date Collected: 09/05/17 15:35

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.00		6.00		mg/Kg	☼	09/11/17 14:16	09/12/17 16:52	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**89.6**		0.414		mg/Kg	☼	09/13/17 10:00	09/13/17 18:09	1
Cadmium	<0.829		0.829		mg/Kg	☼	09/13/17 10:00	09/13/17 18:09	1
Chromium	**10.6**		0.829		mg/Kg	☼	09/13/17 10:00	09/13/17 18:09	1
Lead	**10.6**		4.14		mg/Kg	☼	09/13/17 10:00	09/13/17 18:09	1
Silver	<0.829		0.829		mg/Kg	☼	09/13/17 10:00	09/13/17 18:09	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**3.63**		0.563		mg/Kg	☼	09/13/17 10:00	09/13/17 15:43	12
Selenium	<0.938		0.938		mg/Kg	☼	09/13/17 10:00	09/13/17 18:38	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0320**		0.0212		mg/Kg	☼	09/13/17 13:50	09/14/17 14:14	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-12 (3-5)

Lab Sample ID: 310-113888-8

Date Collected: 09/05/17 16:55

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.528		0.528		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Allyl chloride	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Benzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Bromobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Bromochloromethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Bromodichloromethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Bromoform	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Bromomethane	<0.528		0.528		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
2-Butanone (MEK)	<0.264		0.264		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
n-Butylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
sec-Butylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
tert-Butylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Carbon tetrachloride	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Chlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Chlorodibromomethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Dichlorofluoromethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Chloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Chloroform	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Chloromethane	<0.264		0.264		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
4-Chlorotoluene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
2-Chlorotoluene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2-Dibromo-3-Chloropropane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2-Dibromoethane (EDB)	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2-Dichlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,3-Dichlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,4-Dichlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Dichlorodifluoromethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2-Dichloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1-Dichloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1-Dichloroethene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
cis-1,2-Dichloroethene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
trans-1,2-Dichloroethene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2-Dichloropropane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,3-Dichloropropane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
2,2-Dichloropropane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1-Dichloropropene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
cis-1,3-Dichloropropene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
trans-1,3-Dichloropropene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Diethyl ether	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Ethylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Hexachlorobutadiene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Isopropylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
p-Isopropyltoluene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
4-Methyl-2-pentanone (MIBK)	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Methylene Chloride	<0.264		0.264		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Methyl tert-butyl ether	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Naphthalene	<0.264		0.264		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
N-Propylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Styrene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-12 (3-5)

Date Collected: 09/05/17 16:55
Date Received: 09/09/17 09:30

Lab Sample ID: 310-113888-8

Matrix: Soil

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,1,1,2-Tetrachloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1,2,2-Tetrachloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Tetrachloroethene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Tetrahydrofuran	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Toluene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2,3-Trichlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2,4-Trichlorobenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1,1-Trichloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1,2-Trichloroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Trichloroethene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Trichlorofluoromethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2,3-Trichloropropane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,1,2-Trichlorotrifluoroethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,2,4-Trimethylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
1,3,5-Trimethylbenzene	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Vinyl chloride	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Xylenes, Total	<0.159		0.159		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1
Dibromomethane	<0.106		0.106		mg/Kg	☼	09/13/17 06:14	09/13/17 14:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*	*09/13/17 06:14*	*09/13/17 14:49*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 115*	*09/13/17 06:14*	*09/13/17 14:49*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 14:49*	*1*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Acenaphthylene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Anthracene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Benzo[a]anthracene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Benzo[a]pyrene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Benzo[b]fluoranthene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Benzo[g,h,i]perylene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Benzo[k]fluoranthene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Chrysene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Dibenz(a,h)anthracene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Fluoranthene	**0.113**		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Fluorene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Indeno[1,2,3-cd]pyrene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
2-Methylnaphthalene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Naphthalene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Phenanthrene	<0.113		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10
Pyrene	**0.140**		0.113		mg/Kg	☼	09/11/17 14:11	09/12/17 23:38	10

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*72*		*32 - 110*	*09/11/17 14:11*	*09/12/17 23:38*	*10*
Nitrobenzene-d5 (Surr)	*73*		*15 - 113*	*09/11/17 14:11*	*09/12/17 23:38*	*10*
Terphenyl-d14 (Surr)	*60*		*31 - 110*	*09/11/17 14:11*	*09/12/17 23:38*	*10*

Client Sample Results

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-12 (3-5)

Lab Sample ID: 310-113888-8

Date Collected: 09/05/17 16:55

Matrix: Soil

Date Received: 09/09/17 09:30

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.33		6.33		mg/Kg	☼	09/11/17 14:16	09/12/17 17:18	1

Method: 6010C - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	**116**		0.501		mg/Kg	☼	09/13/17 10:00	09/13/17 18:11	1
Cadmium	<1.00		1.00		mg/Kg	☼	09/13/17 10:00	09/13/17 18:11	1
Chromium	**12.7**		1.00		mg/Kg	☼	09/13/17 10:00	09/13/17 18:11	1
Lead	**93.1**		5.01		mg/Kg	☼	09/13/17 10:00	09/13/17 18:11	1
Silver	<1.00		1.00		mg/Kg	☼	09/13/17 10:00	09/13/17 18:11	1

Method: 7010 - Metals (GFAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**5.32**		0.577		mg/Kg	☼	09/13/17 10:00	09/13/17 15:47	12
Selenium	<0.962		0.962		mg/Kg	☼	09/13/17 10:00	09/13/17 18:41	4

Method: 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	**0.0583**		0.0223		mg/Kg	☼	09/13/17 13:50	09/14/17 14:16	1

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
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
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 (Radiochemistry)
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: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

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

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

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(79-119)	(75-115)	(78-118)
310-113888-1	GP-6 (3-5)	99	99	100
310-113888-1 MS	GP-6 (3-5)	100	100	99
310-113888-1 MSD	GP-6 (3-5)	103	99	99
310-113888-2	GP-6 (16-18)	99	98	98
310-113888-3	GP-7 (3-5)	101	96	101
310-113888-4	GP-8 (3-5)	101	97	99
310-113888-5	GP-9 (3-5)	101	98	99
310-113888-6	GP-10 (3-5)	101	98	99
310-113888-7	GP-11 (3-5)	101	100	99
310-113888-8	GP-12 (3-5)	100	98	99

Surrogate Legend

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

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

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

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(79-119)	(75-115)	(78-118)
LCS 310-178564/2-A	Lab Control Sample	99	99	100
MB 310-178564/1-A	Method Blank	99	98	99

Surrogate Legend

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

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

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

		Percent Surrogate Recovery (Acceptance Limits)		
		FBP	NBZ	TPH
Lab Sample ID	Client Sample ID	(32-110)	(15-113)	(31-110)
310-113888-1	GP-6 (3-5)	77	73	71
310-113888-2	GP-6 (16-18)	76	72	72
310-113888-3	GP-7 (3-5)	64	62	53
310-113888-4	GP-8 (3-5)	79	71	76
310-113888-5	GP-9 (3-5)	66	69	66
310-113888-6	GP-10 (3-5)	70	68	78
310-113888-7	GP-11 (3-5)	71	70	76
310-113888-8	GP-12 (3-5)	72	73	60

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPH = Terphenyl-d14 (Surr)

Surrogate Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

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

		Percent Surrogate Recovery (Acceptance Limits)							
		FBP	NBZ	TPH					
Lab Sample ID	Client Sample ID	(32-110)	(15-113)	(31-110)					
LCS 310-178382/2-A	Lab Control Sample	69	62	74					
MB 310-178382/1-A	Method Blank	73	59	84					

Surrogate Legend

FBP = 2-Fluorobiphenyl (Surr)

NBZ = Nitrobenzene-d5 (Surr)

TPH = Terphenyl-d14 (Surr)

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

Lab Sample ID: MB 310-178564/1-A
Matrix: Solid
Analysis Batch: 178565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178564

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	<0.493		0.493		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Allyl chloride	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Benzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Bromobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Bromochloromethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Bromodichloromethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Bromoform	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Bromomethane	<0.493		0.493		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
2-Butanone (MEK)	<0.246		0.246		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
n-Butylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
sec-Butylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
tert-Butylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Carbon tetrachloride	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Chlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Chlorodibromomethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Dichlorofluoromethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Chloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Chloroform	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Chloromethane	<0.246		0.246		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
4-Chlorotoluene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
2-Chlorotoluene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2-Dibromo-3-Chloropropane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2-Dibromoethane (EDB)	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2-Dichlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,3-Dichlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,4-Dichlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Dichlorodifluoromethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2-Dichloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1-Dichloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1-Dichloroethene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
cis-1,2-Dichloroethene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
trans-1,2-Dichloroethene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2-Dichloropropane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,3-Dichloropropane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
2,2-Dichloropropane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1-Dichloropropene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
cis-1,3-Dichloropropene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
trans-1,3-Dichloropropene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Diethyl ether	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Ethylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Hexachlorobutadiene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Isopropylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
p-Isopropyltoluene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
4-Methyl-2-pentanone (MIBK)	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Methylene Chloride	0.2806		0.246		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Methyl tert-butyl ether	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Naphthalene	<0.246		0.246		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
N-Propylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1

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

Lab Sample ID: MB 310-178564/1-A
Matrix: Solid
Analysis Batch: 178565

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178564

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Styrene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1,1,2-Tetrachloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1,2,2-Tetrachloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Tetrachloroethene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Tetrahydrofuran	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Toluene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2,3-Trichlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2,4-Trichlorobenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1,1-Trichloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1,2-Trichloroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Trichloroethene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Trichlorofluoromethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2,3-Trichloropropane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,1,2-Trichlorotrifluoroethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,2,4-Trimethylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
1,3,5-Trimethylbenzene	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Vinyl chloride	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Xylenes, Total	<0.148		0.148		mg/Kg		09/13/17 06:14	09/13/17 08:48	1
Dibromomethane	<0.0985		0.0985		mg/Kg		09/13/17 06:14	09/13/17 08:48	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*	*09/13/17 06:14*	*09/13/17 08:48*	*1*
Dibromofluoromethane (Surr)	*98*		*75 - 115*	*09/13/17 06:14*	*09/13/17 08:48*	*1*
Toluene-d8 (Surr)	*99*		*78 - 118*	*09/13/17 06:14*	*09/13/17 08:48*	*1*

Lab Sample ID: LCS 310-178564/2-A
Matrix: Solid
Analysis Batch: 178565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	1.96	2.020		mg/Kg		103	53 - 150
Allyl chloride	0.979	0.9695		mg/Kg		99	53 - 150
Benzene	0.979	1.045		mg/Kg		107	78 - 144
Bromobenzene	0.979	1.042		mg/Kg		106	75 - 128
Bromochloromethane	0.979	1.052		mg/Kg		107	74 - 147
Bromodichloromethane	0.979	1.059		mg/Kg		108	70 - 138
Bromoform	0.979	1.045		mg/Kg		107	60 - 132
2-Butanone (MEK)	1.96	2.103		mg/Kg		107	54 - 150
n-Butylbenzene	0.979	1.023		mg/Kg		104	70 - 131
sec-Butylbenzene	0.979	1.029		mg/Kg		105	72 - 133
tert-Butylbenzene	0.979	1.025		mg/Kg		105	71 - 131
Carbon tetrachloride	0.979	1.022		mg/Kg		104	71 - 138
Chlorobenzene	0.979	1.039		mg/Kg		106	77 - 131
Chlorodibromomethane	0.979	1.064		mg/Kg		109	69 - 128
Chloroform	0.979	1.027		mg/Kg		105	76 - 140
4-Chlorotoluene	0.979	1.057		mg/Kg		108	72 - 131
2-Chlorotoluene	0.979	1.053		mg/Kg		108	73 - 131
1,2-Dibromo-3-Chloropropane	0.979	1.080		mg/Kg		110	49 - 135

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

Lab Sample ID: LCS 310-178564/2-A
Matrix: Solid
Analysis Batch: 178565

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178564

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,2-Dibromoethane (EDB)	0.979	1.082		mg/Kg		110	75 - 132
1,2-Dichlorobenzene	0.979	1.060		mg/Kg		108	72 - 129
1,3-Dichlorobenzene	0.979	1.072		mg/Kg		109	73 - 128
1,4-Dichlorobenzene	0.979	1.041		mg/Kg		106	73 - 125
1,2-Dichloroethane	0.979	1.034		mg/Kg		106	71 - 147
1,1-Dichloroethane	0.979	1.051		mg/Kg		107	76 - 142
1,1-Dichloroethene	0.979	0.9974		mg/Kg		102	69 - 144
cis-1,2-Dichloroethene	0.979	1.028		mg/Kg		105	76 - 141
trans-1,2-Dichloroethene	0.979	1.038		mg/Kg		106	74 - 140
1,2-Dichloropropane	0.979	1.048		mg/Kg		107	75 - 143
1,3-Dichloropropane	0.979	1.063		mg/Kg		109	75 - 133
2,2-Dichloropropane	0.979	1.069		mg/Kg		109	48 - 150
1,1-Dichloropropene	0.979	1.022		mg/Kg		104	76 - 139
cis-1,3-Dichloropropene	0.979	1.069		mg/Kg		109	74 - 130
trans-1,3-Dichloropropene	0.979	1.067		mg/Kg		109	72 - 132
Diethyl ether	0.979	1.089		mg/Kg		111	67 - 150
Ethylbenzene	0.979	1.004		mg/Kg		103	78 - 134
Hexachlorobutadiene	0.979	0.9854		mg/Kg		101	63 - 132
Isopropylbenzene	0.979	1.034		mg/Kg		106	77 - 133
p-Isopropyltoluene	0.979	1.028		mg/Kg		105	72 - 131
4-Methyl-2-pentanone (MIBK)	1.96	2.221		mg/Kg		113	62 - 150
Methylene Chloride	0.979	1.186		mg/Kg		121	53 - 150
Methyl tert-butyl ether	0.979	1.073		mg/Kg		110	73 - 145
Naphthalene	0.979	1.066		mg/Kg		109	49 - 149
N-Propylbenzene	0.979	1.037		mg/Kg		106	76 - 134
Styrene	0.979	1.050		mg/Kg		107	76 - 129
1,1,1,2-Tetrachloroethane	0.979	1.069		mg/Kg		109	73 - 127
1,1,2,2-Tetrachloroethane	0.979	1.111		mg/Kg		113	67 - 134
Tetrachloroethene	0.979	1.023		mg/Kg		104	71 - 138
Tetrahydrofuran	1.96	2.082		mg/Kg		106	65 - 150
Toluene	0.979	1.044		mg/Kg		107	77 - 134
1,2,3-Trichlorobenzene	0.979	1.007		mg/Kg		103	59 - 132
1,2,4-Trichlorobenzene	0.979	1.058		mg/Kg		108	61 - 134
1,1,1-Trichloroethane	0.979	1.022		mg/Kg		104	75 - 140
1,1,2-Trichloroethane	0.979	1.065		mg/Kg		109	75 - 132
Trichloroethene	0.979	0.9935		mg/Kg		101	77 - 142
1,2,3-Trichloropropane	0.979	1.036		mg/Kg		106	69 - 135
1,1,2-Trichlorotrifluoroethane	0.979	0.9716		mg/Kg		99	64 - 148
1,2,4-Trimethylbenzene	0.979	1.046		mg/Kg		107	73 - 131
1,3,5-Trimethylbenzene	0.979	1.050		mg/Kg		107	71 - 132
Xylenes, Total	1.96	2.049		mg/Kg		105	76 - 130
Dibromomethane	0.979	1.086		mg/Kg		111	76 - 139

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*75 - 115*
Toluene-d8 (Surr)	*100*		*78 - 118*

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

Lab Sample ID: 310-113888-1 MS
Matrix: Soil
Analysis Batch: 178565

Client Sample ID: GP-6 (3-5)
Prep Type: Total/NA
Prep Batch: 178564

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	<0.553		2.37	2.339		mg/Kg	☼	99	16 - 150
Allyl chloride	<0.111		1.19	1.239		mg/Kg	☼	104	53 - 150
Benzene	<0.111		1.19	1.165		mg/Kg	☼	98	66 - 149
Bromobenzene	<0.111		1.19	1.122		mg/Kg	☼	95	64 - 134
Bromochloromethane	<0.111		1.19	1.147		mg/Kg	☼	97	64 - 147
Bromodichloromethane	<0.111		1.19	1.151		mg/Kg	☼	97	55 - 144
Bromoform	<0.111		1.19	1.062		mg/Kg	☼	90	40 - 143
2-Butanone (MEK)	<0.277		2.37	2.276		mg/Kg	☼	96	40 - 150
n-Butylbenzene	<0.111		1.19	1.073		mg/Kg	☼	90	55 - 139
sec-Butylbenzene	<0.111		1.19	1.087		mg/Kg	☼	92	58 - 138
tert-Butylbenzene	<0.111		1.19	1.088		mg/Kg	☼	92	63 - 131
Carbon tetrachloride	<0.111		1.19	1.152		mg/Kg	☼	97	57 - 142
Chlorobenzene	<0.111		1.19	1.080		mg/Kg	☼	91	65 - 134
Chlorodibromomethane	<0.111		1.19	1.113		mg/Kg	☼	94	60 - 129
Chloroform	<0.111		1.19	1.211		mg/Kg	☼	99	59 - 147
4-Chlorotoluene	<0.111		1.19	1.113		mg/Kg	☼	94	61 - 132
2-Chlorotoluene	<0.111		1.19	1.094		mg/Kg	☼	92	61 - 134
1,2-Dibromo-3-Chloropropane	<0.111		1.19	1.183		mg/Kg	☼	100	16 - 150
1,2-Dibromoethane (EDB)	<0.111		1.19	1.192		mg/Kg	☼	100	62 - 136
1,2-Dichlorobenzene	<0.111		1.19	1.113		mg/Kg	☼	94	64 - 130
1,3-Dichlorobenzene	<0.111		1.19	1.100		mg/Kg	☼	93	65 - 129
1,4-Dichlorobenzene	<0.111		1.19	1.075		mg/Kg	☼	91	63 - 128
1,2-Dichloroethane	<0.111		1.19	1.126		mg/Kg	☼	95	60 - 147
1,1-Dichloroethane	<0.111		1.19	1.107		mg/Kg	☼	93	63 - 145
1,1-Dichloroethene	<0.111		1.19	1.095		mg/Kg	☼	92	64 - 144
cis-1,2-Dichloroethene	<0.111		1.19	1.113		mg/Kg	☼	94	65 - 143
trans-1,2-Dichloroethene	<0.111		1.19	1.141		mg/Kg	☼	96	61 - 144
1,2-Dichloropropane	<0.111		1.19	1.170		mg/Kg	☼	99	61 - 147
1,3-Dichloropropane	<0.111		1.19	1.155		mg/Kg	☼	97	66 - 137
2,2-Dichloropropane	<0.111		1.19	1.034		mg/Kg	☼	87	16 - 150
1,1-Dichloropropene	<0.111		1.19	1.137		mg/Kg	☼	96	64 - 142
cis-1,3-Dichloropropene	<0.111		1.19	1.081		mg/Kg	☼	91	58 - 133
trans-1,3-Dichloropropene	<0.111		1.19	1.110		mg/Kg	☼	94	50 - 144
Diethyl ether	<0.111		1.19	1.120		mg/Kg	☼	94	65 - 150
Ethylbenzene	<0.111		1.19	1.156		mg/Kg	☼	97	63 - 144
Hexachlorobutadiene	<0.111		1.19	1.027		mg/Kg	☼	87	54 - 136
Isopropylbenzene	<0.111		1.19	1.079		mg/Kg	☼	91	65 - 135
p-Isopropyltoluene	<0.111		1.19	1.062		mg/Kg	☼	90	56 - 140
4-Methyl-2-pentanone (MIBK)	<0.111		2.37	2.395		mg/Kg	☼	101	57 - 150
Methylene Chloride	<0.277		1.19	1.293		mg/Kg	☼	109	50 - 150
Methyl tert-butyl ether	<0.111		1.19	1.187		mg/Kg	☼	100	59 - 150
Naphthalene	<0.277		1.19	1.217		mg/Kg	☼	99	31 - 150
N-Propylbenzene	<0.111		1.19	1.107		mg/Kg	☼	93	58 - 142
Styrene	<0.111		1.19	1.102		mg/Kg	☼	93	63 - 131
1,1,1,2-Tetrachloroethane	<0.111		1.19	1.103		mg/Kg	☼	93	60 - 133
1,1,2,2-Tetrachloroethane	<0.111		1.19	1.178		mg/Kg	☼	99	28 - 150
Tetrachloroethene	<0.111		1.19	1.101		mg/Kg	☼	93	45 - 150
Tetrahydrofuran	<0.111		2.37	2.394		mg/Kg	☼	101	59 - 150

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

Lab Sample ID: 310-113888-1 MS — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178565 — **Prep Batch: 178564**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.111		1.19	1.141		mg/Kg	☼	92	62 - 142
1,2,3-Trichlorobenzene	<0.111		1.19	1.104		mg/Kg	☼	93	53 - 136
1,2,4-Trichlorobenzene	<0.111		1.19	1.086		mg/Kg	☼	92	49 - 144
1,1,1-Trichloroethane	<0.111		1.19	1.166		mg/Kg	☼	98	62 - 144
1,1,2-Trichloroethane	<0.111		1.19	1.151		mg/Kg	☼	97	55 - 146
Trichloroethene	<0.111		1.19	1.108		mg/Kg	☼	93	59 - 150
1,2,3-Trichloropropane	<0.111		1.19	1.132		mg/Kg	☼	95	58 - 142
1,1,2-Trichlorotrifluoroethane	<0.111		1.19	1.167		mg/Kg	☼	98	64 - 148
1,2,4-Trimethylbenzene	<0.111		1.19	1.195		mg/Kg	☼	98	61 - 135
1,3,5-Trimethylbenzene	<0.111		1.19	1.123		mg/Kg	☼	95	60 - 133
Xylenes, Total	<0.166		2.37	2.313		mg/Kg	☼	98	64 - 138
Dibromomethane	<0.111		1.19	1.178		mg/Kg	☼	99	60 - 148

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*79 - 119*
Dibromofluoromethane (Surr)	*100*		*75 - 115*
Toluene-d8 (Surr)	*99*		*78 - 118*

Lab Sample ID: 310-113888-1 MSD — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178565 — **Prep Batch: 178564**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	<0.553		2.40	2.428		mg/Kg	☼	101	16 - 150	4	40
Allyl chloride	<0.111		1.20	1.235		mg/Kg	☼	103	53 - 150	0	40
Benzene	<0.111		1.20	1.192		mg/Kg	☼	100	66 - 149	2	23
Bromobenzene	<0.111		1.20	1.163		mg/Kg	☼	97	64 - 134	4	23
Bromochloromethane	<0.111		1.20	1.167		mg/Kg	☼	97	64 - 147	2	24
Bromodichloromethane	<0.111		1.20	1.144		mg/Kg	☼	95	55 - 144	1	25
Bromoform	<0.111		1.20	1.139		mg/Kg	☼	95	40 - 143	7	40
2-Butanone (MEK)	<0.277		2.40	2.367		mg/Kg	☼	99	40 - 150	4	40
n-Butylbenzene	<0.111		1.20	1.090		mg/Kg	☼	91	55 - 139	2	24
sec-Butylbenzene	<0.111		1.20	1.079		mg/Kg	☼	90	58 - 138	1	22
tert-Butylbenzene	<0.111		1.20	1.090		mg/Kg	☼	91	63 - 131	0	23
Carbon tetrachloride	<0.111		1.20	1.137		mg/Kg	☼	95	57 - 142	1	40
Chlorobenzene	<0.111		1.20	1.131		mg/Kg	☼	94	65 - 134	5	21
Chlorodibromomethane	<0.111		1.20	1.154		mg/Kg	☼	96	60 - 129	4	34
Chloroform	<0.111		1.20	1.214		mg/Kg	☼	99	59 - 147	0	21
4-Chlorotoluene	<0.111		1.20	1.112		mg/Kg	☼	93	61 - 132	0	40
2-Chlorotoluene	<0.111		1.20	1.108		mg/Kg	☼	92	61 - 134	1	26
1,2-Dibromo-3-Chloropropane	<0.111		1.20	1.184		mg/Kg	☼	99	16 - 150	0	40
1,2-Dibromoethane (EDB)	<0.111		1.20	1.185		mg/Kg	☼	99	62 - 136	1	24
1,2-Dichlorobenzene	<0.111		1.20	1.136		mg/Kg	☼	95	64 - 130	2	22
1,3-Dichlorobenzene	<0.111		1.20	1.104		mg/Kg	☼	92	65 - 129	0	22
1,4-Dichlorobenzene	<0.111		1.20	1.117		mg/Kg	☼	93	63 - 128	4	22
1,2-Dichloroethane	<0.111		1.20	1.142		mg/Kg	☼	95	60 - 147	1	20
1,1-Dichloroethane	<0.111		1.20	1.166		mg/Kg	☼	97	63 - 145	5	23
1,1-Dichloroethene	<0.111		1.20	1.113		mg/Kg	☼	93	64 - 144	2	24

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

Lab Sample ID: 310-113888-1 MSD | **Client Sample ID: GP-6 (3-5)**
Matrix: Soil | **Prep Type: Total/NA**
Analysis Batch: 178565 | **Prep Batch: 178564**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
cis-1,2-Dichloroethene	<0.111		1.20	1.171		mg/Kg	☼	98	65 - 143	5	22
trans-1,2-Dichloroethene	<0.111		1.20	1.107		mg/Kg	☼	92	61 - 144	3	27
1,2-Dichloropropane	<0.111		1.20	1.195		mg/Kg	☼	100	61 - 147	2	21
1,3-Dichloropropane	<0.111		1.20	1.171		mg/Kg	☼	98	66 - 137	1	22
2,2-Dichloropropane	<0.111		1.20	1.084		mg/Kg	☼	90	16 - 150	5	40
1,1-Dichloropropene	<0.111		1.20	1.151		mg/Kg	☼	96	64 - 142	1	23
cis-1,3-Dichloropropene	<0.111		1.20	1.115		mg/Kg	☼	93	58 - 133	3	22
trans-1,3-Dichloropropene	<0.111		1.20	1.153		mg/Kg	☼	96	50 - 144	4	32
Diethyl ether	<0.111		1.20	1.153		mg/Kg	☼	96	65 - 150	3	32
Ethylbenzene	<0.111		1.20	1.176		mg/Kg	☼	98	63 - 144	2	30
Hexachlorobutadiene	<0.111		1.20	1.068		mg/Kg	☼	89	54 - 136	4	35
Isopropylbenzene	<0.111		1.20	1.113		mg/Kg	☼	93	65 - 135	3	22
p-Isopropyltoluene	<0.111		1.20	1.071		mg/Kg	☼	89	56 - 140	1	23
4-Methyl-2-pentanone (MIBK)	<0.111		2.40	2.430		mg/Kg	☼	101	57 - 150	1	32
Methylene Chloride	<0.277		1.20	1.340		mg/Kg	☼	112	50 - 150	4	35
Methyl tert-butyl ether	<0.111		1.20	1.187		mg/Kg	☼	99	59 - 150	0	33
Naphthalene	<0.277		1.20	1.215		mg/Kg	☼	98	31 - 150	0	40
N-Propylbenzene	<0.111		1.20	1.115		mg/Kg	☼	93	58 - 142	1	22
Styrene	<0.111		1.20	1.141		mg/Kg	☼	95	63 - 131	3	22
1,1,1,2-Tetrachloroethane	<0.111		1.20	1.124		mg/Kg	☼	94	60 - 133	2	24
1,1,2,2-Tetrachloroethane	<0.111		1.20	1.262		mg/Kg	☼	105	28 - 150	7	40
Tetrachloroethene	<0.111		1.20	1.093		mg/Kg	☼	91	45 - 150	1	40
Tetrahydrofuran	<0.111		2.40	2.210		mg/Kg	☼	92	59 - 150	8	32
Toluene	<0.111		1.20	1.156		mg/Kg	☼	93	62 - 142	1	26
1,2,3-Trichlorobenzene	<0.111		1.20	1.113		mg/Kg	☼	93	53 - 136	1	24
1,2,4-Trichlorobenzene	<0.111		1.20	1.099		mg/Kg	☼	92	49 - 144	1	40
1,1,1-Trichloroethane	<0.111		1.20	1.134		mg/Kg	☼	95	62 - 144	3	24
1,1,2-Trichloroethane	<0.111		1.20	1.174		mg/Kg	☼	98	55 - 146	2	24
Trichloroethene	<0.111		1.20	1.140		mg/Kg	☼	95	59 - 150	3	24
1,2,3-Trichloropropane	<0.111		1.20	1.154		mg/Kg	☼	96	58 - 142	2	30
1,1,2-Trichlorotrifluoroethane	<0.111		1.20	1.103		mg/Kg	☼	92	64 - 148	6	36
1,2,4-Trimethylbenzene	<0.111		1.20	1.159		mg/Kg	☼	94	61 - 135	3	28
1,3,5-Trimethylbenzene	<0.111		1.20	1.115		mg/Kg	☼	93	60 - 133	1	23
Xylenes, Total	<0.166		2.40	2.402		mg/Kg	☼	100	64 - 138	4	26
Dibromomethane	<0.111		1.20	1.201		mg/Kg	☼	100	60 - 148	2	22

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*79 - 119*
Dibromofluoromethane (Surr)	*99*		*75 - 115*
Toluene-d8 (Surr)	*99*		*78 - 118*

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL)

Lab Sample ID: MB 310-178382/1-A
Matrix: Solid
Analysis Batch: 178486

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 178382

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Acenaphthylene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Anthracene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Benzo[a]anthracene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Benzo[a]pyrene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Benzo[b]fluoranthene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Benzo[g,h,i]perylene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Benzo[k]fluoranthene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Chrysene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Dibenz(a,h)anthracene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Fluoranthene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Fluorene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Indeno[1,2,3-cd]pyrene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
2-Methylnaphthalene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Naphthalene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Phenanthrene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1
Pyrene	<0.00921		0.00921		mg/Kg		09/11/17 14:11	09/12/17 14:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorobiphenyl (Surr)	*73*		*32 - 110*	*09/11/17 14:11*	*09/12/17 14:59*	*1*
Nitrobenzene-d5 (Surr)	*59*		*15 - 113*	*09/11/17 14:11*	*09/12/17 14:59*	*1*
Terphenyl-d14 (Surr)	*84*		*31 - 110*	*09/11/17 14:11*	*09/12/17 14:59*	*1*

Lab Sample ID: LCS 310-178382/2-A
Matrix: Solid
Analysis Batch: 178486

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 178382

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acenaphthene	0.195	0.1338		mg/Kg		69	19 - 110
Acenaphthylene	0.195	0.1428		mg/Kg		73	19 - 110
Anthracene	0.195	0.1478		mg/Kg		76	25 - 110
Benzo[a]anthracene	0.195	0.1590		mg/Kg		81	39 - 110
Benzo[a]pyrene	0.195	0.1498		mg/Kg		77	38 - 110
Benzo[b]fluoranthene	0.195	0.1441		mg/Kg		74	40 - 110
Benzo[g,h,i]perylene	0.195	0.1092		mg/Kg		56	23 - 110
Benzo[k]fluoranthene	0.195	0.1311		mg/Kg		67	37 - 110
Chrysene	0.195	0.1457		mg/Kg		75	36 - 110
Dibenz(a,h)anthracene	0.195	0.1488		mg/Kg		76	10 - 110
Fluoranthene	0.195	0.1527		mg/Kg		78	37 - 110
Fluorene	0.195	0.1497		mg/Kg		77	21 - 110
Indeno[1,2,3-cd]pyrene	0.195	0.1579		mg/Kg		81	37 - 110
2-Methylnaphthalene	0.195	0.1345		mg/Kg		69	18 - 110
Naphthalene	0.195	0.1221		mg/Kg		63	16 - 110
Phenanthrene	0.195	0.1448		mg/Kg		74	25 - 110
Pyrene	0.195	0.1480		mg/Kg		76	34 - 110

Method: 8270D SIM - Semivolatile Organic Compound (GC/MS SIM LL) (Continued)

Lab Sample ID: LCS 310-178382/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178486 — **Prep Batch: 178382**

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorobiphenyl (Surr)	*69*		*32 - 110*
Nitrobenzene-d5 (Surr)	*62*		*15 - 113*
Terphenyl-d14 (Surr)	*74*		*31 - 110*

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

Lab Sample ID: MB 310-178384/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178502 — **Prep Batch: 178384**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (DRO)	<6.93		6.93		mg/Kg		09/11/17 14:16	09/12/17 12:22	1

Lab Sample ID: LCS 310-178384/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178502 — **Prep Batch: 178384**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Diesel Range Organics (DRO)	97.4	107.7		mg/Kg		111	70 - 120

Lab Sample ID: LCSD 310-178384/3-A — **Client Sample ID: Lab Control Sample Dup**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178502 — **Prep Batch: 178384**

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Diesel Range Organics (DRO)	96.9	99.59		mg/Kg		103	70 - 120	8	20

Method: 6010C - Metals (ICP)

Lab Sample ID: MB 310-178479/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178735 — **Prep Batch: 178479**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Barium	<0.461		0.461		mg/Kg		09/13/17 10:00	09/13/17 17:10	1
Cadmium	<0.923		0.923		mg/Kg		09/13/17 10:00	09/13/17 17:10	1
Chromium	<0.923		0.923		mg/Kg		09/13/17 10:00	09/13/17 17:10	1
Lead	<4.61		4.61		mg/Kg		09/13/17 10:00	09/13/17 17:10	1
Silver	<0.923		0.923		mg/Kg		09/13/17 10:00	09/13/17 17:10	1

Lab Sample ID: LCS 310-178479/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178735 — **Prep Batch: 178479**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Barium	85.5	86.04		mg/Kg		101	80 - 120
Cadmium	85.5	86.37		mg/Kg		101	80 - 120
Chromium	85.5	84.91		mg/Kg		99	80 - 120

Method: 6010C - Metals (ICP) (Continued)

Lab Sample ID: LCS 310-178479/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178735 — **Prep Batch: 178479**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Lead	171	174.9		mg/Kg		102	80 - 120
Silver	85.5	87.82		mg/Kg		103	80 - 120

Method: 7010 - Metals (GFAA)

Lab Sample ID: MB 310-178480/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178705 — **Prep Batch: 178480**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.0488		0.0488		mg/Kg		09/13/17 10:00	09/13/17 14:51	1

Lab Sample ID: MB 310-178480/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178721 — **Prep Batch: 178480**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Selenium	<0.244		0.244		mg/Kg		09/13/17 10:00	09/13/17 17:54	1

Lab Sample ID: LCS 310-178480/2-A ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178705 — **Prep Batch: 178480**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	1.56	1.585		mg/Kg		101	80 - 120

Lab Sample ID: LCS 310-178480/2-A ^2 — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178721 — **Prep Batch: 178480**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	3.13	2.853		mg/Kg		91	80 - 120

Lab Sample ID: 310-113888-1 MS — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178705 — **Prep Batch: 178480**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Arsenic	4.55		4.79	9.174		mg/Kg	☼	97	75 - 125

Lab Sample ID: 310-113888-1 MS — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178721 — **Prep Batch: 178480**

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Selenium	<0.933		9.57	7.130		mg/Kg	☼	75	75 - 125

Method: 7010 - Metals (GFAA) (Continued)

Lab Sample ID: 310-113888-1 MSD — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178705 — **Prep Batch: 178480**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Arsenic	4.55		4.71	9.446		mg/Kg	☼	104	75 - 125	3	20

Lab Sample ID: 310-113888-1 MSD — **Client Sample ID: GP-6 (3-5)**
Matrix: Soil — **Prep Type: Total/NA**
Analysis Batch: 178721 — **Prep Batch: 178480**

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Selenium	<0.933		9.42	7.226		mg/Kg	☼	77	75 - 125	1	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 310-178689/1-A — **Client Sample ID: Method Blank**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178844 — **Prep Batch: 178689**

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0162		0.0162		mg/Kg		09/13/17 13:50	09/14/17 13:33	1

Lab Sample ID: LCS 310-178689/2-A — **Client Sample ID: Lab Control Sample**
Matrix: Solid — **Prep Type: Total/NA**
Analysis Batch: 178844 — **Prep Batch: 178689**

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Mercury	0.157	0.1439		mg/Kg		92	80 - 120

GC/MS VOA

Prep Batch: 178564

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	5035	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	5035	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	5035	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	5035	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	5035	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	5035	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	5035	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	5035	
MB 310-178564/1-A	Method Blank	Total/NA	Solid	5035	
LCS 310-178564/2-A	Lab Control Sample	Total/NA	Solid	5035	
310-113888-1 MS	GP-6 (3-5)	Total/NA	Soil	5035	
310-113888-1 MSD	GP-6 (3-5)	Total/NA	Soil	5035	

Analysis Batch: 178565

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	8260B	178564
310-113888-2	GP-6 (16-18)	Total/NA	Soil	8260B	178564
310-113888-3	GP-7 (3-5)	Total/NA	Soil	8260B	178564
310-113888-4	GP-8 (3-5)	Total/NA	Soil	8260B	178564
310-113888-5	GP-9 (3-5)	Total/NA	Soil	8260B	178564
310-113888-6	GP-10 (3-5)	Total/NA	Soil	8260B	178564
310-113888-7	GP-11 (3-5)	Total/NA	Soil	8260B	178564
310-113888-8	GP-12 (3-5)	Total/NA	Soil	8260B	178564
MB 310-178564/1-A	Method Blank	Total/NA	Solid	8260B	178564
LCS 310-178564/2-A	Lab Control Sample	Total/NA	Solid	8260B	178564
310-113888-1 MS	GP-6 (3-5)	Total/NA	Soil	8260B	178564
310-113888-1 MSD	GP-6 (3-5)	Total/NA	Soil	8260B	178564

GC/MS Semi VOA

Prep Batch: 178382

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	3546	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	3546	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	3546	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	3546	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	3546	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	3546	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	3546	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	3546	
MB 310-178382/1-A	Method Blank	Total/NA	Solid	3546	
LCS 310-178382/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 178486

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	8270D SIM	178382
310-113888-2	GP-6 (16-18)	Total/NA	Soil	8270D SIM	178382
310-113888-3	GP-7 (3-5)	Total/NA	Soil	8270D SIM	178382
310-113888-4	GP-8 (3-5)	Total/NA	Soil	8270D SIM	178382
310-113888-5	GP-9 (3-5)	Total/NA	Soil	8270D SIM	178382

GC/MS Semi VOA (Continued)

Analysis Batch: 178486 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-6	GP-10 (3-5)	Total/NA	Soil	8270D SIM	178382
310-113888-7	GP-11 (3-5)	Total/NA	Soil	8270D SIM	178382
310-113888-8	GP-12 (3-5)	Total/NA	Soil	8270D SIM	178382
MB 310-178382/1-A	Method Blank	Total/NA	Solid	8270D SIM	178382
LCS 310-178382/2-A	Lab Control Sample	Total/NA	Solid	8270D SIM	178382

GC Semi VOA

Prep Batch: 178384

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	WI DRO PREP	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	WI DRO PREP	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	WI DRO PREP	
MB 310-178384/1-A	Method Blank	Total/NA	Solid	WI DRO PREP	
LCS 310-178384/2-A	Lab Control Sample	Total/NA	Solid	WI DRO PREP	
LCSD 310-178384/3-A	Lab Control Sample Dup	Total/NA	Solid	WI DRO PREP	

Analysis Batch: 178502

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-2	GP-6 (16-18)	Total/NA	Soil	WI-DRO	178384
310-113888-3	GP-7 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-4	GP-8 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-5	GP-9 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-6	GP-10 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-7	GP-11 (3-5)	Total/NA	Soil	WI-DRO	178384
310-113888-8	GP-12 (3-5)	Total/NA	Soil	WI-DRO	178384
MB 310-178384/1-A	Method Blank	Total/NA	Solid	WI-DRO	178384
LCS 310-178384/2-A	Lab Control Sample	Total/NA	Solid	WI-DRO	178384
LCSD 310-178384/3-A	Lab Control Sample Dup	Total/NA	Solid	WI-DRO	178384

Metals

Prep Batch: 178479

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	3050B	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	3050B	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	3050B	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	3050B	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	3050B	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	3050B	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	3050B	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	3050B	
MB 310-178479/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-178479/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 178480

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	3050B	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	3050B	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	3050B	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	3050B	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	3050B	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	3050B	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	3050B	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	3050B	
MB 310-178480/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-178480/2-A ^2	Lab Control Sample	Total/NA	Solid	3050B	
310-113888-1 MS	GP-6 (3-5)	Total/NA	Soil	3050B	
310-113888-1 MSD	GP-6 (3-5)	Total/NA	Soil	3050B	

Prep Batch: 178689

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	7471B	
310-113888-2	GP-6 (16-18)	Total/NA	Soil	7471B	
310-113888-3	GP-7 (3-5)	Total/NA	Soil	7471B	
310-113888-4	GP-8 (3-5)	Total/NA	Soil	7471B	
310-113888-5	GP-9 (3-5)	Total/NA	Soil	7471B	
310-113888-6	GP-10 (3-5)	Total/NA	Soil	7471B	
310-113888-7	GP-11 (3-5)	Total/NA	Soil	7471B	
310-113888-8	GP-12 (3-5)	Total/NA	Soil	7471B	
MB 310-178689/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 310-178689/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Analysis Batch: 178705

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	7010	178480
310-113888-2	GP-6 (16-18)	Total/NA	Soil	7010	178480
310-113888-3	GP-7 (3-5)	Total/NA	Soil	7010	178480
310-113888-4	GP-8 (3-5)	Total/NA	Soil	7010	178480
310-113888-5	GP-9 (3-5)	Total/NA	Soil	7010	178480
310-113888-6	GP-10 (3-5)	Total/NA	Soil	7010	178480
310-113888-7	GP-11 (3-5)	Total/NA	Soil	7010	178480
310-113888-8	GP-12 (3-5)	Total/NA	Soil	7010	178480
MB 310-178480/1-A	Method Blank	Total/NA	Solid	7010	178480
LCS 310-178480/2-A ^2	Lab Control Sample	Total/NA	Solid	7010	178480
310-113888-1 MS	GP-6 (3-5)	Total/NA	Soil	7010	178480
310-113888-1 MSD	GP-6 (3-5)	Total/NA	Soil	7010	178480

Analysis Batch: 178721

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	7010	178480
310-113888-2	GP-6 (16-18)	Total/NA	Soil	7010	178480
310-113888-3	GP-7 (3-5)	Total/NA	Soil	7010	178480
310-113888-4	GP-8 (3-5)	Total/NA	Soil	7010	178480
310-113888-5	GP-9 (3-5)	Total/NA	Soil	7010	178480
310-113888-6	GP-10 (3-5)	Total/NA	Soil	7010	178480
310-113888-7	GP-11 (3-5)	Total/NA	Soil	7010	178480
310-113888-8	GP-12 (3-5)	Total/NA	Soil	7010	178480

Metals (Continued)

Analysis Batch: 178721 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-178480/1-A	Method Blank	Total/NA	Solid	7010	178480
LCS 310-178480/2-A ^2	Lab Control Sample	Total/NA	Solid	7010	178480
310-113888-1 MS	GP-6 (3-5)	Total/NA	Soil	7010	178480
310-113888-1 MSD	GP-6 (3-5)	Total/NA	Soil	7010	178480

Analysis Batch: 178735

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	6010C	178479
310-113888-2	GP-6 (16-18)	Total/NA	Soil	6010C	178479
310-113888-3	GP-7 (3-5)	Total/NA	Soil	6010C	178479
310-113888-4	GP-8 (3-5)	Total/NA	Soil	6010C	178479
310-113888-5	GP-9 (3-5)	Total/NA	Soil	6010C	178479
310-113888-6	GP-10 (3-5)	Total/NA	Soil	6010C	178479
310-113888-7	GP-11 (3-5)	Total/NA	Soil	6010C	178479
310-113888-8	GP-12 (3-5)	Total/NA	Soil	6010C	178479
MB 310-178479/1-A	Method Blank	Total/NA	Solid	6010C	178479
LCS 310-178479/2-A	Lab Control Sample	Total/NA	Solid	6010C	178479

Analysis Batch: 178844

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-113888-1	GP-6 (3-5)	Total/NA	Soil	7471B	178689
310-113888-2	GP-6 (16-18)	Total/NA	Soil	7471B	178689
310-113888-3	GP-7 (3-5)	Total/NA	Soil	7471B	178689
310-113888-4	GP-8 (3-5)	Total/NA	Soil	7471B	178689
310-113888-5	GP-9 (3-5)	Total/NA	Soil	7471B	178689
310-113888-6	GP-10 (3-5)	Total/NA	Soil	7471B	178689
310-113888-7	GP-11 (3-5)	Total/NA	Soil	7471B	178689
310-113888-8	GP-12 (3-5)	Total/NA	Soil	7471B	178689
MB 310-178689/1-A	Method Blank	Total/NA	Solid	7471B	178689
LCS 310-178689/2-A	Lab Control Sample	Total/NA	Solid	7471B	178689

Client Sample ID: GP-6 (3-5)

Lab Sample ID: 310-113888-1

Date Collected: 09/05/17 09:50

Matrix: Soil

Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 12:01	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 20:37	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 15:04	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 17:52	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 14:59	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:01	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:05	MEG	TAL CF

Client Sample ID: GP-6 (16-18)

Lab Sample ID: 310-113888-2

Date Collected: 09/05/17 10:00

Matrix: Soil

Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 12:25	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 21:03	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 18:12	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 17:58	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:15	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:21	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:06	MEG	TAL CF

Client Sample ID: GP-7 (3-5)

Lab Sample ID: 310-113888-3

Date Collected: 09/05/17 10:30

Matrix: Soil

Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 12:49	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-7 (3-5)

Lab Sample ID: 310-113888-3

Date Collected: 09/05/17 10:30
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 21:29	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 15:31	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:00	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:19	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:24	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:08	MEG	TAL CF

Client Sample ID: GP-8 (3-5)

Lab Sample ID: 310-113888-4

Date Collected: 09/05/17 12:05
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 13:13	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 21:55	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 15:58	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:02	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:23	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:27	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:09	MEG	TAL CF

Client Sample ID: GP-9 (3-5)

Lab Sample ID: 310-113888-5

Date Collected: 09/05/17 13:25
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 13:37	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 22:21	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 17:45	AJM	TAL CF

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-9 (3-5)

Lab Sample ID: 310-113888-5

Date Collected: 09/05/17 13:25
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:04	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:27	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:31	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:11	MEG	TAL CF

Client Sample ID: GP-10 (3-5)

Lab Sample ID: 310-113888-6

Date Collected: 09/05/17 14:35
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 14:01	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 22:47	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 16:25	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:07	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:39	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:34	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:13	MEG	TAL CF

Client Sample ID: GP-11 (3-5)

Lab Sample ID: 310-113888-7

Date Collected: 09/05/17 15:35
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 14:25	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		1	178486	09/12/17 23:13	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 16:52	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:09	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Client Sample ID: GP-11 (3-5)

Lab Sample ID: 310-113888-7

Date Collected: 09/05/17 15:35
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	7010		12	178705	09/13/17 15:43	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:38	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:14	MEG	TAL CF

Client Sample ID: GP-12 (3-5)

Lab Sample ID: 310-113888-8

Date Collected: 09/05/17 16:55
Matrix: Soil
Date Received: 09/09/17 09:30

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			178564	09/13/17 06:14	TCH	TAL CF
Total/NA	Analysis	8260B		1	178565	09/13/17 14:49	TCH	TAL CF
Total/NA	Prep	3546			178382	09/11/17 14:11	CTB	TAL CF
Total/NA	Analysis	8270D SIM		10	178486	09/12/17 23:38	DMD	TAL CF
Total/NA	Prep	WI DRO PREP			178384	09/11/17 14:16	CTB	TAL CF
Total/NA	Analysis	WI-DRO		1	178502	09/12/17 17:18	AJM	TAL CF
Total/NA	Prep	3050B			178479	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	6010C		1	178735	09/13/17 18:11	SAD	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		12	178705	09/13/17 15:47	JIS	TAL CF
Total/NA	Prep	3050B			178480	09/13/17 10:00	JNR	TAL CF
Total/NA	Analysis	7010		4	178721	09/13/17 18:41	JIS	TAL CF
Total/NA	Prep	7471B			178689	09/13/17 13:50	JNR	TAL CF
Total/NA	Analysis	7471B		1	178844	09/14/17 14:16	MEG	TAL CF

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Laboratory: TestAmerica Cedar Falls

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	EPA Region	Identification Number	Expiration Date
Minnesota	NELAP	5	019-999-319	12-31-17

The following analytes are included in this report, but accreditation/certification is not offered by the governing authority:

Analysis Method	Prep Method	Matrix	Analyte
8260B	5035	Soil	Dichlorofluoromethane

Method Summary

Client: American Engineering Testing Inc.
Project/Site: City of Mankato Phase II

TestAmerica Job ID: 310-113888-1
SDG: 03-06166

Method	Method Description	Protocol	Laboratory
8260B	Volatile Organic Compounds (GC/MS)	SW846	TAL CF
8270D SIM	Semivolatile Organic Compound (GC/MS SIM LL)	SW846	TAL CF
WI-DRO	Wisconsin - Diesel Range Organics (GC)	WI-DRO	TAL CF
6010C	Metals (ICP)	SW846	TAL CF
7010	Metals (GFAA)	SW846	TAL CF
7471B	Mercury (CVAA)	SW846	TAL CF

Protocol References:

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.

Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

310-113888 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AET

City/State: Mankato MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9-9-17 930 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 1 of 2

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: 5 | Correction Factor (°C): +0.1

• **Temp Blank Temperature** – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 7.4 | Corrected Temp (°C): 7.5

• **Sample Container Temperature**

Sample ID(s) & bottle type used: CONTAINER 1: 4 oz Soil jar | CONTAINER 2: GP-12 (3-5)

Uncorrected Temp (°C): TEMP 1: 5.8 TEMP 2: | Corrected Temp (°C): TEMP 1: 5.9 TEMP 2:

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Received 7 unused 4oz amber soil jars

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

TestAmerica
THE LEADER IN ENVIRONMENTAL TESTING

Place COC scanning label here

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: AET

City/State: Mankato MN | Project: C/O Mankato Phase II

Receipt Information

Date/Time Received: 9-9-12 930 | Received By: KP

Delivery Type: ☐ UPS ☑ FedEx Sat ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee ☐ TA Courier ☐ TA Field Services ☐ Client Drop-off ☐ Other:

Condition of Cooler/Containers

Sample(s) received in Cooler? ☑ Yes ☐ No *If yes:* Cooler ID:

Multiple Coolers? ☑ Yes ☐ No *If yes:* Cooler # 2 of 2

Cooler Custody Seals Present? ☐ Yes ☑ No *If yes:* Cooler custody seals intact? ☐ Yes ☐ No

Sample Custody Seals Present? ☐ Yes ☑ No *If yes:* Sample custody seals intact? ☐ Yes ☐ No

Trip Blank Present? ☐ Yes ☑ No *If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other: ☐ NONE

Thermometer ID: J | Correction Factor (°C): +0.1

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.8 | Corrected Temp (°C): 0.9

• Sample Container Temperature

Sample ID(s) & bottle type used: CONTAINER 1 | CONTAINER 2

Uncorrected Temp (°C): TEMP 1 TEMP 2 | Corrected Temp (°C): TEMP 1 TEMP 2

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ No

2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

Document: CF-LG-WI-002
Revision: 22
Date: 11/27/2015

TestAmerica-Cedar Falls

General temperature criteria is 0 to 6°C
Bacteria temperature criteria is 0 to 10°C

AMERICAN ENGINEERING TESTING, INC.

☐ St. Paul Office
550 Cleveland Ave. N.
St. Paul, MN 55114
651-659-9001
651-659-1379 (fax)

☒ OTHER AET-Mankato

ADDRESS:

PHONE:

№ 21796

PAGE 1 OF 1

AET PROJECT NUMBER 03-06166

PROJECT NAME/LOCATION City of Mankato Phase II

AET PROJECT MANAGER Jenna Vajic

SEND REPORT TO Jenna Vajic & Tyler Boley

SAMPLED BY (PRINT) Tyler Boley

SAMPLER SIGNATURE Tyler Boley

REQUESTED TURNAROUND TIME: ☒ NORMAL ☐ RUSH

DATE NEEDED BY:

ITEM#	SAMPLE DESCRIPTION	DATE	TIME	SAMPLE TYPE	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	MeOH	HCL	H_2SO_4	HNO_3		FIELD FILTERED Y/N	VOCs	PAHs	DRO	RCRA Metals	Moisture	REMARKS
01	GP-6 (3-5)	9/5	0950	Soil	4	3	1					N	X	X	X	X	X	
02	GP-6 (16-18)	9/5	1000															
03	GP-7 (3-5)	9/5	1030										X	X	X	X	X	
04	GP-8 (3-5)	9/5	1205										X	X	X	X	X	
05	GP-9 (3-5)	9/5	1325										X	X	X	X	X	
06	GP-10 (3-5)	9/5	1435										X	X	X	X	X	
07	GP-11 (3-5)	9/5	1535										X	X	X	X	X	
08	GP-12 (3-5)	9/5	1655										X	X	X	X	X	

NOTE:

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
01-08	Tyler Boley / AET	Katie Bauer	9/8/17	15:53
		Brita Ryan	9.9.17	930

Login Sample Receipt Checklist

Client: American Engineering Testing Inc.

Job Number: 310-113888-1
SDG Number: 03-06166

Login Number: 113888
List Number: 1
Creator: Leitz, Gemma H

List Source: TestAmerica Cedar Falls

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.	N/A	
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.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	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	