December 31, 2015

Consulting
Engineers and
Scientists

Mr. George F. Momberger, P.E.
New York State Department of Environmental Conservation
Region 9
270 Michigan Avenue
Buffalo, New York 14203

Subject: Final Report
Groundwater Monitored Natural Attenuation Program for 312 Fair Oak Street
Little Valley, New York

Dear Mr. Momberger:

On behalf of Bush Industries, Inc., GEI Consultants, Inc., P.C. is pleased to submit three copies of the above-captioned report. The work was conducted pursuant to and in accordance with the Amended and Supplemental Order (File No.: 96-07 R9-4314-96-06) agreed to between Bush Industries and the New York State Department of Environmental Conservation (NYSDEC). An electronic copy of the report has been sent via e-mail. Please let me know if you would like me to forward the electronic copy to EPA (as in past years).

If you have any questions concerning this report, please contact the undersigned at (716) 204-7158 or via e-mail at kmcintosh@geiconsultants.com.

Sincerely yours,

GEI CONSULTANTS, INC., P.C.

Kelly R. McIntosh, P.E., Ph.D.

Enclosure

cc: Gregory Sutton, P.E., NYSDEC (e-copy only)
Morgan Graham, Phillips, Lytle
Maureen Brady, NYSDEC (w/o enclosure)
Neil Frederick, Bush Industries



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# Final Report
# Groundwater Monitored Natural Attenuation Program

Bush Industries, Inc.
312 Fair Oak Street
Little Valley, New York

**Submitted to:**
Bush Industries, Inc.
Jamestown, New York

**Submitted by:**
GEI Consultants, Inc., P.C.
90B John Muir Drive, Suite 104
Amherst, NY 14228

December 2015

Project 128910

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# Executive Summary

GEI Consultants, Inc., P.C. (GEI) has been retained by Bush Industries, Inc. (Bush Industries) to conduct the 2015 Monitored Natural Attenuation (MNA) Program for groundwater at the property located at 312 Fair Oak Street, Little Valley, New York. The work was conducted pursuant to and in accordance with the Amended and Supplemental Order (File No.: 96-07 R9-4314-96-06) agreed to between Bush Industries and the New York State Department of Environmental Conservation (NYSDEC).

The subject property is located within the Little Valley Superfund Site (LVSS). The LVSS is currently being addressed by the United States Environmental Protection Agency (USEPA). The Record of Decision (ROD) for the LVSS specifies MNA as the remedy for trichloroethene (TCE) contaminated groundwater measured throughout the LVSS. The USEPA MNA remedy includes groundwater sampling on properties located throughout the LVSS including 312 Fair Oak Street. Bush Industries has agreed to conduct the MNA sampling on this property in accordance with the Amended and Supplemental Order.

The 2015 MNA sampling event is tenth and final sampling event specified in the NYSDEC-approved work plan titled: *"Work Plan for Natural Attenuation Monitoring, Bush Industries, Inc"*, prepared by Geomatrix Consultants and dated July 2007 (Work Plan). In accordance with the Work Plan, this report presents the validated results of the annual MNA sampling event conducted on the property by GEI in September 2015 and constitutes the Final Report for the MNA program.

Taken collectively, the results of the ten annual groundwater MNA sampling events, conducted from 2006 through 2015, indicate that natural attenuation processes are occurring. The apparent decreasing or stable concentration trends and presence of daughter products and methane in groundwater samples reflect the reductive dechlorination occurring in groundwater at the property. The plume is not expanding and groundwater concentrations are stable or declining.

This Final Report recommends the following:

1. The MNA program is complete, no further monitoring is recommended.

2. Existing prohibitions on groundwater use at the property (through Institutional Controls) should be continued.

# 1. Introduction

GEI Consultants, Inc., P.C. (GEI) has been retained by Bush Industries, Inc. (Bush Industries) to conduct the 2015 Monitored Natural Attenuation (MNA) Program for groundwater at the property located at 312 Fair Oak Street, Little Valley, New York. The work was conducted pursuant to and in accordance with the Amended and Supplemental Order (File No.: 96-07 R9-4314-96-06) agreed to between Bush Industries and the New York State Department of Environmental Conservation (NYSDEC).

This report presents the results of the tenth and final MNA sampling event and constitutes the Final Report as specified in the NYSDEC-approved work plan titled *"Work Plan for Natural Attenuation Monitoring, Bush Industries, Inc"*, prepared by Geomatrix Consultants and dated July 2007 (Work Plan).

## 1.1 Final Report Objectives

As specified in the Work Plan, the objectives of the Final Report are:

1. Present the results of the tenth and final MNA sampling event and discuss the progress of MNA;

2. Present recommendations concerning;

    a. The need for and/or requirements of continued monitoring; and

    b. The need for and/or nature of continued prohibitions of on-site groundwater use.

## 1.2 Background and Site Description

The subject property is located within the Little Valley Superfund Site (LVSS). The LVSS is currently being addressed by the United States Environmental Protection Agency (USEPA). The Record of Decision (ROD) for the LVSS specifies MNA as the remedy for TCE contaminated groundwater measured throughout the LVSS.

A topographic map of the Site and surrounding area prepared from a 7.5 minute series U.S. Geological Survey map is presented in Figure 1. The Site is situated on a 9.4 acre lot, and contains three contiguous buildings (see Figure 2). The USEPA MNA remedy includes groundwater sampling on properties located throughout the LVSS, including the property at

312 Fair Oak Street. Bush Industries has agreed to conduct the MNA sampling on this property in accordance with the Amended and Supplemental Order.

As NYSDEC was notified by letter dated September 15, 2008, Bush Industries entered into a contract to sell its land and improvements at 312 Fair Oak Street, Little Valley, N.Y. That transaction was completed on November 12, 2008. Bush Industries retained all rights-of-entry and authorization for Bush Industries (and NYSDEC) to continue to perform its obligations under the Amended and Supplemental Order. Also, deed restrictions have been placed upon the property prohibiting the use of groundwater. The current owner of the property is H2K Ventures, with addresses of 297 Howard Avenue, Jamestown, N.Y., and 312 Fair Oak Street, Little Valley, N.Y.

## 1.3 Previous Site Investigations

Bush Industries has conducted an extensive investigation of groundwater conditions at the 312 Fair Oak Street Site in concert with NYSDEC. Results are documented in the report entitled Groundwater Evaluation Report, prepared by Conestoga-Rovers & Associates (CRA) and dated February 21, 2000. The findings presented in the Groundwater Evaluation Report are summarized as follows:

1. The highest concentrations of TCE and its degradation products remain in the interior of the Site. There is a residual low level presence of TCE and its degradation products in the interior of the Site with concentrations in groundwater dropping precipitously along the downgradient flow path.

2. Concentrations of TCE at the downgradient perimeter of the Site are approximately equal to or below the New York State Groundwater criterion.

3. This distribution trend (rapidly declining concentrations with distance from the interior of the Site) indicates that natural attenuation processes occur limiting constituent migration and the Site does not pose a significant threat to downgradient groundwater quality.

The Groundwater Evaluation Report was approved by NYSDEC in March 2000. In May 2000, Bush Industries submitted the Remediation Report prepared by Geomatrix Consultants. The Remediation Report recommended implementation of an annual MNA sampling program at the Site. That Remediation Report was approved by NYSDEC in July 2007, along with EPA's concurrence.

## 1.4 MNA Program Objectives

The objectives of the natural attenuation monitoring are to:

1. Perform annual monitored natural attenuation (MNA) sampling events

2. Evaluate historic and new analytical data to monitor natural attenuation at the Site

# 2. Work Performed

## 2.1 MNA Scope of Work

The MNA monitoring work to be performed at the 312 Fair Oak Street Site is specified in the following documents:

*Final Remedial Action Work Plan for the Little Valley Superfund Site*
Contract Number:68-W-98-214
Prepared by Tetra Tech EC, Inc.
Dated October 2006

*Quality Assurance Project Plan Addendum for the Little Valley Superfund Site*
Contract Number:68-W-98-214
Prepared by Tetra Tech EC, Inc.
Dated September 2006

*Work Plan for Natural Attenuation Monitoring, Bush Industries, Inc.*
Prepared for Bush Industries, Inc.
Prepared by Geomatrix Consultants
Dated July 2007

The latter document (Work Plan) prepared by Geomatrix governs the specific sampling program for the Site and is referred to herein as the Work Plan. In order to facilitate direct comparison of the Site analytical results with results from other wells within the LVSS sampled by USEPA, the sampling methods, analytical methods and QA/QC protocols specified by USEPA for the LVSS remediation are utilized for the Bush Industries MNA monitoring and are incorporated into the Work Plan.

In accordance with the Work Plan, the MNA Program for groundwater at the 312 Fair Oak Street Site includes the following:

1. Annual groundwater sampling events for the following wells: MW-D1, MW-D2, MW-2, MW-3, MW-5 and MW-6. Monitoring well locations are shown on Figure 2.

2. Sampling of wells using low flow methodology in accordance with the Work Plan

3. Analyses of samples for the following MNA analyses: Volatile Organic Chemicals (VOCs), alkalinity, sulfate, sulfide, nitrate, chloride, total organic carbon, ferrous iron, ethane, ethene and methane. The analytical program and methodology is summarized in Table 1 (except deviations as noted in Section 2.2, below).

4. Data validation.

5. Data evaluation and reporting.

These tasks are described in detail in the Work Plan.

## 2.2 2015 MNA Groundwater Sampling Event

GEI personnel conducted the annual MNA sampling event for the Site on September 22, 2015. Water level measurement, equipment decontamination, and low flow purge methods were in accordance with the Work Plan. Purge records are included in Table 2.

Deviations from the Work Plan during the 2015 sampling event are listed below:

- With the prior concurrence of NYSDEC (by e-mail from Linda Ross, NYSDEC, dated September 18, 2008), VOCs were analyzed using SW-846 Third Edition Methods with USEPA Contract Laboratory Program (CLP) deliverables.

Groundwater samples were analyzed in accordance with Table 1 (except as noted above) by Test America Buffalo Laboratory.

The data validation and usability are discussed in Section 3.1. Results are presented in Section 3.2.

# 3. Sampling Event Results

## 3.1 Data Validation and Usability

The analytical results and data packages for the September 2015 sampling event reported by the laboratory were validated by MECX, LP of Aurora, Colorado**.** Data validation was performed in accordance with the Work Plan based on an evaluation of method specific QC information (holding times, calibration records, laboratory and field blanks, duplicate precision, and surrogate and matrix spike recoveries), the most current version of the USEPA Region 2 Data Validation SOPs (www.epa.gov/region02/desa/hsw/sops.htm), the most current version of the EPA National Functional Guidelines (www.epa.gov/superfund/programs/clp/guidance.htm) and the best professional judgment of the validator.

The Data Validation Report is included in its entirety in Appendix A. Results were deemed usable with appropriate qualifiers added (see Appendix A). No significant data quality issues were identified.

## 3.2 Groundwater Results

### *3.2.1 Hydraulic Head Measurements*

Groundwater hydraulic head measurements were obtained on September 22, 2015 and are presented in Table 3. Figure 3 presents a water table elevation map prepared from these measurements.

Groundwater flow is indicated to be toward the northeast and the flow direction is consistent with all prior measurement events.

### *3.2.2 Analytical Results*

The validated analytical results are summarized in Table 4. Table 5 presents comparison criteria for detected constituents in groundwater used by USEPA for the LVSS. TCE and/or its reductive dechlorination products (cis-1,2-dichloroethene and vinyl chloride) were detected at or above the comparison criteria in 2 of the 6 wells sampled (MW-2 and MW-D2).

The highest TCE concentration was measured in the sample from well MW-D2 (reported concentration of 88 ug/L). Well MW-D2 is located in the central portion of the property. The reductive dechlorination product cis-1,2-dichloroethene was present in samples from 3 wells (20 ug/L in MW-2, 9.9 ug/L in MW-D2 and 4.8 ug/L in MW-6). The reductive dechlorination product vinyl chloride was not detected in any well.

No VOCs were detected in the sample from monitoring well MW-5.

Figure 4 presents an isoconcentration contour map for total VOCs measured during September 2015.

MNA parameter results are discussed in the following section.

# 4. Contaminant Trends and Progress of MNA

## 4.1 Contaminant Trends

Table 6 presents historical sampling results for the six wells in the Bush Industries MNA sampling program. Figures 5 through 10 present time versus concentration plots depicting the historical trend of TCE and daughter products in the Bush Industries MNA monitoring wells. As shown on these figures, all 2015 sampling event results for TCE and its reductive dechlorination products are within the general ranges of historical values. Apparent downward trends in concentrations of TCE and/or degradation products are evident in 5 of the 6 wells in the MNA program: MW-2 (Figure 5), MW-3 (Figure 6), MW-6 (Figure 8), and MW-D1 (Figure 9). TCE and degradant concentrations in well MW-D2 show no obvious recent trend, but appear to have stabilized at lower concentrations than measured during the site groundwater investigations conducted during 1999-2001.

## 4.2 Reductive Dechlorination

The data obtained during the September 2015 groundwater sampling event were reviewed to assess the potential for degradation of VOCs at the Site via reductive dechlorination. EPA's Technical Protocol (EPA, 1998) was used as a basis for much of the following assessment.

*Oxygen*
Anaerobic bacteria generally cannot function at dissolved oxygen (DO) concentrations above 0.5 mg/L, and reductive dechlorination will not occur. As indicated in Table 2, stable field measured DO concentrations at the Site ranged from less than 1 mg/L to 6.74 mg/L. The lowest DO concentrations were measured in wells MW-2 and MW-6. Reductive dechlorination products were detected in both these wells.

*Nitrate*
After dissolved oxygen has been depleted, nitrate may be used as an electron acceptor for the biodegradation of organic compounds via denitrification. Areas of depressed nitrate concentrations within a groundwater plume may indicate biodegradation via nitrate reduction, while the presence of nitrate in groundwater can indicate a fairly aerobic environment. Nitrate concentrations in the contaminant plume should be less than 1 mg/L for reductive dechlorination to occur. Nitrate concentrations were below 1 mg/L were measured in all wells sampled except for wells MW-D1 and MW-3.

*Ferrous Iron*

After nitrate, iron (III) may be used as an electron acceptor during anaerobic biodegradation, reducing the analyte to iron (II). Ferrous iron [iron (II)] concentrations were not detected in any wells during the 2015 sampling event.

*Sulfate/Sulfide*

After dissolved oxygen and nitrate depletion, sulfate may be used as an electron acceptor for anaerobic biodegradation (EPA, 1998). This "sulfate reduction" process produces sulfide, and concentrations of sulfide greater than 1 mg/L indicate a possible reductive pathway. Sulfate was detected in all wells at concentrations ranging from 4.2 to 14.2 mg/L. Sulfide was not detected in any well during the 2015 event.

*Methane/Ethane/Ethene*

Methanogenesis (the reduction of carbon dioxide to methane) generally occurs after oxygen, nitrate, and sulfate have been depleted (EPA, 1998). Therefore, the presence of methane in groundwater is indicative of strongly reducing conditions. Samples from two wells, MW-2 and MW-6, contained detectable concentrations of methane in the 2015 event (0.110 mg/L and 0.032 mg/L, respectively). Reductive dechlorination products were detected in both of these wells.

*Alkalinity*

Zones of microbial activity are typically identified by an increase in alkalinity, resulting from increased concentrations of carbon dioxide produced by the metabolism of microorganisms. A two-fold increase in alkalinity values over background numbers suggests biodegradation may be occurring (EPA, 1998). Historically, the minimum value for alkalinity has occurred in well MW-5, which is considered upgradient of the TCE presence at the Site (historic range from approximately 60 mg/L to 70 mg/L as shown on Table 6). Alkalinity was measured at 62.4 mg/L in the 2015 sample from MW-5, and this value is used as "background" for comparison. The samples from the monitoring well MW-2, MW-3, MW-D1 and MW-D2 exhibited alkalinity levels greater than twice the background concentration.

*Oxidation-Reduction Potential*

The oxidation-reduction potential of groundwater is a relative measure of electron activity, and can influence rates of biodegradation. At less than 50 millivolts (mV), the reductive pathway is possible, and becomes more likely below -100 mV (EPA, 1998). Negative redox potentials were not measured in any of the wells sampled during the 2015 event.

*pH and Temperature*

Metabolic activity of bacteria is affected by the pH and temperature of the groundwater. The optimal values for these parameters for reductive biodegradation is a pH between 6 and 8 and a temperature greater than 20°C. All of the wells exhibited pHs in this optimum range. Stable values of water temperature during the 2015 sampling event were between 9.9°C and 14.0°C.

*Chloride*
Chloride is released as a breakdown product during the biodegradation of chlorinated compounds. Chloride ions do not typically enter into oxidation-reduction reactions, form no important solute complexes, do not form salts of low solubility, are not significantly adsorbed on mineral surfaces, and play few vital biochemical roles (EPA, 1998). As a result, significant increases in chloride concentrations relative to background (i.e., two times) may indicate the biodegradation of chlorinated compounds. Road salting also serves as a common, localized source of chloride to groundwater systems. The result from well MW-5 (9.7 mg/L), which as indicated above is considered upgradient of the TCE presence at the Site, was used as "background" for comparison of the chloride values. The wells sampled downgradient from MW-5 had a chloride concentrations of 15.7 (MW-2) and 20.1 mg/L (MW-D2). The furthest downgradient well, MW-3 had a chloride concentration of 19.9 mg/L.

*Total Organic Carbon*
The presence of natural or anthropogenic organic carbon can facilitate dechlorination by acting as a carbon and energy source for aerobic microorganisms (which during aerobic respiration decrease dissolved oxygen levels, creating a reducing environment and increasing the potential for anaerobic bacteria to function). A TOC concentration of 20 mg/L is most favorable to dechlorination. TOC concentrations were not detected above 1 mg/L in any wells sampled for the 2015 event.

*Daughter Products*
Transformation of TCE via reductive dechlorination produces daughter products including 1,1-dichloroethene, 1,2-dichloroethene (cis- and/or trans-), and vinyl chloride. As described in Section 3.2, these daughter products were detected, suggesting that reductive dechlorination has occurred at the property.

## 4.3 Progress of MNA at the Site

The apparent decreasing concentration trends and the presence of daughter products and methane in groundwater samples reflect the reductive dechlorination occurring in groundwater at the property.

The concentrations in groundwater of TCE and degradation products at the 312 Fair Oak property have decreased over the ten years of MNA monitoring. No wells have shown an increase in concentration over this time. The ten years of MNA sampling have demonstrated the plume is stable or contracting.

# 5. Final Report Recommendations

Taken collectively, the results of the ten annual groundwater MNA sampling events, conducted from 2006 through 2015, indicate that natural attenuation processes are occurring. The apparent decreasing or stable concentration trends and presence of daughter products and methane in groundwater samples reflect the reductive dechlorination occurring in groundwater at the property. The plume is not expanding and groundwater concentrations are stable or declining.

This Final Report recommends the following:

1. The MNA program is complete, no further monitoring is recommended.

2. Existing prohibitions on groundwater use at the property (through Institutional Controls) should be continued.

# Tables

**TABLE 1**

**SAMPLE COLLECTION AND ANALYSIS PROTOCOLS**
**312 Fair Oak Street, Little Valley, New York**

| *Sample Type* | *Matrix* | *Sampling Device* | *No. of Samples* [(1)(2)] | *Parameter* | *Sample Container* [(3)(4)] | *Sample Preservation* | *Analytical Method* [(5)] | *PQL* | *Holding Time* [(6)] |
|---|---|---|---|---|---|---|---|---|---|
| Groundwater | Water | Positive Displacement Submersible Pump | 6 | pH; temperature; specific conductivity DO; ORP; turbidity [Field Screening] | NA | NA | Direct Field Measurement Following SOP | NA | Analyze Immediately |
| | | | 6 | Low Concentration TCL Volatile Organic Compounds [CLP Lab] | (4) 40 mL VOA vials w/Teflon lined septum | 1:1 HCl to pH<2; Cool to 4°C | SOM01.1 | Compound specific (0.5 - 20 µg/L) | 10 days |
| | | | 6 | Total Organic Carbon [DESA Lab] | (1) L amber glass | $H_2SO_4$ to pH<2; Cool to 4°C | SW-846 Method 9060 | 1 mg/L | 28 days* |
| | | | 6 | Alkalinity [DESA Lab] | (1) 1 L polyethelyene | Cool to 4°C | MCAWW Method 310.1 | 1 mg/L | 14 days* |
| | | | 6 | Sulfate [DESA Lab] | (1) 1 L polyethelyene | Cool to 4°C | EPA 300.1 | 1 mg/L | 28 days* |
| | | | 6 | Sulfide [DESA Lab] | (1) 1 L polyethelyene | NaOH to pH >12; 4 drops of zinc acetate per liter; Cool to 4°C | MCAWW Method 376.1 | 1 mg/L | 7 days* |
| | | | 6 | Nitrate [DESA Lab] | (1) 1 L polyethelyene | Cool to 4°C | EPA 300.1 | 0.05 mg/L | 48 hours* |
| | | | 6 | Chloride [DESA Lab] | (1) 1 L polyethelyene | Cool to 4°C | EPA 300.1 | 1 mg/L | 28 days* |
| | | | 6 | Ferrous Iron [Sub Lab] | (1) 100 mL amber glass | 2mL HCl; Cool to 4°C | Std. Methods Method 3500Fe-D | 10 µg/L | 24 hours* |
| | | | 6 | Ethane [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |
| | | | 6 | Ethene [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |
| | | | 6 | Methane [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |

**TABLE 1**

**SAMPLE COLLECTION AND ANALYSIS PROTOCOLS**
**312 Fair Oak Street, Little Valley, New York**

| *Sample Type* | *Matrix* | *Sampling Device* | *No. of Samples* [1][2] | *Parameter* | *Sample Container* [3][4] | *Sample Preservation* | *Analytical Method* [5] | *PQL* | *Holding Time* [6] |
|---|---|---|---|---|---|---|---|---|---|
| Field Blank | Water | Collected Rinsate Passed Over/Through Sampling Equipment | 1 | Low Concentration TCL Volatile Organic Compounds [CLP Lab] | (4) 40-mL VOA vials w/Teflon lined septum | 1:1 HCl to pH<2; Cool to 4°C | SOM01.1 | Compound specific (0.5 - 20 µg/L) | 10 days |
| Trip Blank | Water | Direct Fill of Sample Bottles | 1 | Low Concentration TCL Volatile Organic Compounds [CLP Lab] | (4) 40-mL VOA vials w/Teflon lined septum | 1:1 HCl to pH<2; Cool to 4°C | SOM01.1 | Compound specific (0.5 - 20 µg/L) | 10 days |
| | | | 6 | Ethane [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |
| | | | 6 | Ethene [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |
| | | | 6 | Methane [Sub Lab] | (5) 40-mL VOA vials w/Teflon lined septum | Cool to 4°C | GC/FID (SW-846 Method 3810) | 5 µg/L | 7 days* |

NOTES:
1. The number in parentheses in the "No. of Samples" column denotes the number of duplicate samples.
2. The number of field, trip and DI water blanks is estimated based on the approximate number of days in the field for each type of sampling during the MNA Program events.
3. The number in parentheses in the "Sample Container" column denotes the number of containers needed. Additional volume must be sent for laboratory QA/QC sample analyses.
4. All bottles will comply with OSWER Directive 9240.0-05A: "Specifications and Guidance for Obtaining Contaminant-Free Sample Containers", EPA 540/R-93/051, December 1992.
5. Method References:
   SOM01.1 = USEPA Contract Laboratory Program Statement of Work for Multi-Media, Multi-Concentration Organics (May 2005 or latest revision).
   MCAWW = Methods for Chemical Analysis of Water and Wastes, March 1983.
   Std. Methods = Standard Methods for the Examination of Water and Wastewater, 20th Edition (January 2000).
   SW-846 = Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (November 1986, revised through November 2000 via Updates I through IVB).
   EPA300.1 = Determination of Inorganic Anions in Drinking Water by Ion Chromatography, Revision I (27 April 1999).
   EPA/600/R-98128 = Technical Protocol for Evaluating Natural Attenuation of Chlorinated Solvents in Groundwater (September 1998).
6. All holding times listed are from Verified Time of Sample Receipt (VTSR) unless noted otherwise (* denotes from time of sample collection).
7. Acronyms/Abbreviations used:
   CLP = Contract Laboratory Program
   DESA = Division of Environmental Science and Assessment
   DO = Dissolved Oxygen
   ORP = Oxidation-Reduction Potential
   PQL = Practical Quantitation Limit
   Sub Lab = Non-RAS Subcontract Laboratory
   TCL = Target Compound List
   VOA = Voalitle Organic Analysis

**TABLE 2**
**MONITORING WELL PURGE SUMMARY**
**312 Fair Oak Street**
**Little Valley, New York**

| Time (09/22/2015) | Cumulative Volume (L) | Temperature (degrees C) | pH | Specific Conductance (mS/cm) | Dissolved Oxygen (mg/L) | Turbidity (NTU) | Redox Potential (mV) |
|---|---|---|---|---|---|---|---|
| ***MW-2*** | | | | | | | |
| 13:30 | Begin Purge | | | | | | |
| 13:35 | 0.5 | 12.0 | 7.28 | 0.445 | 1.18 | 7.1 | 180 |
| 13:40 | 0.75 | 11.6 | 7.13 | 0.443 | 0.74 | 5.5 | 172 |
| 13:45 | 1.1 | 12.0 | 7.08 | 0.444 | 0.66 | 4.6 | 170 |
| 13:50 | 1.5 | 11.8 | 7.03 | 0.444 | 0.61 | 5.4 | 171 |
| 13:55 | 1.9 | 11.8 | 7.04 | 0.444 | 0.55 | 6.2 | 167 |
| ***MW-3*** | | | | | | | |
| 8:30 | Begin Purge | 11.4 | 6.80 | 0.423 | 6.98 | 13.2 | 224 |
| 8:43 | 3.8 | 11.2 | 6.73 | 0.423 | 6.79 | 6.2 | 221 |
| 8:49 | 5.0 | 11.2 | 6.73 | 0.423 | 6.75 | 2.7 | 220 |
| 8:55 | 6.0 | 11.2 | 6.73 | 0.423 | 6.74 | 2.0 | 219 |
| ***MW-5*** | | | | | | | |
| 10:10 | Begin Purge | 14.0 | 7.29 | 0.163 | 2.39 | 55.2 | 102 |
| 10:18 | 1.25 | 13.8 | 6.43 | 0.160 | 1.21 | 43.0 | 150 |
| 10:23 | 1.5 | 14.0 | 6.34 | 0.160 | 1.07 | 29.3 | 155 |
| 10:28 | 2.1 | 14.1 | 6.29 | 0.160 | 0.98 | 16.4 | 160 |
| 10:34 | 2.6 | 14.1 | 6.27 | 0.160 | 0.91 | 9.8 | 162 |
| 10:42 | 3.0 | 14.0 | 6.24 | 0.160 | 0.99 | 4.5 | 162 |
| ***MW-6*** | | | | | | | |
| 11:22 | Begin Purge | 14.3 | 6.30 | 0.194 | 1.02 | 16.7 | 156 |
| 11:26 | 0.6 | 14.6 | 6.22 | 0.186 | 1.00 | 40.1 | 144 |
| 11:31 | 2.1 | 14.6 | 6.19 | 0.184 | 1.40 | 39.0 | 146 |
| 11:36 | 3.0 | 14.6 | 6.14 | 0.190 | 0.74 | 17.5 | 140 |
| 11:41 | 4.5 | 14.6 | 6.14 | 0.193 | 0.53 | 17.1 | 134 |
| 11:45 | 6.0 | 14.6 | 6.14 | 0.195 | 0.44 | 14.1 | 128 |
| 11:55 | 8.0 | 14.6 | 6.15 | 0.195 | 0.40 | 9.5 | 122 |
| ***MW-D1*** | | | | | | | |
| 14:50 | Begin Purge | | | | | | |
| 15:00 | 0.5 | 13.7 | 6.78 | 0.403 | 6.34 | 17.5 | 181 |
| 15:10 | 1.0 | 12.3 | 6.65 | 0.391 | 6.12 | 5.3 | 185.2 |
| 15:15 | 1.5 | 12.4 | 6.63 | 0.386 | 6.07 | 2.7 | 181.5 |
| ***MW-D2*** | | | | | | | |
| 12:30 | Begin Purge | 10.2 | 7.02 | 0.456 | 3.80 | 40.3 | 188 |
| 12:38 | 3 | 10.0 | 7.00 | 0.424 | 3.43 | 18.5 | 191 |
| 12:43 | 4 | 9.9 | 7.00 | 0.414 | 3.22 | 13.4 | 192 |
| 12:48 | 5 | 9.9 | 7.00 | 0.408 | 3.11 | 10.4 | 192 |
| 12:53 | 6 | 9.9 | 6.99 | 0.398 | 2.93 | 7.7 | 192 |
| 12:58 | 7 | 9.9 | 6.99 | 0.391 | 2.86 | 6.3 | 192 |

**TABLE 3**
**GROUNDWATER ELEVATION SUMMARY**
**312 Fair Oak Street**
**Little Valley, New York**

| Well ID | Measuring Point Elevation (fasl) | DTW (ft.) 9/22/15 | Groundwater Elevation (fasl) |
|---|---|---|---|
| MW-2 | 1590.18 | 38.02 | 1552.16 |
| MW-3 | 1591.37 | 51.60 | 1539.77 |
| MW-5 | 1590.44 | 6.75 | 1583.69 |
| MW-6 | 1584.99 | 3.46 | 1581.53 |
| MW-D1 | 1590.31 | 49.47 | 1540.84 |
| MW-D2 | 1584.17 | 37.93 | 1546.24 |

Notes:
DTW - depth to water
fasl - feet above sea level

**TABLE 4**
**VALIDATED GROUNDWATER ANALYTICAL SUMMARY**
**312 Fair Oak Street**
**Little Valley, New York**

| *Sample ID:* | *LVRA09-MNAGW-MW2* | *LVRA09-MNAGW-MW3* | *LVRA09-MNAGW-MW5* | *LVRA09-MNAGW-MW6* | *LVRA09-MNAGW-MWD1* | *LVRA09-MNAGW-MWD2* | *LVRA09- MNAGW-DUP (1)* |
|---|---|---|---|---|---|---|---|
| *Date Sampled:* | *09/22/15* | *09/22/15* | *09/22/15* | *09/22/15* | *09/22/15* | *09/22/15* | *09/22/15* |
| ***Volatile Organic Compounds (ug/L)*** | | | | | | | |
| 1,1,1-Trichloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,1,2,2-Tetrachloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,1,2-Trichloro-1,2,2,-trifluoroethane | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| 1,1,2-Trichloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,1-Dichloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,1-Dichloroethene | **0.35J** | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2-Dibromo-3-Chloropropane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2-Dibromoethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2-Dichlorobenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2-Dichloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2,4-Trichlorobenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,2-Dichloropropane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,4-Dichlorobenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 2-Hexanone | 5U | 5U | 5U | 5U | 5U | 10U | 5U |
| 2-Butanone | 10U | 10U | 10U | 10U | 10U | 20U | 10U |
| 4-Methyl-2-pentanone | 5U | 5U | 5U | 5U | 5U | 10U | 5U |
| Acetone | 10U | 10U | 10U | 10U | 10U | 20U | 10U |
| Benzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| 1,3-Dichlorobenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Bromodichloromethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Bromoform | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Bromomethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Carbon Disulfide | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Carbon Tetrachloride | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Chlorobenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Dibromochloromethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Chloroethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Chloroform | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Chloromethane | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| cis-1,2-Dichloroethene | **20** | 1U | 1U | **4.8** | 1U | **9.9** | **11** |
| cis-1,3-Dichlroropropene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Ethylbenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Methylene Chloride | 1U | 1U | 1U | 1U | 1U | **3.5** | 1U |
| Styrene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Tetrachloroethene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Toluene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| trans-1,2,-Dichloroethene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| trans-1,3-Dichloropropene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Trichloroethene | **42** | **1.8** | 1U | **1.2** | **3.9** | **88** | **98** |
| Trichlorofluoromethane | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| Vinyl Chloride | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| Total Xylenes | 2U | 2U | 2U | 2U | 2U | 4U | 2U |
| Cyclohexane | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| Dichlorodifluoromethane | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Isopropylbenzene | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Methyl acetate | 2.5U | 2.5U | 2.5U | 2.5U | 2.5U | 5U | 2.5U |
| Methyl-tert-butyl ether | 1U | 1U | 1U | 1U | 1U | 2U | 1U |
| Methylcyclohexane | 1U J | 1U J | 1U J | 1U J | 1U J | 2U J | 1U J |
| ***Monitored Natural Attenuation Parameters (mg/L)*** | | | | | | | |
| Chloride | 15.7 | 19.9 | 9.7 | 9 | 15.2 | 20.1 | 20.1 |
| Ethane | 0.0075 U | 0.0075 U | 0.0075 U | 0.0075 U | 0.0075 U | 0.0075 U | 0.0075 U |
| Ethene | 0.007U | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.007 U | 0.007 U |
| Ferrous Iron | 0.075U J | 0.075U J | 0.075U J | 0.075U J | 0.075U J | 0.075U J | 0.075U J |
| Methane | 0.110 | 0.004 U | 0.004 U | 0.032 | 0.004 U | 0.004 U | 0.004 U |
| Nitrate | .024J | 1.3 | 0.10 | .045J | 1.3 | 0.26 | 0.27 |
| Sulfate | 14.2 | 8.4 | 4.2 | 7.6 | 8.6 | 13 | 12.5 |
| Sulfide | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 0.67 U | 0.67 U |
| Total Alkalinity | 203 | 185 | 62.4 | 85.3 | 167 | 157 | 156 |
| Total Organic Carbon | 0.43U | 0.66J | 0.43U | 0.99U | 0.43U | 0.43U | 0.43U |

Notes:
U = Compound not detected above specified laboratory detection limit
J= Laboratory estimated concentration
(1) Duplicate sample collected at LVRA09-MNAGW-MW-D2 location

TABLE 5
Comparison Criteria for Detected Constituents in Groundwater

| BASIS FOR CRITERIA | HUMAN HEALTH | STATE |
|---|---|---|
| | EPA Maximum Contaminant Level | NYSDEC Water Quality Values [Class GA] |
| **Volatile Organics (ug/L)** | | |
| 1,1,2-Trichloroethane | 200 | 5 |
| 1,1-Dichloroethene | 7 | 5 |
| 1,2,3-Trichlorobenzene | NC | 5 |
| 1,2,4-Trichlorobenzene | 70 | 5 |
| 1,2-Dichlorobenzene | 600 | 3 |
| 1,2-Dichloroethane | 5 | 0.6 |
| 1,2-Dichloroethene (total) | 70 | 5 |
| cis-1,2-Dichloroethene | 70 | 5 |
| trans-1,2-Dichloroethene | 100 | 5 |
| 1,2-Dichloropropane | 5 | 1 |
| 1,3-Dichlorobenzene | NC | 3 |
| 1,4-Dichlorobenzene | 75 | 3 |
| 2-Hexanone | NC | 50 |
| Acetone | NC | 50 |
| Benzene | 5 | 1 |
| Carbon disulfide | NC | 60 |
| Chlorobenzene | 100 | 5 |
| Chloroethane | NC | 5 |
| Cyclohexane | NC | NC |
| Ethylbenzene | 700 | 5 |
| Methyl chloride (Chloromethane) | NC | 5 |
| Methyl ethyl ketone (2-Butanone) | NC | 50 |
| Methyl isobutyl ketone (4-Methyl-2-pentanone) | NC | NC |
| Methylcyclohexane | NC | NC |
| Styrene | 100 | 5 |
| Tetrachloroethene | 5 | 5 |
| Toluene | 1000 | 5 |
| Trichloroethene | 5 | 5 |
| m/p-Xylene | 10000 | 5 |
| Xylenes (total) | 10000 | 5 |

**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-2 | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 05/05/99 | 05/05/99 Duplicate | 12/14/99 | 12/14/99 Duplicate | 01/10/01 | 12/11/03 | 10/31/06 | 10/31/06 Duplicate | 09/25/07 | 09/25/08 | 09/22/09 | 09/21/10 | 09/28/11 | 09/26/12 | 09/26/12 Duplicate | 09/19/13 | 09/23/14 | 09/22/15 |
| **Volatile Organics (ug/L)** | | | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | 1 J | -- | 0.7 J | 0.7 J | -- | 0.63 | 0.8 | 0.89 | 0.73 | 0.6 | 0.58 J | 0.51 J | -- | 0.62 J | 0.29 J | 0.57 J | 0.4J | 0.35J |
| 1,4-Dichlorobenzene | NA | NA | NA | NA | -- | -- | 0.16 J | 0.12 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | 0.7 J | -- | 0.4 J | 0.4 J | -- | 0.32 J | -- | -- | 0.29 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | 0.8 J | -- | -- | -- | -- | -- | 0.19 J | 0.23 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | 54 | 51 | 40 | 42 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | NA | NA | NA | 44 | 40 D | 45 D | 46 D | 54 D | 42 | 29 | 32 | 31 | 31 | 23 | 28 | 24 | 20 |
| trans-1,2-Dichloroethene | NA | NA | NA | NA | -- | 0.28 J | 0.51 | 0.49 J | 0.47 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | -- | -- | -- | -- | 0.25 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | NA | NA | NA | NA | -- | 0.14 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | 230 | 190 | 84 | 87 | 110 | 36 D | 58 D | 58 D | 69 J | 75 | 77 | 75 | 75 | 79 | 51 | 61 | 42 | 42 |
| Vinyl Chloride | 4 J | 2 J | 1 J | 1 J | NA | 4.8 | 4 | 4.8 | 4.2 | 3 | 0.77 J | 2.1 | 1.2 | 1.3 | -- | 1.3 | 1.0 | 1.0 |
| m/p-Xylene | NA | NA | NA | NA | NA | NA | 0.1 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | | | | | | | | | | | |
| Alkalinity | NA | NA | NA | NA | NA | 180 | 190 | 180 | 176 | 194 | 173 | 194 | 189 | 201 | 201 | 201 | 194 | 203 |
| Chloride | NA | NA | NA | NA | NA | 19 | 26 | 26 | 28.4 | 32.2 | 25.2 | 24.1 | 21.9 | 19.1 | 19.1 | 16.7 | 16 | 15.7 |
| Ferrous Iron | NA | NA | NA | NA | NA | -- | 0.17 | 0.14 | -- | -- | -- | -- | -- | 0.09J | 0.09J | -- | -- | -- |
| Methane | NA | NA | NA | NA | NA | 0.54 JD | 0.046 J | 0.11 J | 0.026 | 0.020 | 0.009 | 0.052 | 0.035 | 0.0059 | 0.0059 | 0.075 | 0.035 | 0.110 |
| Nitrate | NA | NA | NA | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | 0.027 J | 0.027 J | 0.052 | .025J | .024J |
| Sulfate | NA | NA | NA | NA | NA | 16 | 17 | 17 | 20.5 | 21.2 | 16.5 | 17 | 16 | 16.3 | 16.3 | 17.5 | 16 | 14.2 |
| Sulfide | NA | NA | NA | NA | NA | NA | 0.02 | 0.018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| TOC | NA | NA | NA | NA | NA | 2.6 | -- | -- | 1.6 | -- | 1.6 J | 0.9J | 1.1 | 0.97 J | 0.97 J | 0.82 J | 1.6 | -- |

**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-3 | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 01/09/01 | 12/10/03 | 10/30/06 | 09/25/07 | 09/25/08 | 09/25/08 Duplicate | 09/22/09 | 09/22/09 Duplicate | 09/21/10 | 09/28/11 | 09/28/11 Duplicate | 09/19/13 | 09/23/14 | 09/22/15 |
| **Volatile Organics (ug/L)** | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | -- | -- | 0.12 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | -- | -- | 0.091 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | 3 | 2.2 | 0.36 J | 0.86 | 0.7 | 0.8 | -- | -- | 1 | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | 8 | 6.3 | 2.2 | 7.9 J | 5 | 6 | 4.2 | 3.7 | 11 | 3.3 | 3.3 | 3.9 | 2.2 | 1.8 |
| Vinyl Chloride | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| m/p-Xylene | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | | | | | | | |
| Alkalinity | NA | 160 | 260 | 155 | 167 | 168 | 171 | 173 | 155 | 168 | 167 | 165 | 167 | 185 |
| Chloride | NA | 44 | 78 | 64.4 | 46.0 | 46.3 | 31.8 | 32.1 | 42.3 | 26.2 | 26.1 | 20.3 | 19 | 19.9 |
| Ferrous Iron | NA | -- | -- | 0.18 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Methane | NA | 0.07 J N | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrate | NA | 1.2 | 1.9 | 1.5 | 1.4 | 1.3 | 1.43 | 1.46 | 1.04 | 1.4 | 1.3 | 1.2 | 0.99 | 1.3 |
| Sulfate | NA | 12 | 27 | 23.8 | 13.8 | 13.2 | 11.5 | 11.0 | 14.1 | 10.9 | 10.8 | 10.6 | 9.9 | 8.4 |
| Sulfide | NA | NA | 0.018 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| TOC | NA | -- | 26 | 1.4 | -- | -- | -- | -- | 0.4J | 1.0U | 1.0U | 0.44 J | -- | 0.66 J |

**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-5 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/13/99 | 01/04/01 | 10/30/06 | 09/25/07 | 09/25/08 | 09/22/09 | 12/15/10 | 09/28/11 | 09/26/12 | 09/19/13 | 09/23/14 | 09/22/15 |
| **Volatile Organics (ug/L)** | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | -- | -- | 0.23 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | 3.6 J | -- | -- | -- | -- | -- | -- |
| Chloroethane | -- | -- | 0.13 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | -- | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| trans-1,2-Dichloroethene | | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | 0.13 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | 5.5 | -- | -- | -- | -- | -- | -- |
| Trichloroethene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Vinyl Chloride | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| m/p-Xylene | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | | | | | |
| Alkalinity | NA | NA | 70 | 65 | 65.4 | 61.8 | 60.0 | 66.0 | 64.8 | 68.5 | 67.0 | 62.4 |
| Chloride | NA | NA | 11 | 38.4 | 23.3 | 12 | 9.49 | 11.6 | 17.2 | 14.2 | 9.1 | 9.7 |
| Ferrous Iron | NA | NA | 0.18 | -- | -- | -- | -- | -- | 0.077J | -- | -- | -- |
| Methane | NA | NA | -- | 0.0061 | -- | 0.00031 J | -- | -- | -- | -- | -- | -- |
| Nitrate | NA | NA | 0.73 | -- | -- | -- | 1.07 | 0.31 | 0.14 | 0.051 | 0.11 | 0.10 |
| Sulfate | NA | NA | 6.7 | 7.4 | 6.4 | 5.31 | 6.92 | 5.4 | 6.9 | 5.4 | 4.5 | 4.2 |
| Sulfide | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| TOC | NA | NA | -- | 1.3 | -- | 1.1 J | 1.2 | 0.79J | 0.86 J | 0.69 J | 1.5 | -- |

**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-6 | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/13/99 | 01/10/01 | 10/30/06 | 09/25/07 | 09/25/08 | 09/22/09 | 09/21/10 | 09/28/11 | 09/26/12 | 09/19/13 | 09/23/14 | 09/22/15 |
| **Volatile Organics (ug/L)** | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | -- | -- | -- | 0.66 | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | -- | -- | 0.11 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | 30 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | 44 | 35 D | 120 | 39 | 26 | 27 | 13 | 5.8 | 14 | 6.5 | 4.8 |
| trans-1,2-Dichloroethene | NA | -- | 0.48 J | 0.31 J | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | 17 | 37 | 19 | 1.6 J | 3 | 3.7 | 2.1 | 1.1 | 0.60 J | 2.2 | 0.58J | 1.2 |
| Vinyl Chloride | 4 J | -- | -- | 9.5 J | 5 | 2.5 | 2.6 | 0.99J | -- | 1.0 | -- | -- |
| m/p-Xylene | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | | | | | |
| Alkalinity | NA | NA | 88 | 75 | 86.1 | 92 | 89.8 | 61.5 | 58.7 | 92.2 | 79.2 | 85.3 |
| Chloride | NA | NA | 13 | 32.9 | 17.8 | 11.3 | 13.3 | 6.5 | 6.8 | 10.9 | 7.6 | 9.0 |
| Ferrous Iron | NA | NA | -- | -- | -- | -- | -- | -- | -- | 0.08 J | -- | -- |
| Methane | NA | NA | 0.082 J | 0.098 | 0.064 | 0.098 | 0.037 | 0.020 | 0.0013J | 0.10 | 0.026 | 0.032 |
| Nitrate | NA | NA | -- | -- | -- | -- | 0.054 | -- | -- | 0.034 J | -- | 0.045 J |
| Sulfate | NA | NA | 11 | 19.4 | 10.1 | 10.9 | 10.6 | 9.4 | 9.0 | 10.6 | 7.8 | 7.6 |
| Sulfide | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| TOC | NA | NA | -- | 1.7 | -- | 2.5 J | 1.6 | 2.6 | 1.7 | 1.3 | 2.2 | -- |

**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-D1 | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | 12/13/99 | 01/10/01 | 12/10/03 | 10/31/06 | 09/22/09 | 09/21/10 | 09/23/14 | 09/22/15 |
| **Volatile Organics (ug/L)** | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | NA | -- | -- | -- | -- | -- | -- | -- |
| Benzene | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | 4 J | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | 8 | 4.8 | 0.42 J | 0.92 J | -- | -- | -- |
| trans-1,2-Dichloroethene | NA | -- | -- | 0.55 | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | NA | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | 9 J | 18 | 12 | 1.8 | 6.7 | 2.2 | 3.5 | 3.9 |
| Vinyl Chloride | -- | -- | -- | 0.16 J | -- | -- | -- | -- |
| m/p-Xylene | NA | NA | NA | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | |
| Alkalinity | NA | NA | 190 | 200 | 151 | 165 | 151 | 167 |
| Chloride | NA | NA | 42 | 55 | 23.8 | 50.4 | 14 | 15.2 |
| Ferrous Iron | NA | NA | -- | -- | -- | -- | -- | -- |
| Methane | NA | NA | 0.06 J N | -- | -- | -- | -- | -- |
| Nitrate | NA | NA | 1.4 | 2.7 | 1.6 | 2.67 | 1.2 | 1.3 |
| Sulfate | NA | NA | 13 | 11 | 11.7 | 11.5 | 10 | 8.6 |
| Sulfide | NA | NA | NA | -- | -- | -- | -- | -- |
| TOC | NA | NA | -- | -- | 1.0 J | 0.8J | 1.2 | -- |

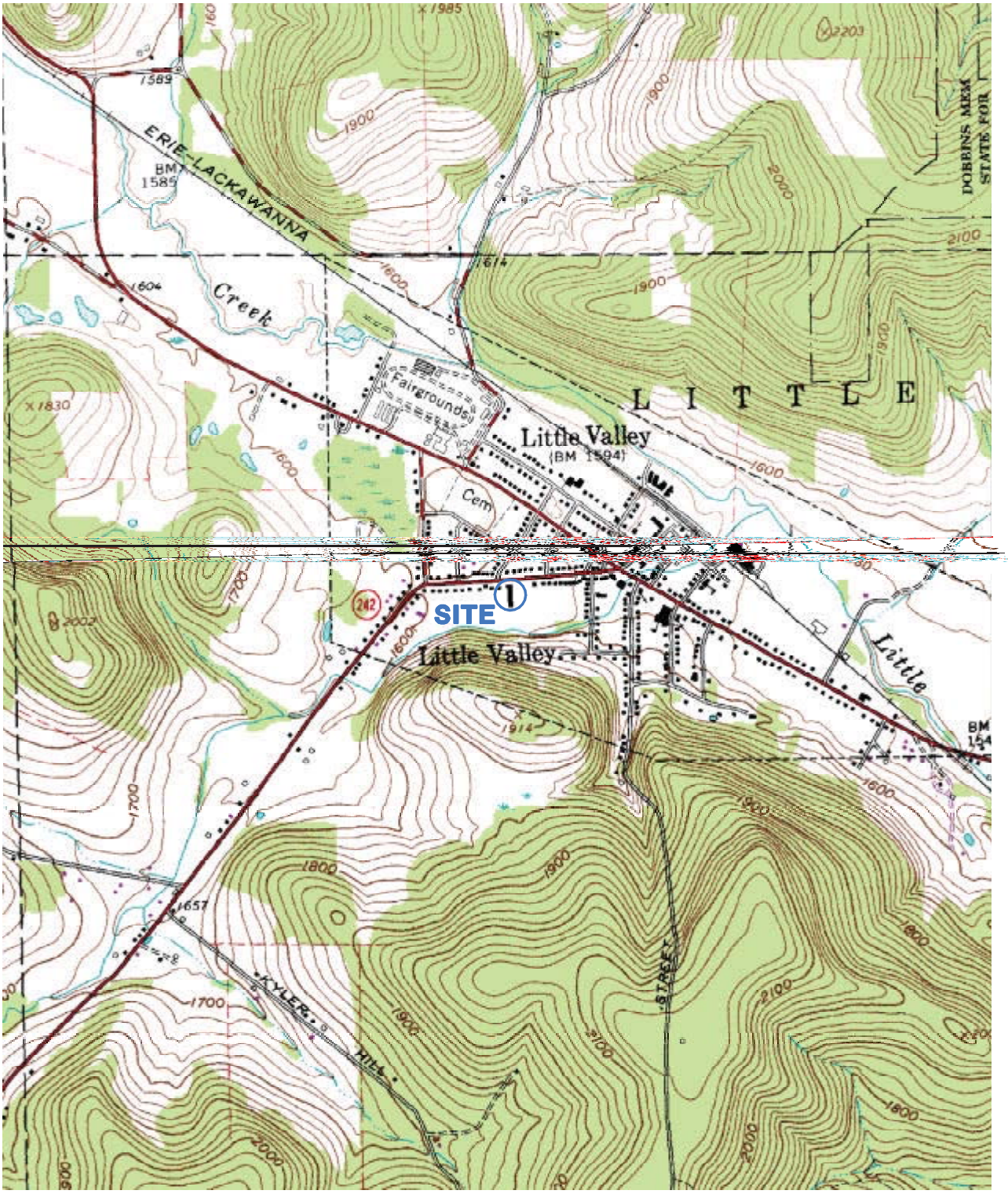
**TABLE 6**
**Historical Summary of Detected Groundwater Constituents in MNA Wells**
**312 Fair Oak Street**

| | BIAMW-D2 | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 12/14/99 | 01/10/01 | 01/10/01 Duplicate | 12/11/03 | 10/30/06 | 09/25/07 | 09/25/07 Duplicate | 09/25/08 | 09/22/09 | 09/21/10 | 09/28/11 | 09/19/13 | 09/23/14 | 09/23/14 Duplicate | 09/22/15 | 09/22/15 Duplicate |
| **Volatile Organics (ug/L)** | | | | | | | | | | | | | | | | |
| 1,1,2-Trichloroethane | -- | -- | -- | -- | 0.084 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,1-Dichloroethene | 0.4 J | -- | -- | 0.81 | 0.54 | 0.44 J | 0.47 J | -- | 0.71 J | 0.71 J | -- | -- | -- | -- | -- | -- |
| 1,4-Dichlorobenzene | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Benzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 2-Butanone | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Chloroethane | -- | -- | -- | -- | 0.11 J | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| 1,2-Dichloroethene (total) | 16 | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA | NA |
| cis-1,2-Dichloroethene | NA | 36 | 29 | 18 D | 26 D | 33 | 33 | 25 | 32 | 16 | 19 | 17 | 13 | 13 | 9.9 | 11 |
| trans-1,2-Dichloroethene | NA | -- | -- | -- | 0.71 | 0.31 J | 0.23 J | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Ethylbenzene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Isopropylbenzene | NA | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Toluene | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Trichloroethene | 58 | 140 | 110 | 78 D | 93 D | 110 J | 110 J | 93 | 140 | 72 | 98 | 88 | 100 | 95 | 88 | 98 |
| Vinyl Chloride | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| m/p-Xylene | NA | NA | NA | NA | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| **MNA/Water Quality Parameters (mg/L)** | | | | | | | | | | | | | | | | |
| Alkalinity | NA | NA | NA | 130 | 140 | 116 | 116 | 133 | 154 | 126 | 138 | 141 | 154 | 160 | 156 | 157 |
| Chloride | NA | NA | NA | 22 | 31 | 37.8 | 37.8 | 33.4 | 27.3 | 28.1 | 23.9 | 20.2 | 19 | 19 | 20.1 | 20.1 |
| Ferrous Iron | NA | NA | NA | -- | -- | 0.23 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Methane | NA | NA | NA | 0.07 JN | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| Nitrate | NA | NA | NA | 0.29 | 0.34 | 0.23 | 0.22 | 0.24 | 0.416 | 0.189 | 0.20 | 0.22 | 0.30 | 0.26 | 0.26 | 0.27 |
| Sulfate | NA | NA | NA | 15 | 13 | 19.8 | 19.1 | 16.8 | 17 | 13.2 | 13.3 | 15.4 | 15 | 15 | 12.5 | 12.5 |
| Sulfide | NA | NA | NA | NA | 0.027 | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| TOC | NA | NA | NA | 2.4 | -- | 1.8 | -- | -- | 0.9 J | 1.0U | 1.0U | 1.0U | 0.57J | 1.4 | -- | -- |

**Notes:**

| | |
|---|---|
| -- | Not detected |
| J | Estimated concentration. |
| D | Value derived from dilution analysis. |
| N | Evidence exists for constituent presence. |
| NA | Not analyzed. |
| | Above human health-based values. |
| | Above state values. |
| | Above both of the above values. |

# Figures

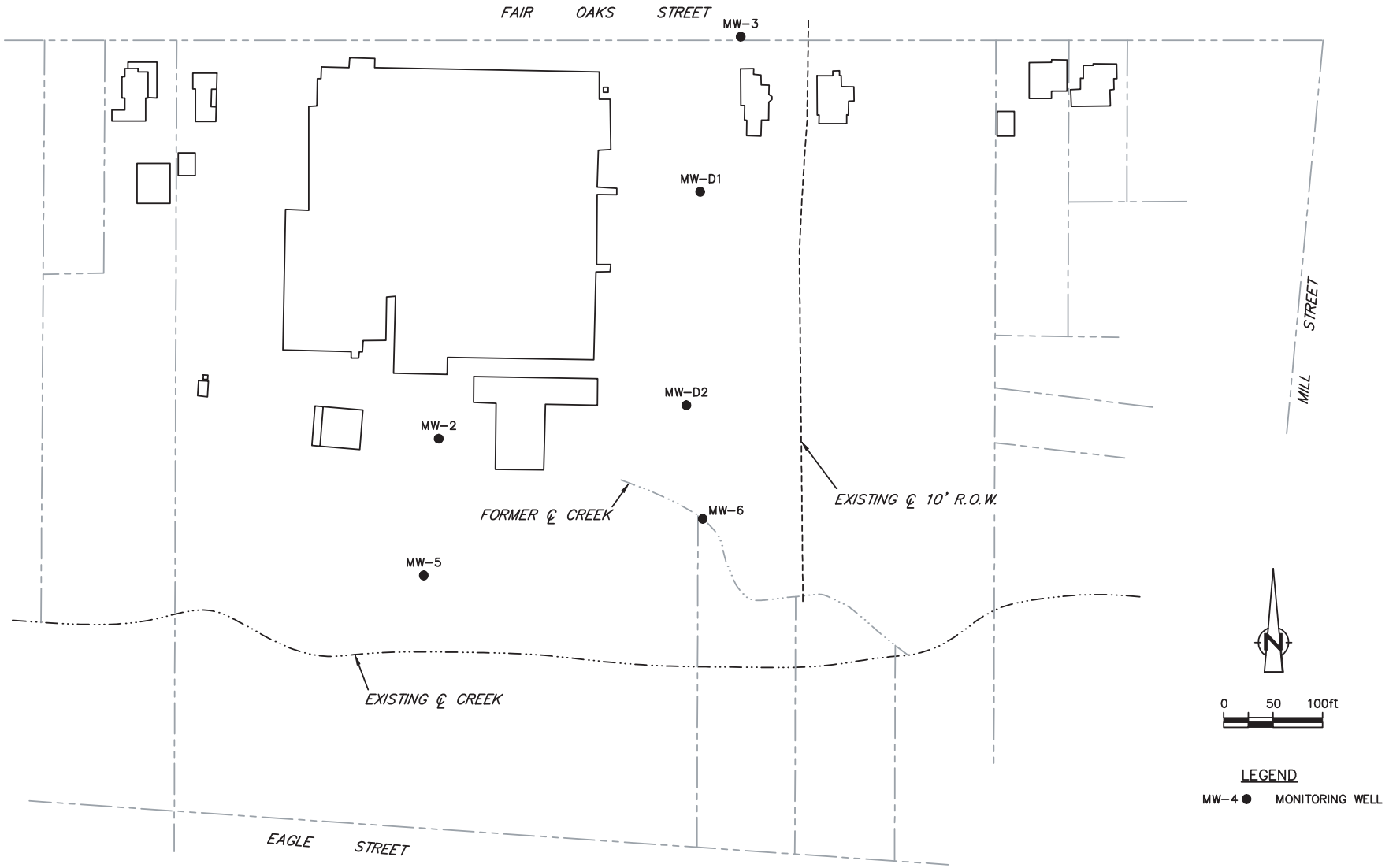



SOURCE:

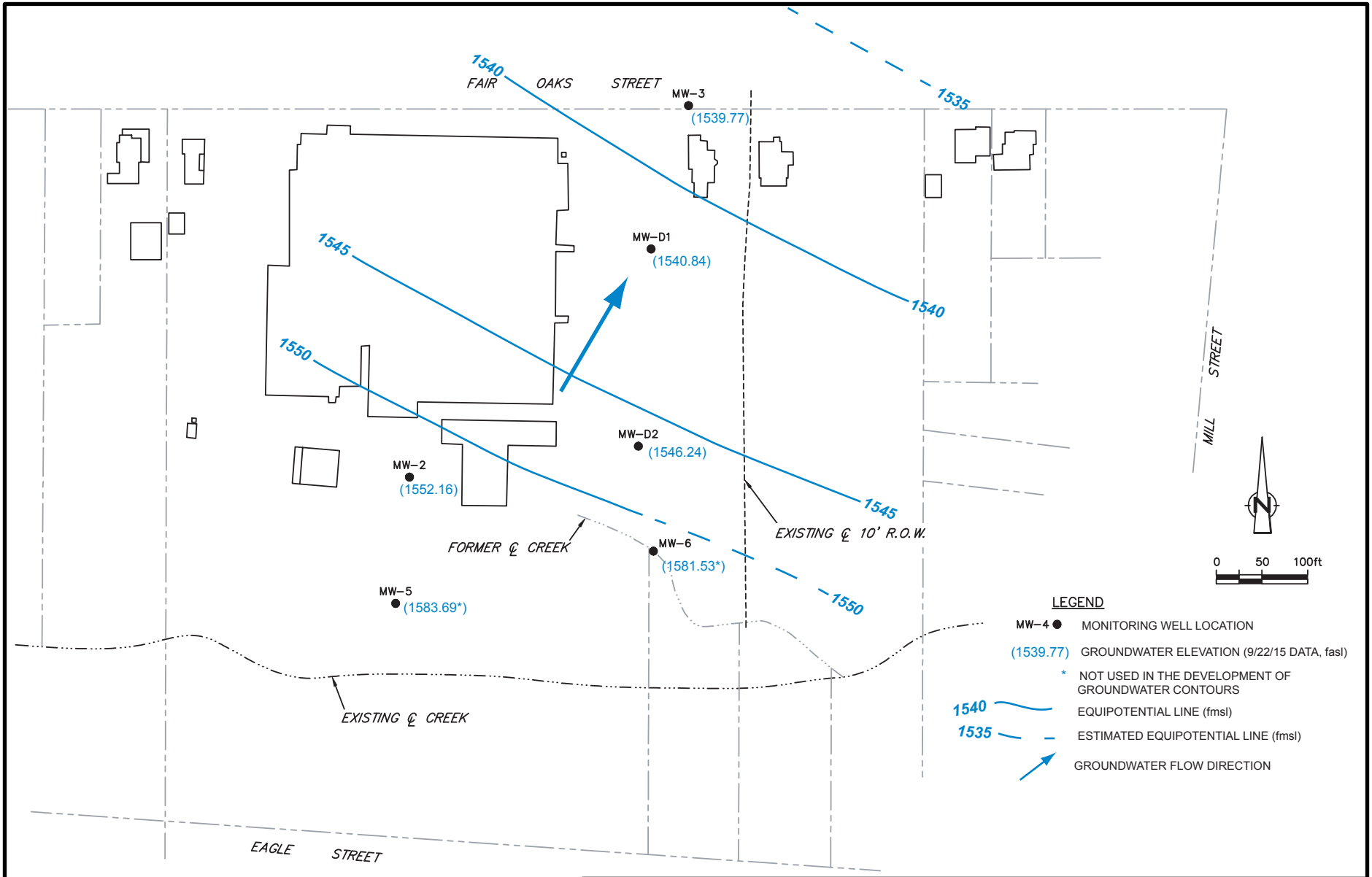
USGS CATTARAUGUS AND LITTLE VALLEY, NEW YORK QUADRANGLES.

N

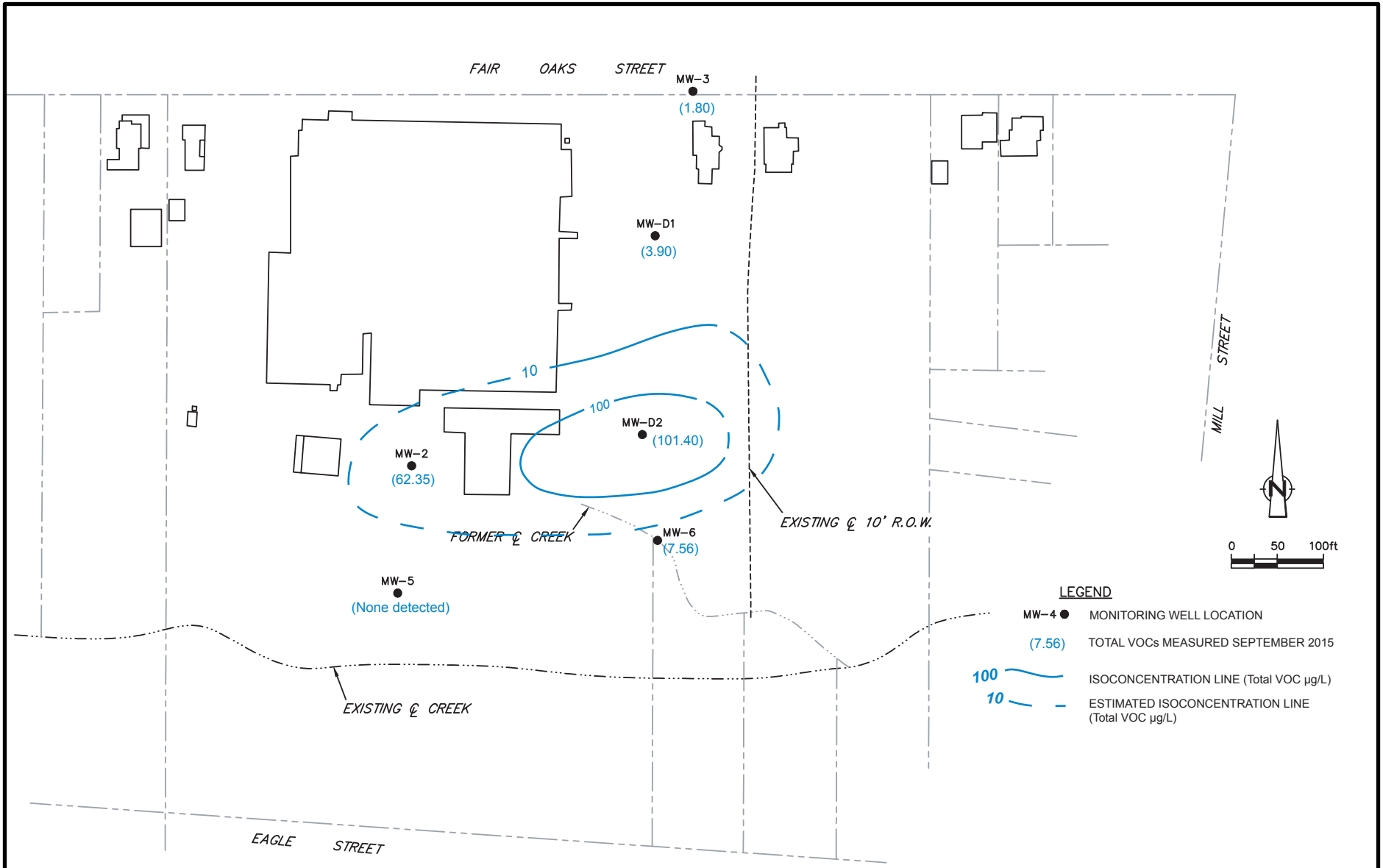
| | | | |
|---|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | | SITE LOCATION |
| BUSH INDUSTRIES, INC. | | Project 128910, task 1000 | December 2014 Figure 1 |



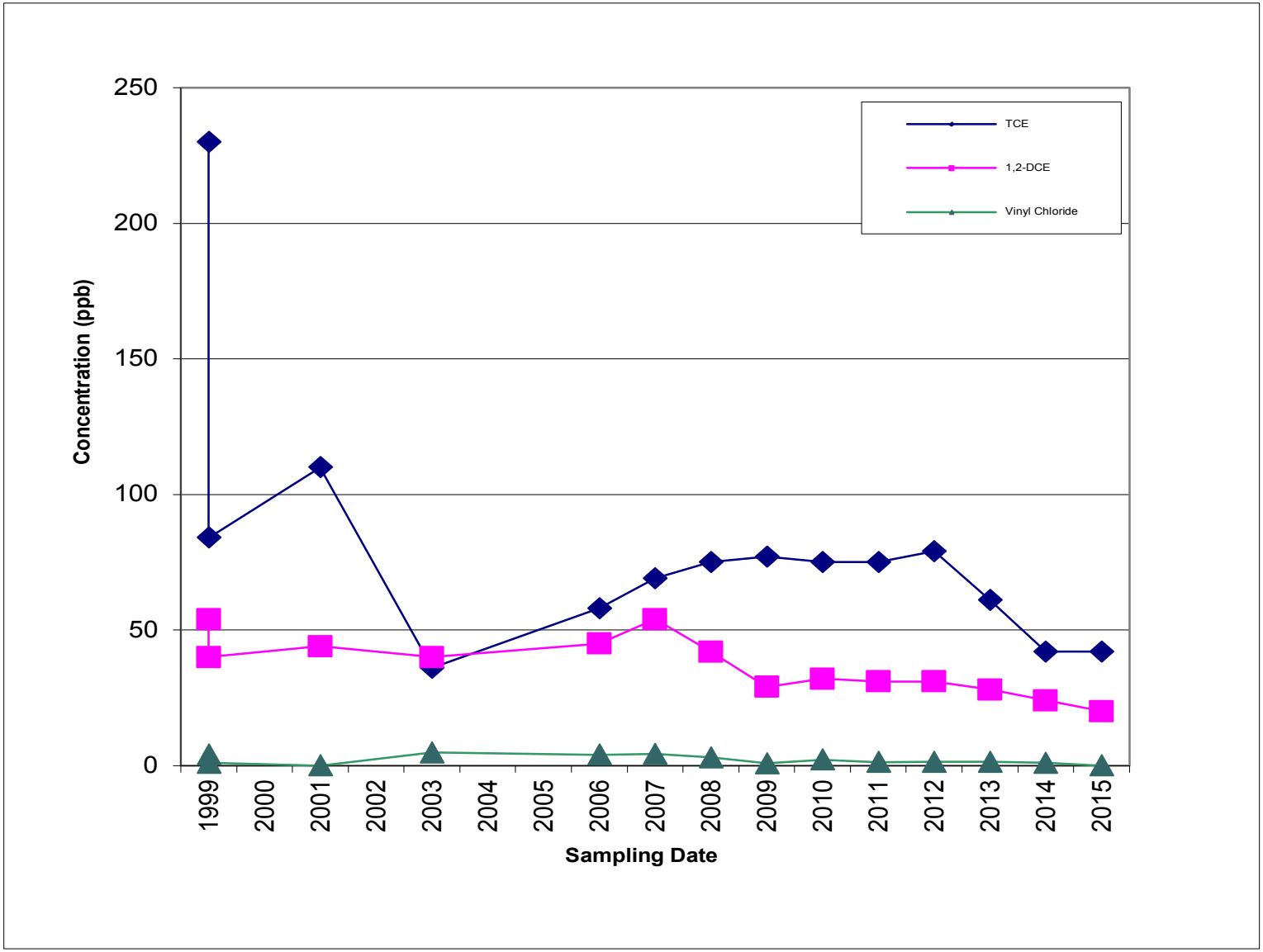

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | SITE PLAN AND MONITORING WELL LOCATIONS |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2014 Figure 2 |



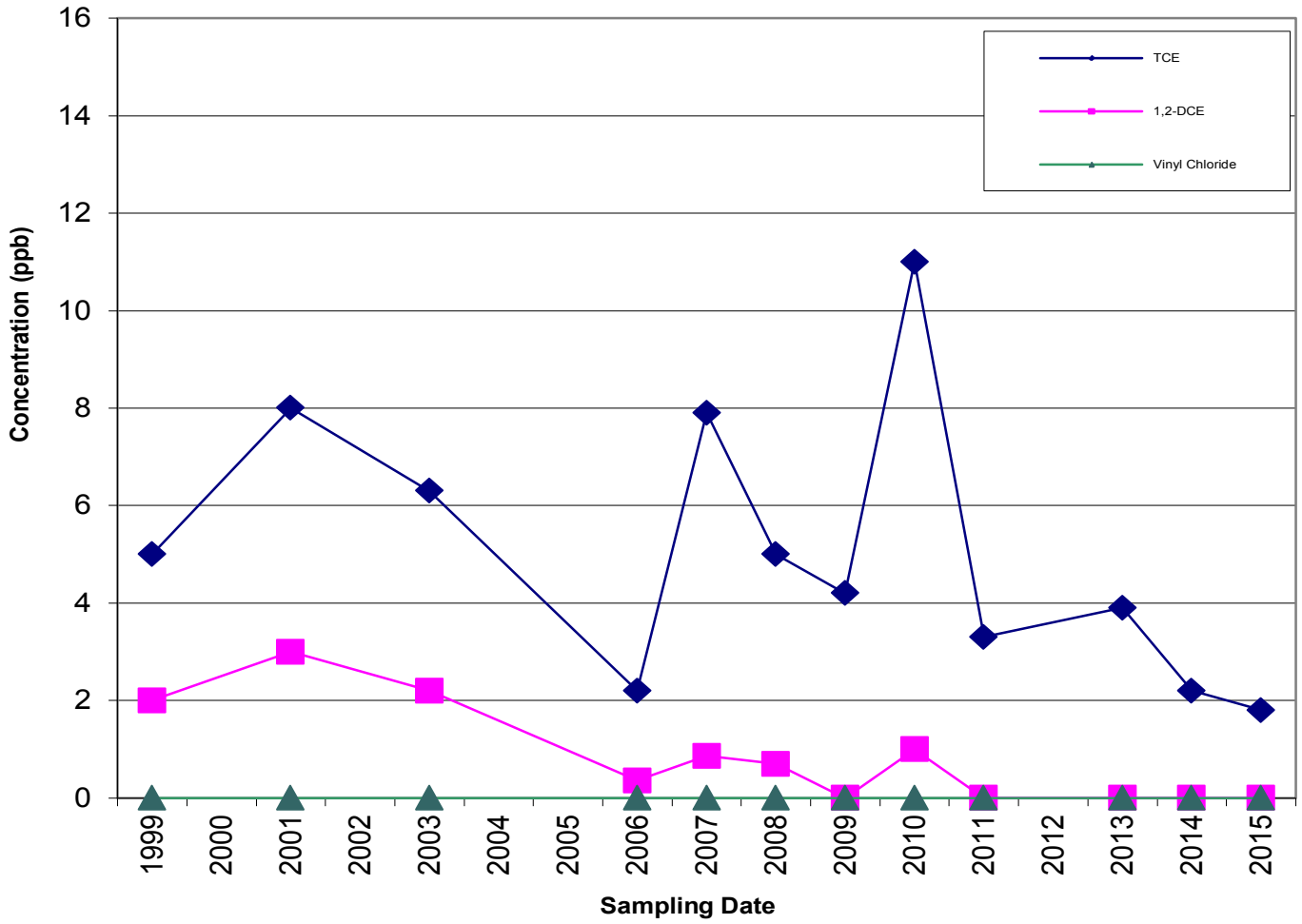

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | WATER TABLE ELEVATION CONTOUR MAP |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 3 |



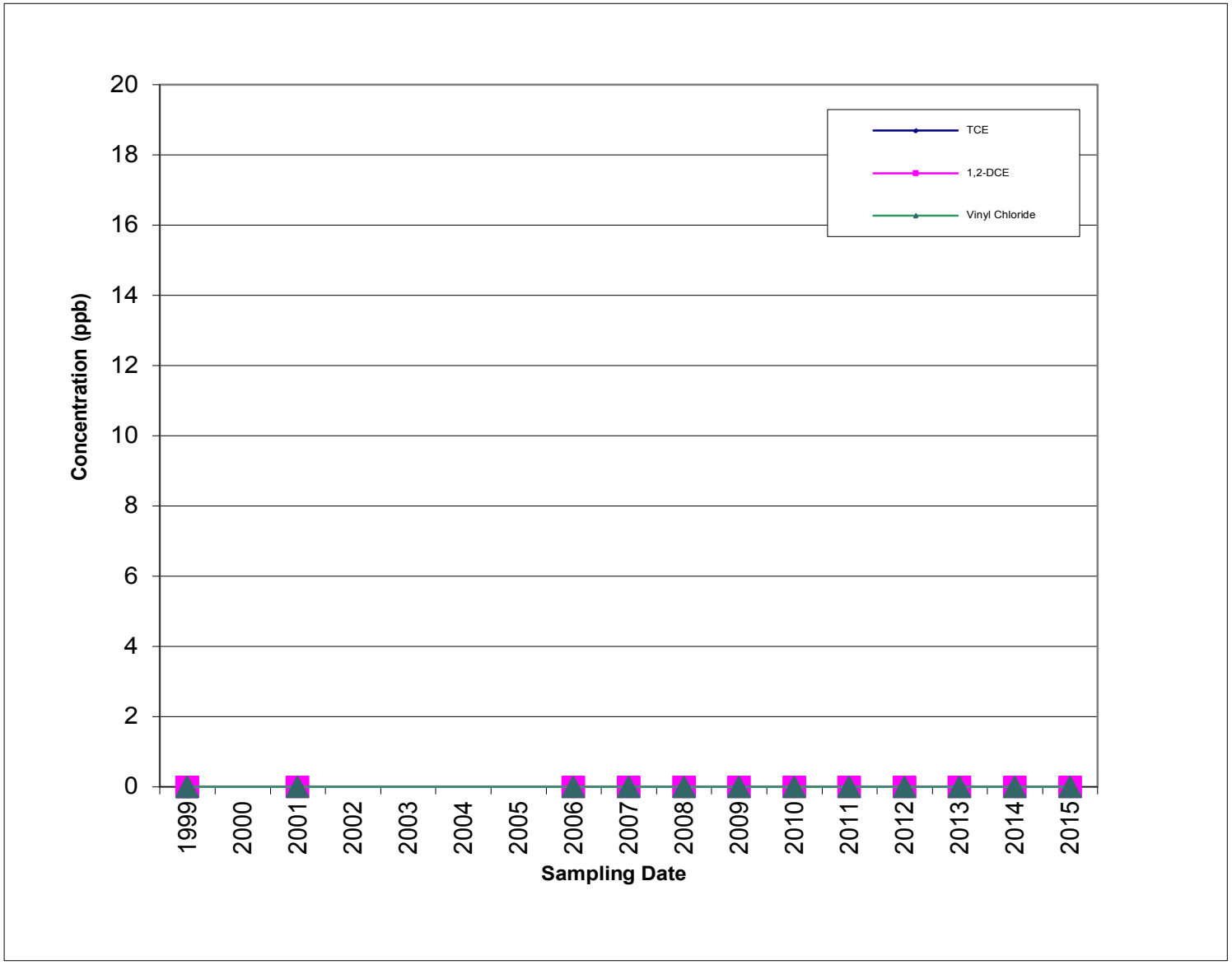

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | VOLATILE ORGANIC COMPOUND ISOCENTRATION MAP |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 4 |



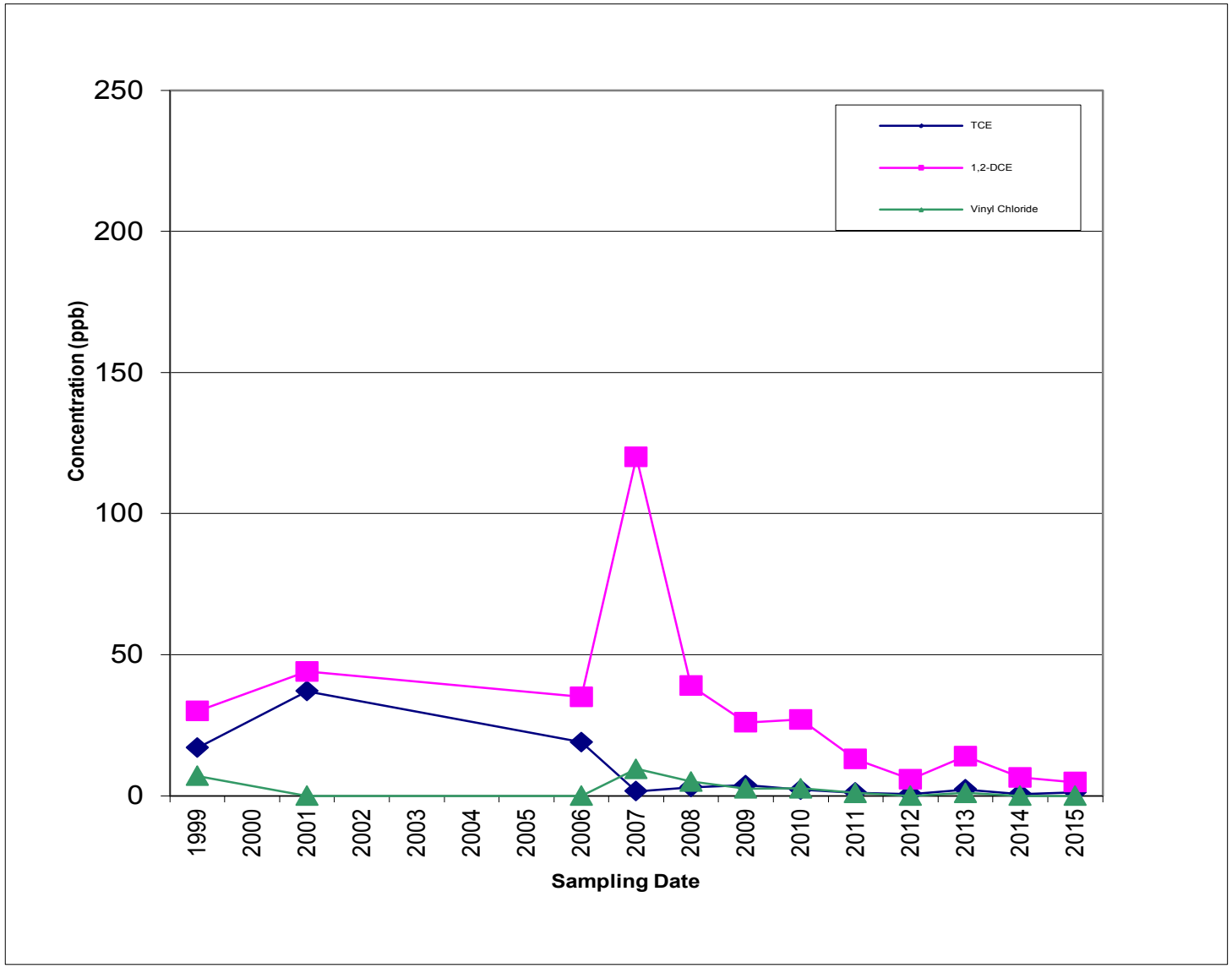

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-2 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 5 |



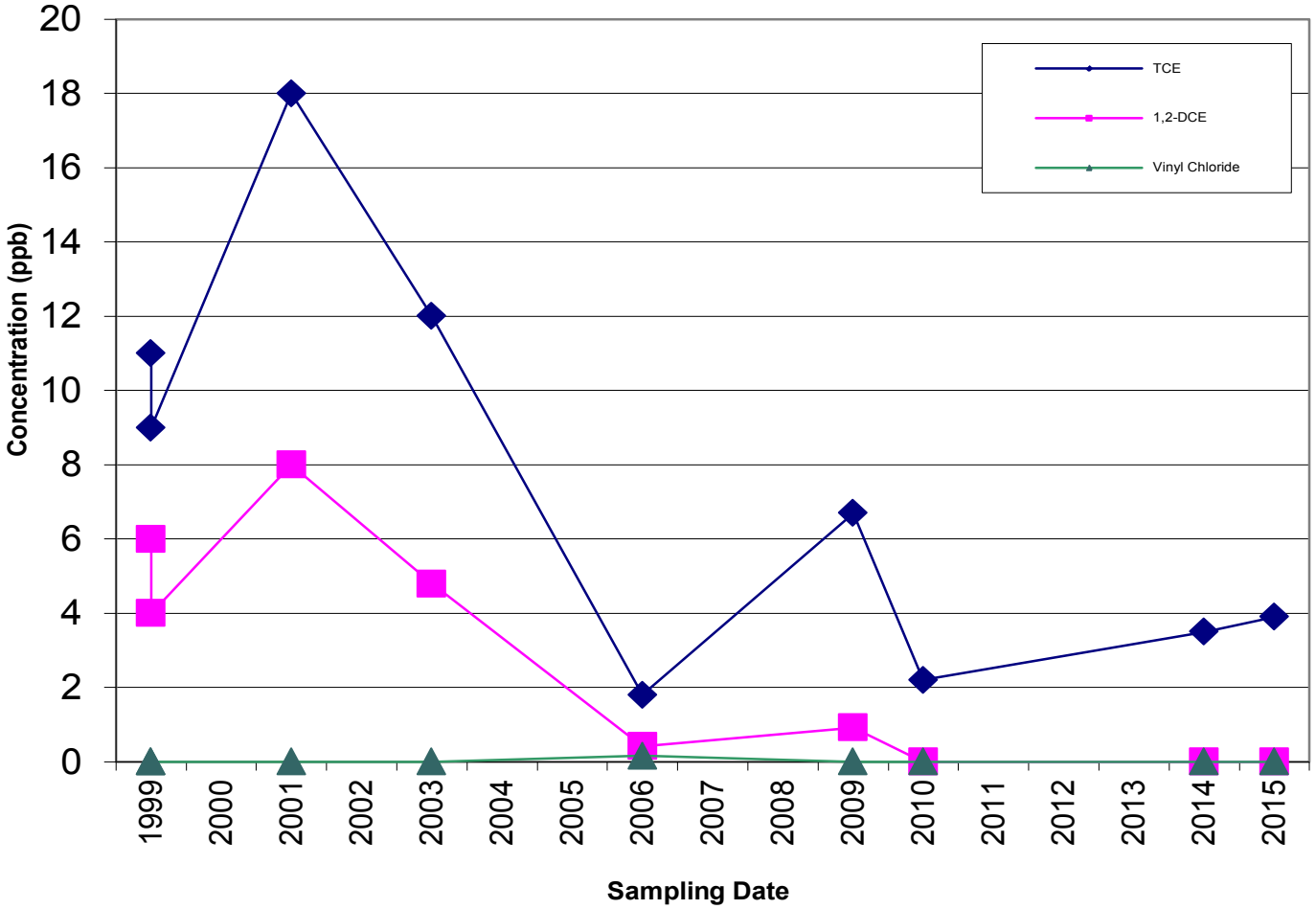

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-3 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 6 |



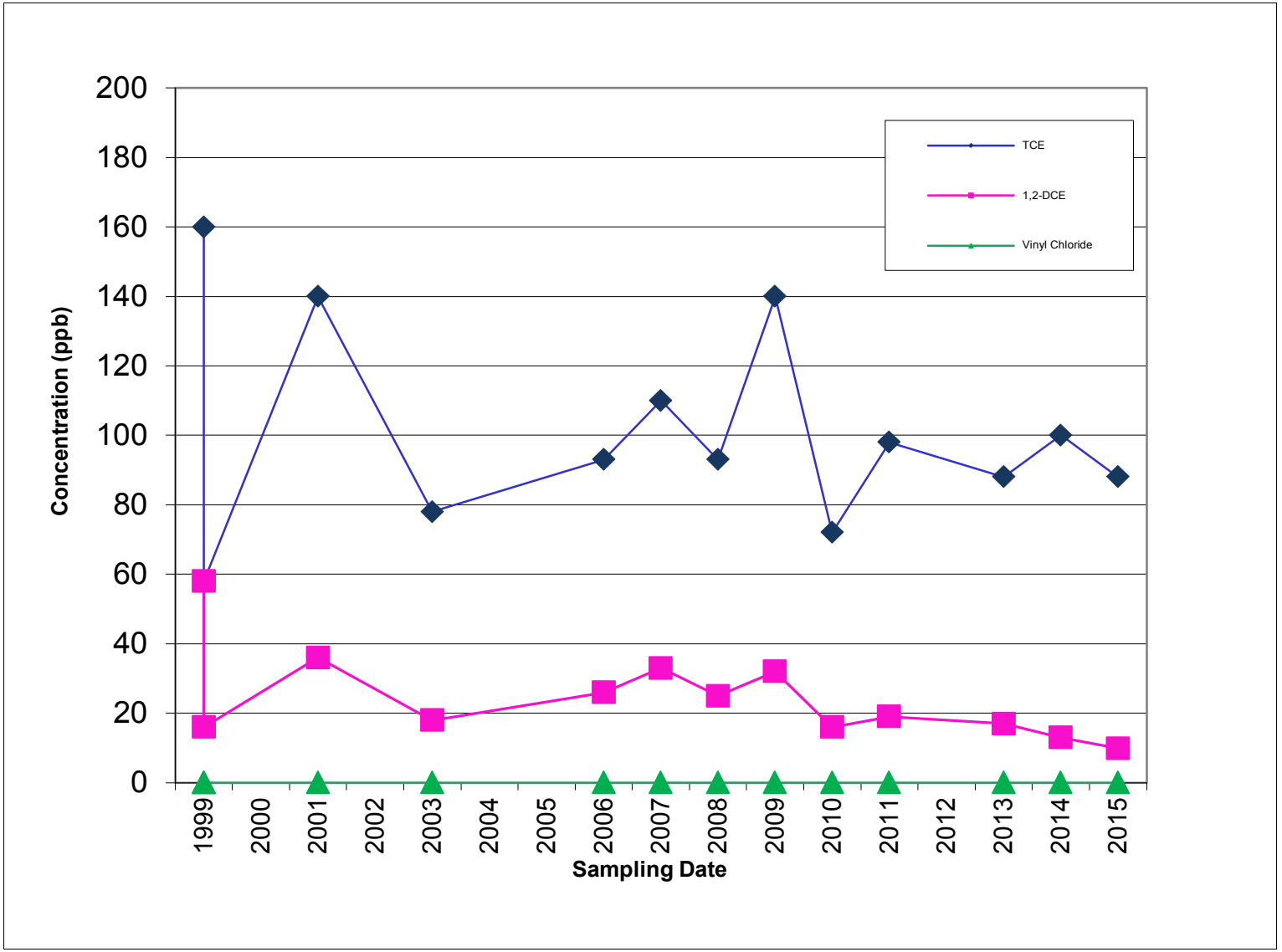

| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-5 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 7 |




| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-6 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 8 |




| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-D1 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 9 |




| | | |
|---|---|---|
| 312 Fair Oak Street<br>Little Valley, New York | GEI Consultants | MW-D2 VOC<br>TIME-CONCENTRATION<br>PLOT |
| BUSH INDUSTRIES, INC. | Project 128910, task 1000 | December 2015 Figure 10 |

# Appendix A

## Data Validation Report

# *DATA USABILITY SUMMARY REPORT*
# *for*

## *Bush Industries*

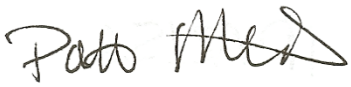
## *Analyses: Volatiles, Dissolved Gases, Ferrous Iron, Alkalinity, Chloride, Sulfate, Nitrate, Sulfide, Total Organic Carbon*

## *SAMPLE DELIVERY GROUP*
## *480-87697-1*

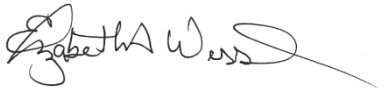
## *PREPARED FOR:*

## *GEI Consultants, Inc.*

***Reviewed by:***



***Approved by:***



**Prepared by**

MEC$^X$
12269 East Vassar Drive
Aurora, CO 80014

# I. INTRODUCTION

| | |
|---|---|
| Task Order Title: | Bush Industries |
| Contract Task Order: | 1427.001H.00 |
| Sample Delivery Group: | 480-87697-1 |
| Project Manager: | Kelly McIntosh |
| Matrix: | Water |
| QC Level: | III |
| No. of Samples: | 9 |
| No. of Reanalyses/Dilutions: | 0 |
| Laboratory: | TestAmerica-Buffalo |

**Table 1. Sample Identification**

| Client ID | Laboratory ID | Matrix | Sample Date | Method |
|---|---|---|---|---|
| DUP | 480-87697-7 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-2 | 480-87697-6 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-3 | 480-87697-1 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-5 | 480-87697-5 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-6 | 480-87697-4 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-D1 | 480-87697-2 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| LVRA09-MNAGW-MW-D2 | 480-87697-3 | Water | 09/22/2015 | 300.0, 353.2, 2320B, 3500FE D, 4500-S2 F, 8260C, 9060A, RSK175 |
| Rinse Blank | 480-87697-8 | Water | 09/22/2015 | 8260C |
| Trip Blank | 480-87697-9 | Water | 09/22/2015 | 8260C, RSK175 |

# II. Sample Management

Except as noted below, no anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory below the temperature limits of 4°C ±2°C, at 0.9°C and 1.4°C. As the samples were not noted to be frozen or damaged, no qualifications were required. The samples were received intact, on ice, and properly preserved, as applicable. The COC was appropriately signed and dated by field and/or laboratory personnel. Custody seals were present and intact on the cooler.

Corrections were made to the chain-of-custody (COC) by overwriting the original entries. The changes were not initialed or dated. The COC requested nitrate/nitrite; however, only nitrate was reported. The case narrative noted that one RSK-175 vial for the matrix spike duplicate was empty upon receipt. The COC noted the labels on the vials from the laboratory for the VOC analysis of samples LVRA09-MNAGW-MW-D1 and LVRA09-MNAGW-MW-2 were incorrect, with the prefix LVRA07- rather than LVRA09-. The samples were logged per the COC.

## Data Qualifier Reference Table

| Qualifier | Organics | Inorganics |
|---|---|---|
| U | The analyte was analyzed for, but was not detected above the reported sample quantitation limit. The associated value is the quantitation limit or the estimated detection limit for dioxins or PCB congeners. | The material was analyzed for, but was not detected above the level of the associated value. The associated value is either the sample quantitation limit or the sample detection limit. The associated value is the sample detection limit or the quantitation limit for perchlorate only. |
| J | The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample. | The associated value is an estimated quantity. |
| N | The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification." | Not applicable. |
| NJ | The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration. | Not applicable. |
| UJ | The analyte was not deemed above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample. | The material was analyzed for, but was not detected. The associated value is an estimate and may be inaccurate or imprecise. |
| R | The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified. | The data are unusable. The sample results are rejected due to serious deficiencies in the ability to analyze the sample and to meet quality control criteria. The presence or absence of the analyte cannot be verified. |

## Qualification Code Reference Table

| Qualifier | Organics | Inorganics |
|---|---|---|
| H | Holding times were exceeded. | Holding times were exceeded. |
| S | Surrogate recovery was outside QC limits. | The sequence or number of standards used for the calibration was incorrect |
| C | Calibration %RSD or %D was noncompliant. | Correlation coefficient is <0.995. |
| R | Calibration RRF was <0.05. | %R for calibration is not within control limits. |
| B | Presumed contamination as indicated by the preparation (method) blank results. | Presumed contamination as indicated by the preparation (method) or calibration blank results. |
| L | Laboratory Blank Spike/Blank Spike Duplicate %R was not within control limits. | Laboratory Control Sample %R was not within control limits. |
| Q | MS/MSD recovery was poor or RPD high. | MS recovery was poor. |
| E | Not applicable. | Duplicates showed poor agreement. |
| I | Internal standard performance was unsatisfactory. | ICP ICS results were unsatisfactory. |
| A | Not applicable. | ICP Serial Dilution %D were not within control limits. |
| M | Tuning (BFB or DFTPP) was noncompliant. | Not applicable. |
| T | Presumed contamination as indicated by the trip blank results. | Not applicable. |
| + | False positive – reported compound was not present. | Not applicable. |
| - | False negative – compound was present but not reported. | Not applicable. |
| F | Presumed contamination as indicated by the FB or ER results. | Presumed contamination as indicated by the FB or ER results. |
| $ | Reported result or other information was incorrect. | Reported result or other information was incorrect. |
| ? | TIC identity or reported retention time has been changed. | Not applicable. |

## Qualification Code Reference Table Cont.

| | | |
|---|---|---|
| D | The analysis with this flag should not be used because another more technically sound analysis is available. | The analysis with this flag should not be used because another more technically sound analysis is available. |
| P | Instrument performance for pesticides was poor. | Post Digestion Spike recovery was not within control limits. |
| *II, *III | Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found. | Unusual problems found with the data that have been described in Section II, "Sample Management," or Section III, "Method Analyses." The number following the asterisk (*) will indicate the report section where a description of the problem can be found. |

# III. Method Analyses

## A. EPA Method 8260C - Volatile Organic Compounds (VOCs)

Reviewed By: L. Calvin
Date Reviewed: October 26, 2015

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in the *MEC$^X$ Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0), EPA Method 8260C*, *CLP Organics Data Review and Preliminary Review (9/2006),* and the USEPA Hazardous Waste Support Branch *Validating Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry SW-846 Method 8260C (8/2006)*.

- Holding Times: The preserved water samples were analyzed within 14 days of collection.

- GC/MS Tuning: The BFB tunes met the method abundance criteria. Samples were analyzed within 12 hours of the BFB injection time.

- Calibration: Initial calibration average RRFs and CCV RRFs were within the control limits of ≥0.30 for chlorobenzene and 1,1,2,2-tetrachloroethane, and ≥0.10 for chloromethane, bromoform, and 1,1-dichloroethane. Average RRFs and CCV RRFs for the remaining analytes were ≥0.05. All initial calibration %RSDs were within the method control limits of ≤30% for the calibration check compounds (1,1-dichloroethene, chloroform, 1,2-dichloropropane, toluene, ethylbenzene, vinyl chloride) and ≤15% for remaining compounds, or the linear regression $r^2$ values were ≥0.990. The laboratory's analytical run logs indicated an ICV was analyzed; however, the ICV results were not provided. The CCV %Ds exceeded 20% for 1,1,2-trichloro-1,2,2-trifluoroethane (-22.3%), chloromethane (-28.4%), cyclohexane (-21.6%), methylcyclohexane (-26.9%), trichlorofluoromethane (-30.0%), and vinyl chloride (-42.7%). Sample results for the %D outliers, all nondetects, were qualified as estimated (UJ). Remaining CCV %Ds were within the control limit of ≤20%.

- Blanks: The method blank had no target compound detects.

- Blank Spikes and Laboratory Control Samples: A subset of thirteen target compounds were spiked in the LCS. All recoveries were within the laboratory control limits. The case narrative for this SDG noted 2-hexanone as an LCS outlier above the control limits, though it was not reported in the LCS. As 2-hexanone was not detected in the samples, no qualifications were assigned.

- Surrogate Recovery: The surrogate recoveries were within the laboratory control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample LVRA09-MNAGW-MW-2. A subset of thirteen target compounds were spiked in the MS/MSD. All recoveries and RPDs were within the laboratory control limits.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

    - Trip Blanks: Sample Trip Blank (9-22-15) was the trip blank identified for the samples in this SDG. The trip blank had no target compound detects.

    - Field Blanks and Equipment Rinsates: This SDG had no identified field blank. Sample Rinsate Blank was identified as the equipment rinsate associated with the samples in this SDG. Trichloroethene was detected below the reporting limit at 0.86 µg/L in the equipment rinsate. Results for trichloroethene above the reporting limit in samples LVRA09-MNAGW-MW-3, LVRA09-MNAGW-MW-6, and LVRA09-MNAGW-MW-D1 were qualified as nondetected (U) at the level of contamination. The equipment rinsate had no other target compound detects.

    - Field Duplicates: Samples LVRA09-MNAGW-MW-D2 and DUP were identified as the field duplicate pair in this SDG. Trichloroethene and cis-1,2-dichloroethene were detected above the reporting limit in both samples with RPDs of 11% and 10%, respectively. The pair was considered to be in good agreement.

- Internal Standards Performance: The internal standard area counts and retention times for the samples were within the control limits established by the continuing calibration standards: -50%/+100% for internal standard areas and ±30 seconds for retention times.

- Compound Identification: Compound identification was not verified at this level of validation. The laboratory analyzed for volatiles by EPA Method 8260C.

- Compound Quantification: Compound quantitation was not verified at this level of validation. The reporting limits were supported by the laboratory MDLs. Detects below the reporting limits were qualified as estimated, "J." Nondetects are valid to the reporting limit; however, the laboratory reported nondetects to the MDL on the electronic data deliverable (EDD). The reviewer changed the results and reporting limits for nondetects on the EDD to match the raw data.

  Sample LVRA09-MNAGW-MW-D2 was analyzed at a 2× dilution in order to report trichloroethene within the linear range of the calibration. The laboratory reported only the dilution analysis.

- Tentatively Identified Compounds: TICs were not reported by the laboratory for this SDG.

- System Performance: System performance was not evaluated at this level of validation.

## B. Method RSK-175-Methane, Ethane, Ethene

Reviewed By: L. Calvin
Date Reviewed: October 26, 2015

The samples listed in Table 1 for this analysis were validated based on the guidelines outlined in *MEC$^X$ Data Validation Procedure for Volatile Organics (DVP-2, Rev. 0), Method RSK-175*, *CLP Organics Data Review and Preliminary Review (9/2006), and SW-846 Method 8000 (12/1996)*.

.

- Holding Times: The samples were analyzed within 14 days of collection.
- GC/MS Tuning: Tuning is not applicable to this analysis.
- Calibration: Initial calibration $r^2$ values were within the control limit of ≥0.995. The CCV %Ds were within the control limit of ≤15%.
- Blanks: The method blank had no detects.
- Blank Spikes and Laboratory Control Samples: Recoveries and RPDs were within the laboratory control limits.
- Surrogate Recovery: Surrogates were not utilized in this method.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample LVRA09-MNAGW-MW-2. Methane was detected in the parent sample at a concentration greater than four times the spike amount; therefore, the methane recoveries and RPD were not evaluated. Remaining recoveries and RPDs were within the laboratory control limits.
- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:
    - Trip Blanks: Sample Trip Blank (9-22-15) was the trip blank identified for the samples in this SDG. The trip blank had no target compound detects.
    - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples for this analysis.
    - Field Duplicates and Field Split Samples: Samples LVRA09-MNAGW-MW-D2 and DUP were identified as the field duplicate pair in this SDG. Neither sample had reported detects. The pair was considered to be in good agreement.

- Compound Identification: Compound identification was not verified at this level of validation. The laboratory analyzed for methane, ethane, and ethene by EPA Method RSK-175.

- Compound Quantification and Reported Detection Limits: Compound quantification was not verified at this level of validation. The reporting limits were supported by the laboratory MDLs. Detects below the reporting limits were qualified as estimated, "J." Nondetects are valid to the reporting limit.

- System Performance: System performance was not evaluated at this level of validation.

## C. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks
Date Reviewed: October 20, 2015

The samples listed in Table 1 for these analyses were validated based on the guidelines outlined in the *MEC$^X$ Data Validation Procedure for General Minerals (DVP-6, Rev. 0), EPA Methods 300.0, 353.2, 2320B,* and *9060A, Standard Methods for the Examination of Water and Wastewater Methods 3500FE D and 4500-S2 F,* and the *Validation of Metals for the Contract Laboratory Program based on SOW ILMO5.3, SOP Revision 13 (9/2006)*.

- Holding Times: The analytical holding times as listed below, were met.

    - Chloride and sulfate (300.0) - 28 days
    - TOC (9060A) - 28 days
    - Alkalinity (2320B) - 14 days
    - Sulfide (4500 S2 F) - 7 days
    - Nitrate (353.2) - 48 hours

    As per the method, the analytical holding time for ferrous iron is noted as "in field". The ferrous iron analyses were performed the day after receipt at the laboratory; therefore, the ferrous iron results, all nondetects, were qualified as estimated, "UJ."

- Calibration: No reagent standardization information was provided for the sulfide analyses. An initial calibration summary was not provided for Method 300.0. The reviewer checked the initial calibrations for chloride and sulfate and found the r-values to be ≥0.995. The remaining initial calibration r-values were ≥0.995 for the remaining analyses. All ICV and CCV recoveries were within the laboratory control limits of 90-110%.

- Blanks: TOC was detected below the reporting limit (RL) in one method blank at 0.613 mg/L; therefore, TOC detected below the RL in sample LVRA09-MNAGW-MW-6 was qualified as nondetected, "U," at the RL. Alkalinity was detected in both method blanks, but not at sufficient concentration to qualify the site samples. Method blanks had no other detects. There were detects in some CCBs, but none sufficient to qualify the site samples.

- Blank Spikes and Laboratory Control Samples: Recoveries and were within laboratory control limits.

- Laboratory Duplicates: Laboratory duplicate analyses were performed on LVRA09-MNAGW-MW-D2 for TOC. TOC was not detected in the parent or laboratory duplicate samples.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on LVRA09-MNAGW-MW-2 for all analytes. Matrix spike analyses were also performed on sample LVRA09-MNAGW-MW-3 for chloride and sulfate and on sample LVRA09-MNAGW-D1 for TOC. Ferrous iron was recovered nominally above the control limit in the MS at 131%; however, as ferrous iron was not detected in the site samples, no qualifications were required. All remaining recoveries and the RPDs were within the laboratory-established control limits.

- Sample Result Verification: Compound identification was not verified at this level of validation. The sample result summaries were compared to the raw data and, except as noted below, no transcription errors were noted. Detects below the reporting limits were qualified as estimated, "J."

  The reviewer noted the EDD reported the MDL in the reporting limit field for TOC, ferrous iron, and sulfide. The reviewer changed the reporting limit field to match the reported results in the data package.

- Field QC Samples: Field QC samples were evaluated, and if necessary, qualified based on method blanks and other laboratory QC results affecting the usability of the field QC data. Any remaining detects were used to evaluate the associated site samples. Following are findings associated with field QC samples:

  - Field Blanks and Equipment Rinsates: This SDG had no identified field blank or equipment rinsate samples for these analyses.

  - Field Duplicates: Field Duplicates: Samples LVRA09-MNAGW-MW-D2 and DUP were identified as the field duplicate pair in this SDG. The samples were considered to be in good agreement as all detects were in common and all RPDs were less than 30%.

# Validated Sample Result Forms: 480-87697-1

## *Analysis Method 300.0*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 20.1 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 12.5 | 2.0 | MG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 15.7 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 14.2 | 2.0 | MG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 19.9 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 8.4 | 2.0 | MG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 9.7 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 4.2 | 2.0 | MG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 9.0 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 7.6 | 2.0 | MG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 15.2 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 8.6 | 2.0 | MG/L | | | |

## *Analysis Method 300.0*

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Chloride | 16887-00-6 | 20.1 | 0.50 | MG/L | | | |
| Sulfate | 14808-79-8 | 12.5 | 2.0 | MG/L | | | |

## *Analysis Method 353.2*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 0.27 | 0.050 | MG/L | A | | |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 0.024 | 0.050 | MG/L | A J | J | |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 1.3 | 0.050 | MG/L | A | | |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 0.10 | 0.050 | MG/L | A | | |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 0.045 | 0.050 | MG/L | A J | J | |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 1.3 | 0.050 | MG/L | A | | |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Nitrate | 14797-55-8 | 0.26 | 0.050 | MG/L | A | | |

## *Analysis Method 8260C*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 11 | 1.0 | UG/L | | | |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 98 | 1.0 | UG/L | | | |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 0.35 | 1.0 | UG/L | J | J | |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 20 | 1.0 | UG/L | | | |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 42 | 1.0 | UG/L | | | |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 1.8 | 1.0 | UG/L | | U | F |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 4.8 | 1.0 | UG/L | | | |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 1.2 | 1.0 | UG/L | | U | F |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 3.9 | 1.0 | UG/L | | U | F |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 2.0 | 2.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 2.0 | 2.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 20 | 20 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 10 | 10 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 10 | 10 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 20 | 20 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 2.0 | 2.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 2.0 | 2.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 2.0 | 2.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 2.0 | 2.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 2.0 | 2.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 2.0 | 2.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 2.0 | 2.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 2.0 | 2.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 9.9 | 2.0 | UG/L | | | |
| cis-1,3-Dichloropropene | 10061-01-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 2.0 | 2.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 2.0 | 2.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 2.0 | 2.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 2.0 | 2.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 5.0 | 5.0 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 2.0 | 2.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 3.5 | 2.0 | UG/L | | | |
| Styrene | 100-42-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 2.0 | 2.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 2.0 | 2.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 2.0 | 2.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 2.0 | 2.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 88 | 2.0 | UG/L | | | |
| Trichlorofluoromethane | 75-69-4 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 2.0 | 2.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 4.0 | 4.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** RINSE BLANK **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-8 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 0.86 | 1.0 | UG/L | J | J | |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 8260C*

**Sample Name:** TRIP BLANK **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-9 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| 1,1,1-Trichloroethane | 71-55-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2,2-Tetrachloroethane | 79-34-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1,2-Trichloro-1,2,2-trifluoroethane | 76-13-1 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| 1,1,2-Trichloroethane | 79-00-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethane | 75-34-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,1-Dichloroethene | 75-35-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2,4-Trichlorobenzene | 120-82-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromo-3-Chloropropane | 96-12-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dibromoethane | 106-93-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichlorobenzene | 95-50-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloroethane | 107-06-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,2-Dichloropropane | 78-87-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,3-Dichlorobenzene | 541-73-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| 1,4-Dichlorobenzene | 106-46-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| 2-Butanone | 78-93-3 | 10 | 10 | UG/L | U | U | $ |
| 2-Hexanone | 591-78-6 | 5.0 | 5.0 | UG/L | U * | U | $ |
| 4-Methyl-2-pentanone | 108-10-1 | 5.0 | 5.0 | UG/L | U | U | $ |
| Acetone | 67-64-1 | 10 | 10 | UG/L | U | U | $ |
| Benzene | 71-43-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromodichloromethane | 75-27-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromoform | 75-25-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Bromomethane | 74-83-9 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon disulfide | 75-15-0 | 1.0 | 1.0 | UG/L | U | U | $ |
| Carbon tetrachloride | 56-23-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chlorobenzene | 108-90-7 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroethane | 75-00-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloroform | 67-66-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| Chloromethane | 74-87-3 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| cis-1,2-Dichloroethene | 156-59-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| cis-1,3-Dichloropropene | 10061-01-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Cyclohexane | 110-82-7 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Dibromochloromethane | 124-48-1 | 1.0 | 1.0 | UG/L | U | U | $ |
| Dichlorodifluoromethane | 75-71-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Ethylbenzene | 100-41-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Isopropylbenzene | 98-82-8 | 1.0 | 1.0 | UG/L | U | U | $ |
| Methyl acetate | 79-20-9 | 2.5 | 2.5 | UG/L | U | U | $ |
| Methyl tert-butyl ether | 1634-04-4 | 1.0 | 1.0 | UG/L | U | U | $ |

*Analysis Method 8260C*

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Methylcyclohexane | 108-87-2 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Methylene Chloride | 75-09-2 | 1.0 | 1.0 | UG/L | U | U | $ |
| Styrene | 100-42-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| Tetrachloroethene | 127-18-4 | 1.0 | 1.0 | UG/L | U | U | $ |
| Toluene | 108-88-3 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,2-Dichloroethene | 156-60-5 | 1.0 | 1.0 | UG/L | U | U | $ |
| trans-1,3-Dichloropropene | 10061-02-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichloroethene | 79-01-6 | 1.0 | 1.0 | UG/L | U | U | $ |
| Trichlorofluoromethane | 75-69-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Vinyl chloride | 75-01-4 | 1.0 | 1.0 | UG/L | U | UJ | C, $ |
| Xylenes, Total | 1330-20-7 | 2.0 | 2.0 | UG/L | U | U | $ |

## *Analysis Method 9060A*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.43 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.43 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.66 | 1.0 | MG/L | J | J | |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.43 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.99 | 1.0 | MG/L | J B | U | B |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.43 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Total Organic Carbon | 7440-44-0 | 0.43 | 1.0 | MG/L | U | U | $ |

*Analysis Method RSK-175*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 110 | 4.0 | UG/L | | | |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 32 | 4.0 | UG/L | | | |

*Analysis Method RSK-175*

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

**Sample Name:** TRIP BLANK **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-9 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ethane | 74-84-0 | 7.5 | 7.5 | UG/L | U | U | $ |
| Ethene | 74-85-1 | 7.0 | 7.0 | UG/L | U | U | $ |
| Methane | 74-82-8 | 4.0 | 4.0 | UG/L | U | U | $ |

*Analysis Method SM 2320B*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 156 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 203 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 185 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 62.4 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 85.3 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 167 | 5.0 | MG/L | B | | |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Alkalinity, Total | STL00171 | 157 | 5.0 | MG/L | B | | |

## *Analysis Method SM 3500 FE D*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF F1 | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Ferrous Iron, Dissolved | 15438-31-0 | 0.075 | 0.10 | MG/L | U HF | UJ | H, $ |

## *Analysis Method SM 4500 S2 F*

**Sample Name:** DUP **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-7 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-6 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-3 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-1 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-5 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-5 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-6 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-4 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-D1 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-2 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |

**Sample Name:** LVRA09-MNAGW-MW-D2 **Matrix:** Water **Result Type:** FS

**Lab Sample Name:** 480-87697-3 **Sample Date:** 09/22/2015 **Validation Level:** III

| Analyte: | CAS No | Result Value | RL | Result Units | Lab Qualifier | Validation Qualifier | Validation Notes |
|---|---|---|---|---|---|---|---|
| Sulfide | 18496-25-8 | 0.67 | 1.0 | MG/L | U | U | $ |