Bush Industries, Inc.
Annual Summary Report for 2011 Groundwater Monitored Natural Attenuation Program for 312 Fair Oak Street Little Valley, New York

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Project 6191

AMEC Geomatrix

EXECUTIVE SUMMARY

AMEC Geomatrix, Inc. (AMEC) has been retained by Bush Industries, Inc. (Bush Industries) to conduct the 2011 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. This report presents the validated results of the annual MNA sampling event conducted on the property by AMEC in September 2011.

The results of the 2011 MNA sampling event for the property indicate that natural attenuation processes are occurring. The presence of daughter products and methane in groundwater samples reflect the reductive dechlorination occurring in groundwater at the property.

TABLE OF CONTENTS

Page

EXECUTIVE SUMMARY

1.0 INTRODUCTION 1
- 1.1 Background and Site Description 1
- 1.2 Previous Site Investigations 2
- 1.3 MNA Program Objectives 2

2.0 WORK PERFORMED 3
- 2.1 MNA Scope of Work 3
- 2.2 2011 MNA Groundwater Sampling Event 4

3.0 SAMPLING EVENT RESULTS 5
- 3.1 Data Validation and Usability 5
- 3.2 Groundwater Results 5
  - 3.2.1 Hydraulic Head Measurements 5
  - 3.2.2 Analytical Results 5

4.0 CONTAMINANT TRENDS AND PROGRESS OF MNA 7
- 4.1 Contaminant Trends 7
- 4.2 Reductive Dechlorination 7
- 4.3 Progress of MNA at the Site 9

TABLE OF CONTENTS
(Continued)

TABLES

Table 1 Sample Collection and Analysis Protocols
Table 2 Monitoring Well Purge Summary
Table 3 Hydraulic Head Measurements
Table 4 Validated Groundwater Analytical Summary
Table 5 Comparison Criteria for Detected Constituents in Groundwater
Table 6 Historical Summary of Detected Groundwater Constituents in MNA Wells

FIGURES

Figure 1 Site Location
Figure 2 Site Plan and Monitoring Well Locations
Figure 3 Groundwater Elevation Contour Map
Figure 4 Volatile Organic Compound Isoconcentration Contour Map
Figure 5 MW-2 Time-Concentration Plot
Figure 6 MW-3 Time-Concentration Plot
Figure 7 MW-5 Time-Concentration Plot
Figure 8 MW-6 Time-Concentration Plot
Figure 9 MW-D1 Time-Concentration Plot
Figure 10 MW-D2 Time-Concentration Plot

APPENDICES

Appendix A Data Validation Report

ANNUAL SUMMARY REPORT FOR 2011 GROUNDWATER MONITORED NATURAL ATTENUATION PROGRAM
312 Fair Oak Street
Little Valley, New York

1.0 INTRODUCTION

1.1 BACKGROUND AND SITE DESCRIPTION

AMEC Geomatrix, Inc. (AMEC) has been retained by Bush Industries, Inc. (Bush Industries) to conduct the 2011 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 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.

1.2 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.

1.3 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

2.0 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 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 of 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 2011 MNA GROUNDWATER SAMPLING EVENT

AMEC Geomatrix personnel conducted the annual MNA sampling event for the Site on September 28, 2011. 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 2011 sampling event are listed below:

- Monitoring well MW-D1 contained less than 1 foot of water and therefore no sample was obtained.

- 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.

3.0 SAMPLING EVENT RESULTS

3.1 DATA VALIDATION AND USABILITY

The analytical results and data packages for the September 2011 sampling event reported by the laboratory were validated by MECX, LPof 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 28, 2011 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 is consistent with 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 3 of the 5 wells sampled.

The highest TCE concentration was measured in the sample from well MW-D2 (reported concentration of 98 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 (31 ug/L in MW-2; 13 ug/L in MW-6; and 19 ug/L in MW-D2). The reductive dechlorination product vinyl chloride was detected in 2 wells (1.2 ug/L in MW-2; and 0.99 J (estimated) ug/L in MW-6).

At the downgradient property boundary (MW-3), TCE was detected in the sample at 3 ug/L. No other VOCs were detected in the sample from well MW-3.

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 2011.

MNA parameter results are discussed in the following section.

4.0 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 though 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 2011 sampling event results for TCE and its reductive dechlorination products are within the general ranges of historical values. Compared to 2010 MNA sampling results, there was a reported decrease in these parameters in samples from wells MW-3 and MW-6. TCE results for MW-D2 showed a slight increase over 2010 MNA results. Results for MW-2 and MW-5 were approximately the same as the 2010 MNA results. Given the relatively low levels of TCE measured in all of the wells, the observed variability in results over time, and inherent variation associated with sampling and analytical testing, none of these increases or decreases indicate any material change in the TCE results has occurred during the 2011 MNA monitoring period.

Additional annual sampling data will be necessary to assess any long term trends in the MNA monitoring wells.

4.2 REDUCTIVE DECHLORINATION

The data obtained during the September 2011 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 0.1 mg/L to 6.76 mg/L. The lowest DO concentrations were measured at wells MW-2 and MW-6. Reductive dechlorination products were detected in both of 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 ranged from not detected (conducive) to

1.4 mg/L (not conducive). Nitrate concentrations below 1 mg/L were measured in wells MW-2, MW-5, MW-6 and MW-D2.

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.

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 concentrations ranged up to 16.0 mg/L. Sulfide was not detected in any well during the 2011 event.

Methane/Ethane/Ethene

EPA, 1998 states that methanogenesis (the reduction of carbon dioxide to methane) generally occurs after oxygen, nitrate, and sulfate have been depleted. 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 2011 event (0.035 mg/L and 0.020 mg/L, respectively).

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. According to EPA, 1998, a two-fold increase in alkalinity values over background numbers suggests biodegradation may be occurring. 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 66.0 mg/L in the 2011 sample from MW-5, and this value is used as "background" for comparison. Samples from the following wells had alkalinity levels greater than approximately twice the background concentration: MW-2, MW-3 and MW-D2.

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 wells during the 2011 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 had pHs in this optimum range. Stable values of water temperature during the 2011 sampling event were between 10.81°C and 14.62°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 aquifer systems. The result from well MW-5 (11.6 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 furthest downgradient well on the property (MW-3) had a chloride concentration of 26.2 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 ranged from not detected (in wells MW-3 and MW-D2) to 2.6 mg/L in well MW-6 for the 2011 event.

Daughter Products

Transformation of TCE via reduction 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 presence of daughter products and methane in groundwater samples reflect the reductive dechlorination occurring in groundwater at the property.

The 2011 results indicate concentrations of TCE and daughter products in groundwater are within the general historical ranges. Additional annual sampling data will be used to assess any long term trends in the MNA monitoring wells.

The next annual report is due 90 days from completion of the 2011 yearly groundwater sampling, per the Work Plan.

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	Cumulative Volume (L)	Temperature (degrees C)	pH	Specific Conductance (us/cm)	Dissolved Oxygen (mg/L)	Redox Potential (mV)
MW-2						
15:10	Begin Purge	14.40	7.28	0.422	4.75	69.0
15:15	0.5	11.75	7.18	0.414	<0.1	66.7
15:20	0.75	11.68	7.19	0.410	<0.1	64.7
15:25	1.0	11.69	7.23	0.408	<0.1	61.4
15:40	1.25	11.64	7.23	0.408	<0.1	60.8
MW-3						
10:18	Begin Purge	13.20	7.26	0.466	8.75	36.6
10:25	0.5	12.29	6.93	0.449	7.42	73.3
10:30	1.0	12.14	6.89	0.436	6.86	79.6
10:35	1.5	12.11	6.88	0.432	6.46	81.8
10:40	2.0	12.17	6.88	0.43	6.76	82.6
MW-5						
14:30	Begin Purge	15.34	6.88	0.241	5.55	70.0
14:35	0.5	14.56	6.74	0.251	2.64	69.6
14:40	0.75	14.53	6.70	0.246	2.39	68.7
14:45	1.0	14.58	6.72	0.243	2.06	68.0
MW-6						
13:35	Begin Purge	15.67	7.50	0.244	0.80	49.2
13:40	0.5	14.72	6.66	0.238	0.4	31.5
13:45	0.75	14.74	6.67	0.235	0.09	30.6
13:50	1.0	14.64	6.68	0.235	0.01	28.6
13:55	1.25	14.62	6.68	0.235	0.01	23.9
MW-D1 **Less than 1 foot water in well, no sample collected**						
MW-D2						
11:30	Begin Purge	13.20	7.28	0.455	6.00	64.2
11:35	0.5	11.09	7.14	0.413	3.47	70.8
11:40	0.75	10.98	7.12	0.391	2.87	69.6
11:45	1.0	10.95	7.11	0.382	2.69	68.5
11:50	1.5	10.81	7.11	0.377	2.60	68.3

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

Well ID	Measuring Point Elevation (fasl)	DTW (ft.) 9/28/11	Groundwater Elevation (fasl)
MW-2	1590.18	40.35	1549.83
MW-3	1591.37	54.22	1537.15
MW-5	1590.44	5.92	1584.52
MW-6	1584.99	2.98	1582.01
MW-D1	1590.31	51.70	1538.61
MW-D2	1584.17	40.10	1544.07

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:	*LVRA03-MNAGW-MW2*	*LVRA03-MNAGW-MW3*	*LVRA03-MNAGW-MW5*	*LVRA03-MNAGW-MW6*	*LVRA03-MNAGW-MWD2*	*LVRA03- MNAGW-DUP1 (1)*
Date Sampled:	*09/28/11*	*09/28/11*	*09/28/11*	*09/28/11*	*09/28/11*	*09/28/11*
Volatile Organic Compounds (ug/L)						
1,1,1-Trichloroethane	1U	1U	1U	1U	1U	1U
1,1,2,2-Tetrachloroethane	1U	1U	1U	1U	1U	1U
1,1,2-Trichloro-1,2,2,-trifluoroethane	1U	1U	1U	1U	1U	1U
1,1,2-Trichloroethane	1U	1U	1U	1U	1U	1U
1,1-Dichloroethane	1U	1U	1U	1U	1U	1U
1,1-Dichloroethene	1U	1U	1U	1U	1U	1U
1,2-Dibromo-3-Chloropropane	1U	1U	1U	1U	1U	1U
1,2-Dibromoethane	1U	1U	1U	1U	1U	1U
1,2-Dichlorobenzene	1U	1U	1U	1U	1U	1U
1,2-Dichloroethane	1U	1U	1U	1U	1U	1U
1,2,4-Trichlorobenzene	1U	1U	1U	1U	1U	1U
1,2-Dichloropropane	1U	1U	1U	1U	1U	1U
1,4-Dichlorobenzene	1U	1U	1U	1U	1U	1U
2-Hexanone	5U	5U	5U	5U	5U	5U
2-Butanone	10U	10U	10U	10U	10U	10U
4-Methyl-2-pentanone	5U	5U	5U	5U	5U	5U
Acetone	10U	10U	10U	10U	10U	10U
Benzene	1U	1U	1U	1U	1U	1U
1,3-Dichlorobenzene	1U	1U	1U	1U	1U	1U
Bromodichloromethane	1U	1U	1U	1U	1U	1U
Bromoform	1U	1U	1U	1U	1U	1U
Bromomethane	1U	1U	1U	1U	1U	1U
Carbon Disulfide	1U	1U	1U	1U	1U	1U
Carbon Tetrachloride	1U	1U	1U	1U	1U	1U
Chlorobenzene	1U	1U	1U	1U	1U	1U
Dibromochloromethane	1U	1U	1U	1U	1U	1U
Chloroethane	1U	1U	1U	1U	1U	1U
Chloroform	1U	1U	1U	1U	1U	1U
Chloromethane	1U	1U	1U	1U	1U	1U
cis-1,2-Dichloroethene	31	1U	1U	13	19	1U
cis-1,3-Dichlroropropene	1U	1U	1U	1U	1U	1U
Ethylbenzene	1U	1U	1U	1U	1U	1U
Methylene Chloride	1U	1U	1U	1U	1U	1U
Styrene	1U	1U	1U	1U	1U	1U
Tetrachloroethene	1U	1U	1U	1U	1U	1U
Toluene	1U	1U	1U	1U	1U	1U
trans-1,2,-Dichloroethene	1U	1U	1U	1U	1U	1U
trans-1,3-Dichloropropene	1U	1U	1U	1U	1U	1U
Trichloroethene	75	3.3	1U	1.1	98	3.3
Trichlorofluoromethane	1U	1U	1U	1U	1U	1U
Vinyl Chloride	1.2	1U	1U	0.99J	1U	1U
Total Xylenes	2U	2U	2U	2U	2U	2U
Cyclohexane	1U	1U	1U	1U	1U	1U
Dichlorodifluoromethane	1U	1U	1U	1U	1U	1U
Isopropylbenzene	1U	1U	1U	1U	1U	1U
Methyl acetate	1U	1U	1U	1U	1U	1U
Methyl-tert-butyl ether	1U	1U	1U	1U	1U	1U
Methylcyclohexane	1U	1U	1U	1U	1U	1U
Monitored Natural Attenuation Parameters (mg/L)						
Chloride	21.9	26.2	11.6	6.5	23.9	26.1
Ethane	,0015U	0.0015U	.0015U	.0015U	0.0015U	0.0015U
Ethene	.0015U	0.0015U	.0015U	.0015U	0.0015U	0.0015U
Ferrous Iron	0.10 U	0.10U	0.10 U	0.10 U	0.10U	0.10 U
Methane	0.035	0.001U	0.001 U	0.020	0.001U	0.001U
Nitrate	0.05 U	1.4	0.31	0.05U	0.20	1.3
Sulfate	16.0	10.9	5.4	9.4	13.3	10.8
Sulfide	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Total Alkalinity	189	168	66.0	61.5	138	167
Total Organic Carbon	1.1	1.0U	0.79J	2.6	1.0U	1.0U

Notes:
U = Compound not detected above specified laboratory detection limit
J= Laboratory estimated concentration
(1) Duplicate sample collected at LVRA03-MNAGW-MW3 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													BIAMW-3									
	05/05/1999	05/05/1999 Duplicate	12/14/1999	12/14/1999 Duplicate	01/10/2001	12/11/2003	10/31/2006	10/31/2006 Duplicate	09/25/2007	09/25/2008	09/22/2009	09/21/2010	09/28/2011	01/09/2001	12/10/2003	10/30/2006	09/25/2007	09/25/2008	09/25/2008 Duplicate	09/22/2009	09/22/2009 Duplicate	09/21/2010	09/28/2011	09/28/2011 Duplicate
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	--	--	--	--	--	--	--	--	--	--	--	--
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	--	--	--	--	--	--	0.12 J	--	--	--	--	--	--	--	--
2-Butanone	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	0.8 J	--	--	--	--	--	0.19 J	0.23 J	--	--	--	--	--	--	--	0.091 J	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	54	51	40	42	NA	NA	NA	NA	NA	NA	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	3	2.2	0.36 J	0.86	0.7	0.8	--	--	1	--	--
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	--	--	--	--	--	--	NA	--	--	--	--	--	--	--	--	--	--
Toluene	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	230	190	84	87	110	36 D	58 D	58 D	69 J	75	77	75	75	8	6.3	2.2	7.9 J	5	6	4.2	3.7	11	3.3	3.3
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	--	--	--	--	--	--	--	--	--	--	--
m/p-Xylene	NA	NA	NA	NA	NA	NA	0.1 J	--	--	--	--	--	--	NA	NA	--	--	--	--	--	--	--	--	--
MNA/Water Quality Parameters (mg/L)																								
Alkalinity	NA	NA	NA	NA	NA	180	190	180	176	194	173	194	189	NA	160	260	155	167	168	171	173	155	168	167
Chloride	NA	NA	NA	NA	NA	19	26	26	28.4	32.2	25.2	24.1	21.9	NA	44	78	64.4	46.0	46.3	31.8	32.1	42.3	26.2	26.1
Ferrous Iron	NA	NA	NA	NA	NA	--	0.17	0.14	--	--	--	--	--	NA	--	--	0.18	--	--	--	--	--	--	--
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	NA	0.07 J N	--	--	--	--	--	--	--	--	--
Nitrate	NA	NA	NA	NA	NA	--	--	--	--	--	--	--	--	NA	1.2	1.9	1.5	1.4	1.3	1.43	1.46	1.04	1.4	1.3
Sulfate	NA	NA	NA	NA	NA	16	17	17	20.5	21.2	16.5	17	16	NA	12	27	23.8	13.8	13.2	11.5	11.0	14.1	10.9	10.8
Sulfide	NA	NA	NA	NA	NA	NA	0.02	0.018	--	--	--	--	--	NA	NA	0.018	--	--	--	--	--	--	--	--
TOC	NA	NA	NA	NA	NA	2.6	--	--	1.6	--	1.6 J	0.9J	1.1	NA	--	26	1.4	--	--	--	--	0.4J	1.0U	1.0U

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

	BIAMW-5								BIAMW-6								BIAMW-D1					
	12/13/1999	01/04/2001	10/30/2006	09/25/2007	09/25/2008	09/22/2009	12/15/2010	09/28/2011	12/13/1999	01/10/2001	10/30/2006	09/25/2007	09/25/2008	09/22/2009	09/21/2010	09/28/2011	12/13/1999	01/10/2001	12/10/2003	10/31/2006	09/22/2009	09/21/2010
Volatile Organics (ug/L)																						
1,1,2-Trichloroethane	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1,1-Dichloroethene	--	--	--	--	--	--	--	--	--	--	--	0.66	--	--	--	--	--	--	--	--	--	--
1,4-Dichlorobenzene	NA	--	--	--	--	--	--	--	NA	--	--	--	--	--	--	--	NA	--	--	--	--	--
Benzene	--	--	0.23 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2-Butanone	--	--	--	--	--	3.6 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Chloroethane	--	--	0.13 J	--	--	--	--	--	--	--	0.11 J	--	--	--	--	--	--	--	--	--	--	--
1,2-Dichloroethene (total)	--	NA	NA	NA	NA	NA	NA	NA	30	NA	NA	NA	NA	NA	NA	NA	4 J	NA	NA	NA	NA	NA
cis-1,2-Dichloroethene	NA	--	--	--	--	--	--	--	NA	44	35 D	120	39	26	27	13	NA	8	4.8	0.42 J	0.92 J	--
trans-1,2-Dichloroethene		--	--	--	--	--	--	--	NA	--	0.48 J	0.31 J	--	--	--	--	NA	--	--	0.55	--	--
Ethylbenzene	--	--	0.13 J	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Isopropylbenzene	NA	NA	--	--	--	--	--	--	NA	NA	--	--	--	--	--	--	NA	NA	--	--	--	--
Toluene	--	--	--	--	--	5.5	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Trichloroethene	--	--	--	--	--	--	--	--	17	37	19	1.6 J	3	3.7	2.1	1.1	9 J	18	12	1.8	6.7	2.2
Vinyl Chloride	--	--	--	--	--	--	--	--	4 J	--	--	9.5 J	5	2.5	2.6	0.99J	--	--	--	0.16 J	--	--
m/p-Xylene	NA	NA	--	--	--	--	--	--	NA	NA	--	--	--	--	--	--	NA	NA	NA	--	--	--
MNA/Water Quality Parameters (mg/L)																						
Alkalinity	NA	NA	70	65	65.4	61.8	60.0	66.0	NA	NA	88	75	86.1	92	89.8	61.5	NA	NA	190	200	151	165
Chloride	NA	NA	11	38.4	23.3	12	9.49	11.6	NA	NA	13	32.9	17.8	11.3	13.3	6.5	NA	NA	42	55	23.8	50.4
Ferrous Iron	NA	NA	0.18	--	--	--	--	--	NA	NA	--	--	--	--	--	--	NA	NA	--	--	--	--
Methane	NA	NA	--	0.0061	--	0.00031 J	--	--	NA	NA	0.082 J	0.098	0.064	0.098	0.037	0.020	NA	NA	0.06 J N	--	--	--
Nitrate	NA	NA	0.73	--	--	--	1.07	0.31	NA	NA	--	--	--	--	0.054	--	NA	NA	1.4	2.7	1.6	2.67
Sulfate	NA	NA	6.7	7.4	6.4	5.31	6.92	5.4	NA	NA	11	19.4	10.1	10.9	10.6	9.4	NA	NA	13	11	11.7	11.5
Sulfide	NA	NA	--	--	--	--	--	--	NA	NA	--	--	--	--	--	--	NA	NA	NA	--	--	--
TOC	NA	NA	--	1.3	--	1.1 J	1.2	0.79J	NA	NA	--	1.7	--	2.5 J	1.6	2.6	NA	NA	--	--	1.0 J	0.8J

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

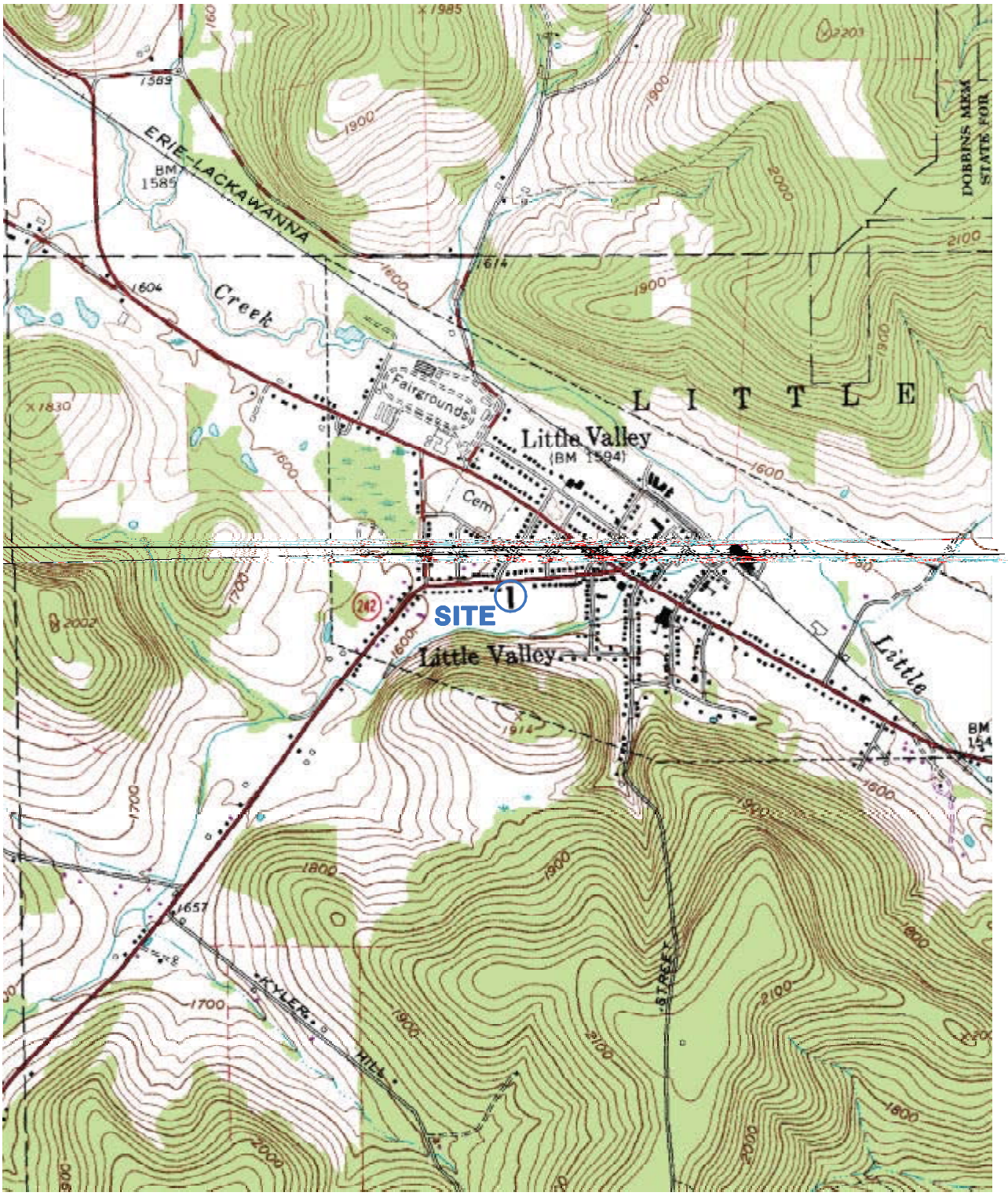
	BIAMW-D2										
	12/14/1999	01/10/2001	01/10/2001 Duplicate	12/11/2003	10/30/2006	09/25/2007	09/25/2007 Duplicate	09/25/2008	09/22/2009	09/21/2010	09/28/2011
Volatile Organics (ug/L)											
1,1,2-Trichloroethane	--	--	--	--	0.084 J	--	--	--	--	--	--
1,1-Dichloroethene	0.4 J	--	--	0.81	0.54	0.44 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
cis-1,2-Dichloroethene	NA	36	29	18 D	26 D	33	33	25	32	16	19
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
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
Chloride	NA	NA	NA	22	31	37.8	37.8	33.4	27.3	28.1	23.9
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
Sulfate	NA	NA	NA	15	13	19.8	19.1	16.8	17	13.2	13.3
Sulfide	NA	NA	NA	NA	0.027	--	--	--	--	--	--
TOC	NA	NA	NA	2.4	--	1.8	--	--	0.9 J	1.0U	1.0U

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



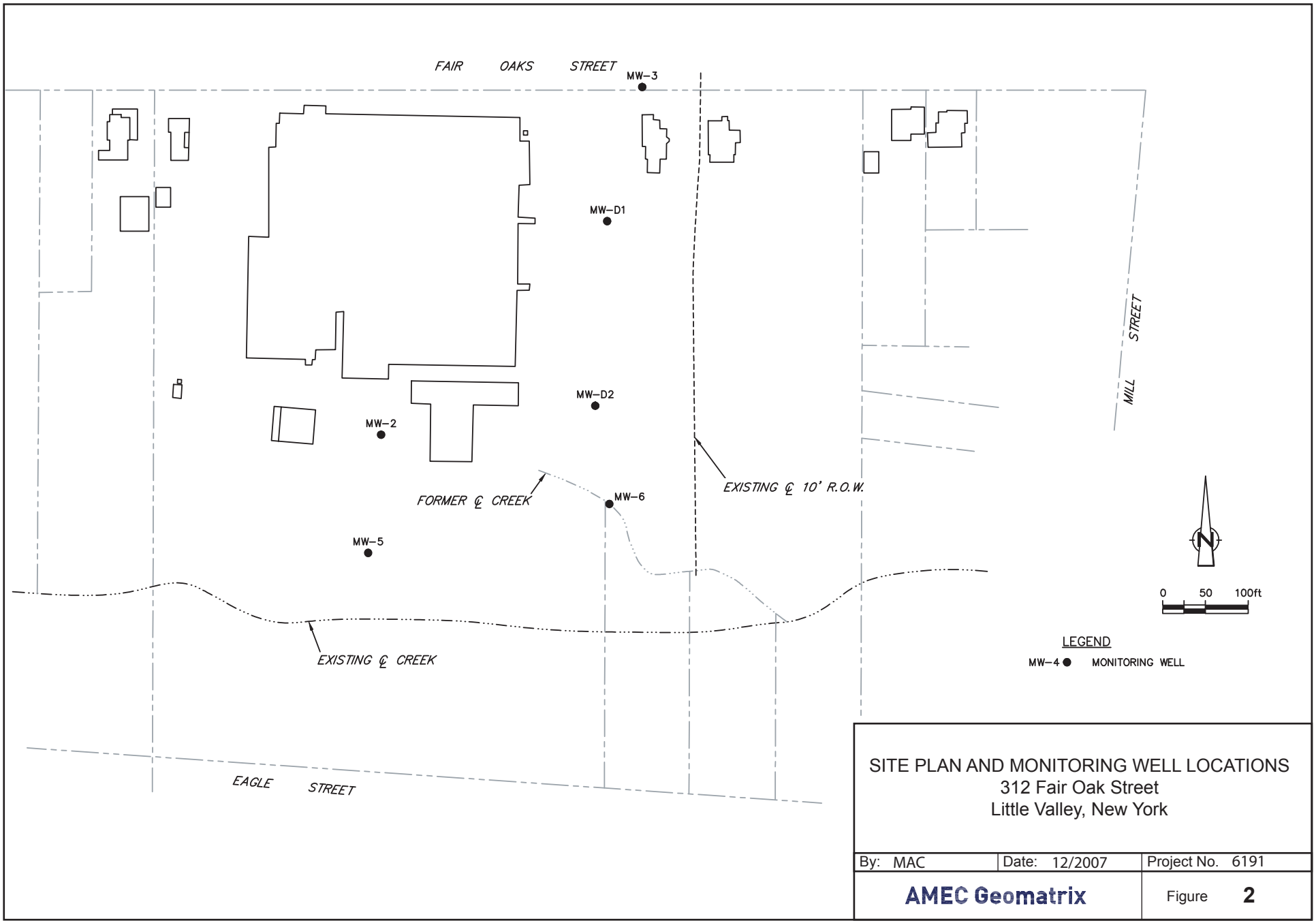
SOURCE:

USGS CATTARAUGUS AND LITTLE VALLEY, NEW YORK QUADRANGLES.

DATE: 05/09/2000
FILEPATH: C:\GEOMATRIX\6191
DRAFTED BY: JTM

AMEC Geomatrix	SITE LOCATION 312 FAIR OAK STREET LITTLE VALLEY, NEW YORK	Project No. 6191 Figure 1

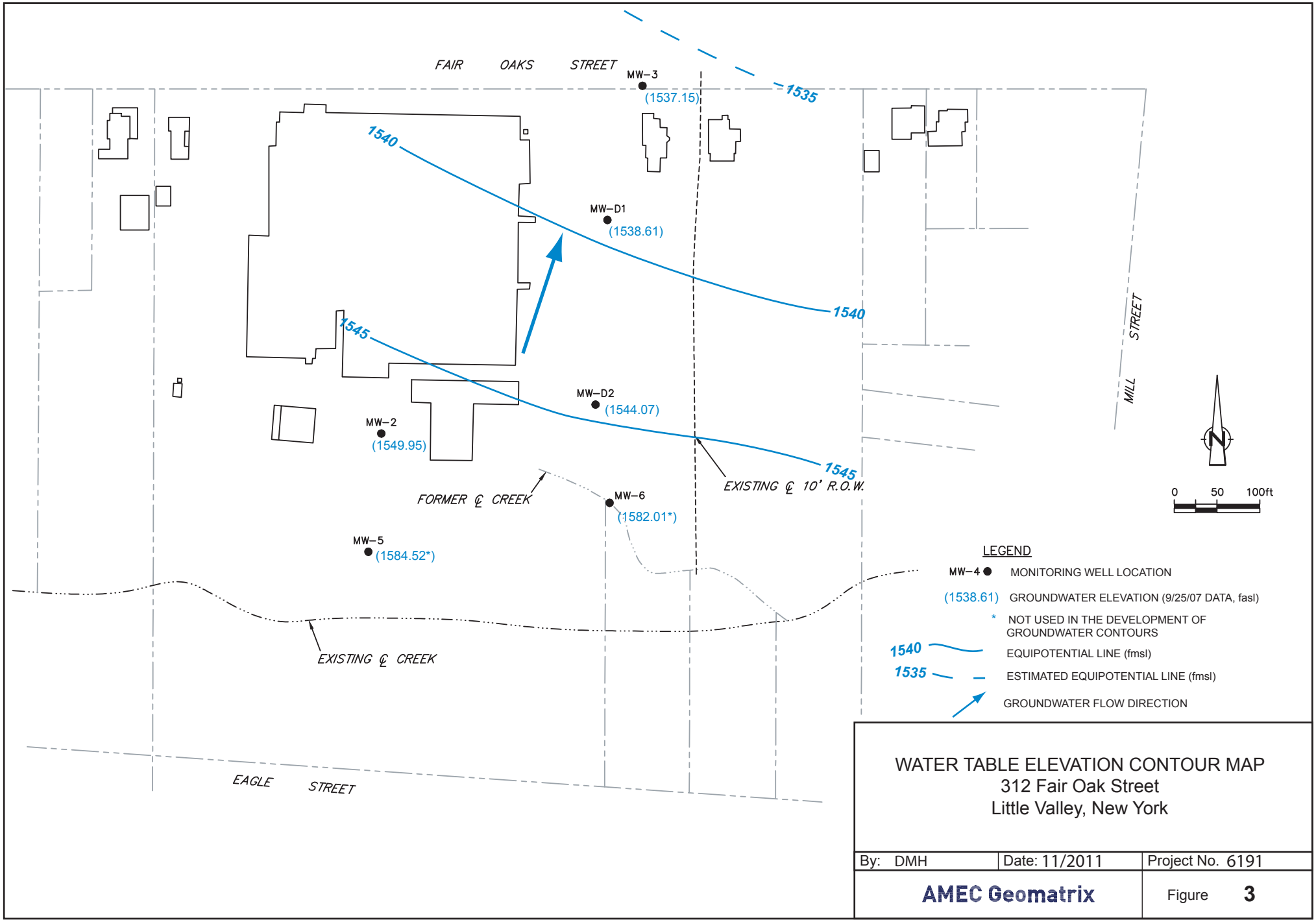
I:/Project/6191 Bush Industries/ 2007 MNA Monitoring/ Figure 1 Site Layout and MW Locations.pdf



SITE PLAN AND MONITORING WELL LOCATIONS
312 Fair Oak Street
Little Valley, New York

By: MAC	Date: 12/2007	Project No. 6191
AMEC Geomatrix		Figure 2

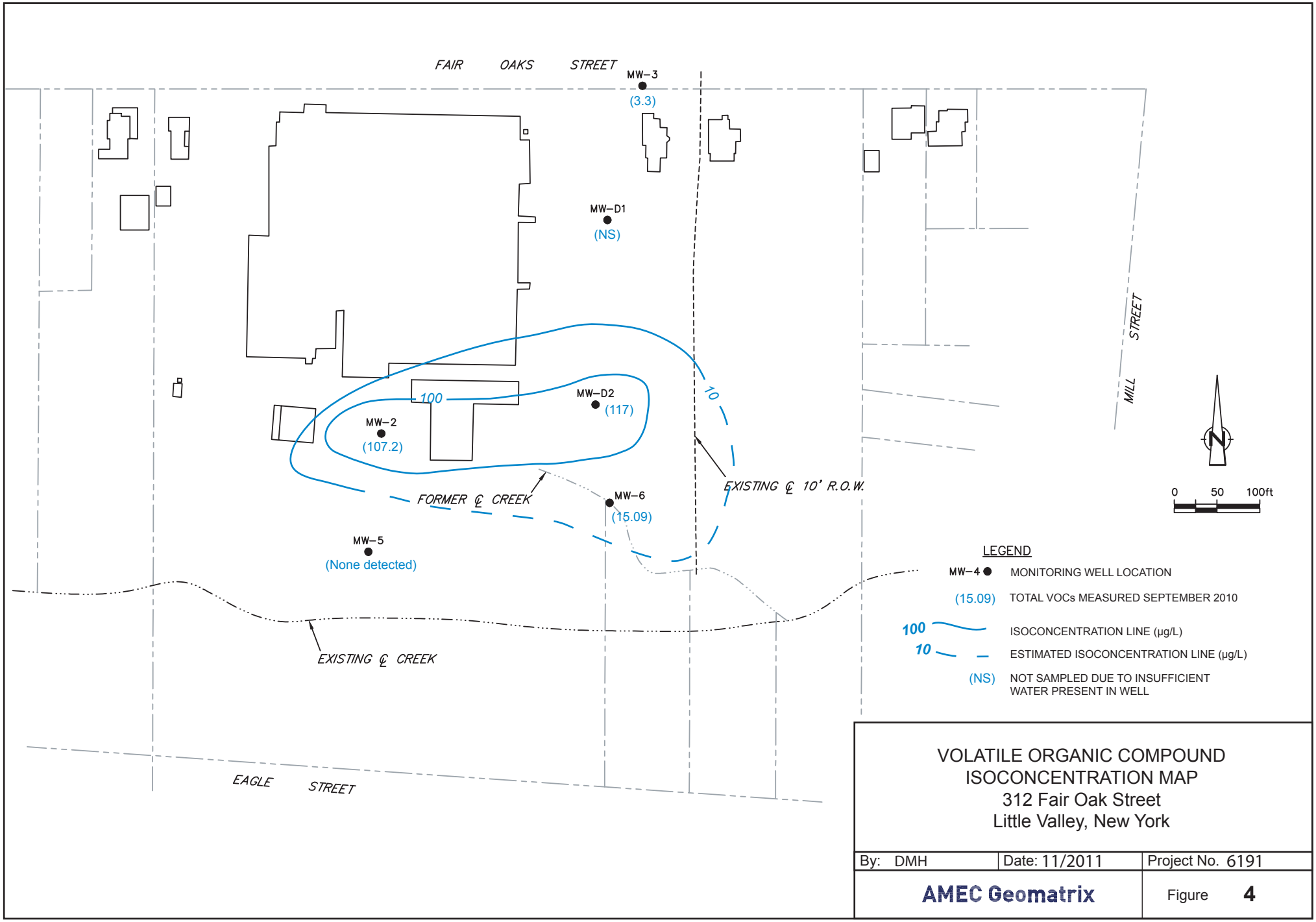
I:/Project/6191 Bush Industries/ 2007 MNA Monitoring/ Figure 2 Groundwater Contour Map.pdf



WATER TABLE ELEVATION CONTOUR MAP
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 3

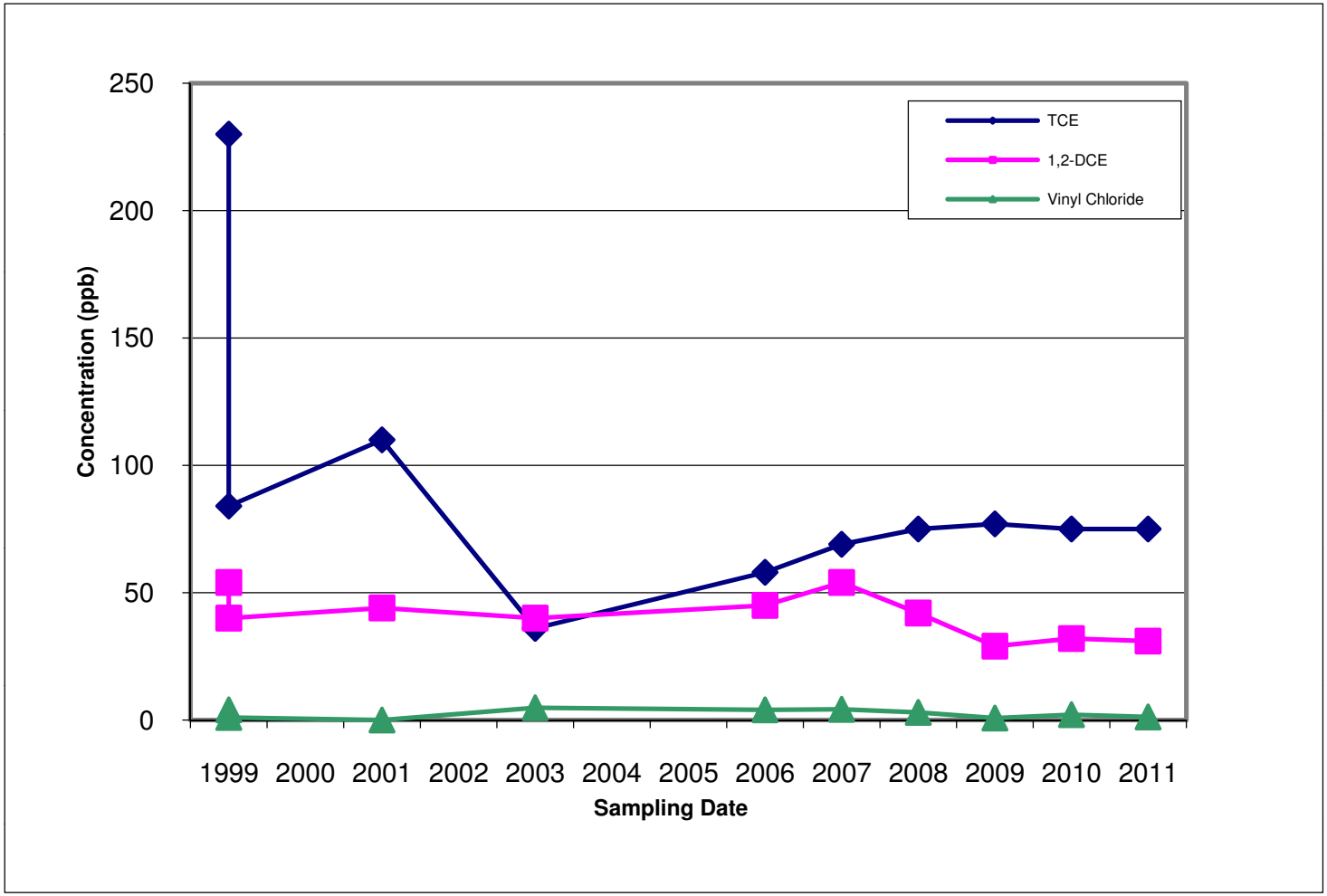
I:/Project/6191 Bush Industries/ 2007 MNA Monitoring/ Figure 2 Groundwater Contour Map.pdf



VOLATILE ORGANIC COMPOUND
ISOCONCENTRATION MAP
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 4

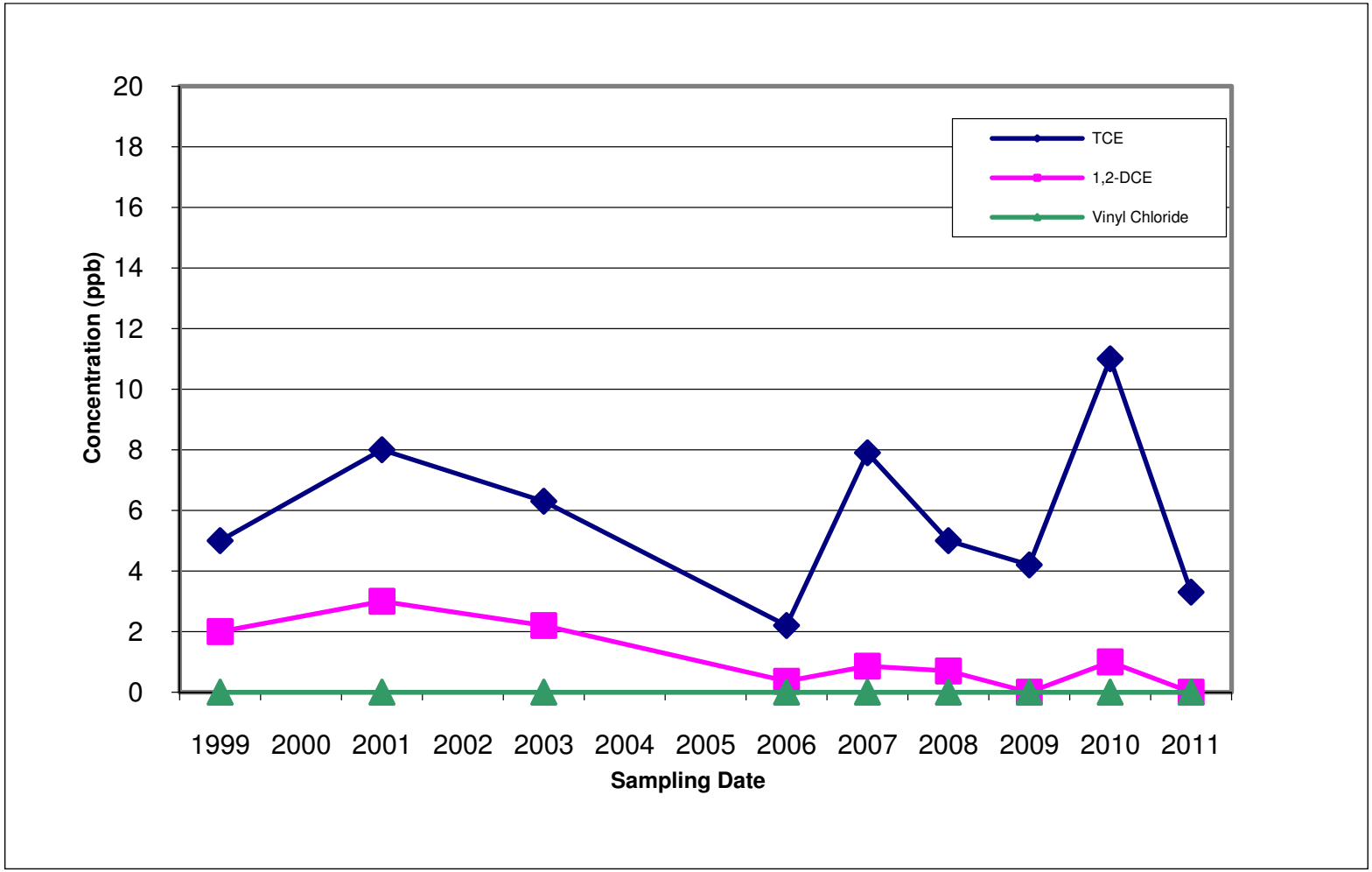
on_GDS



MW-2 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 5

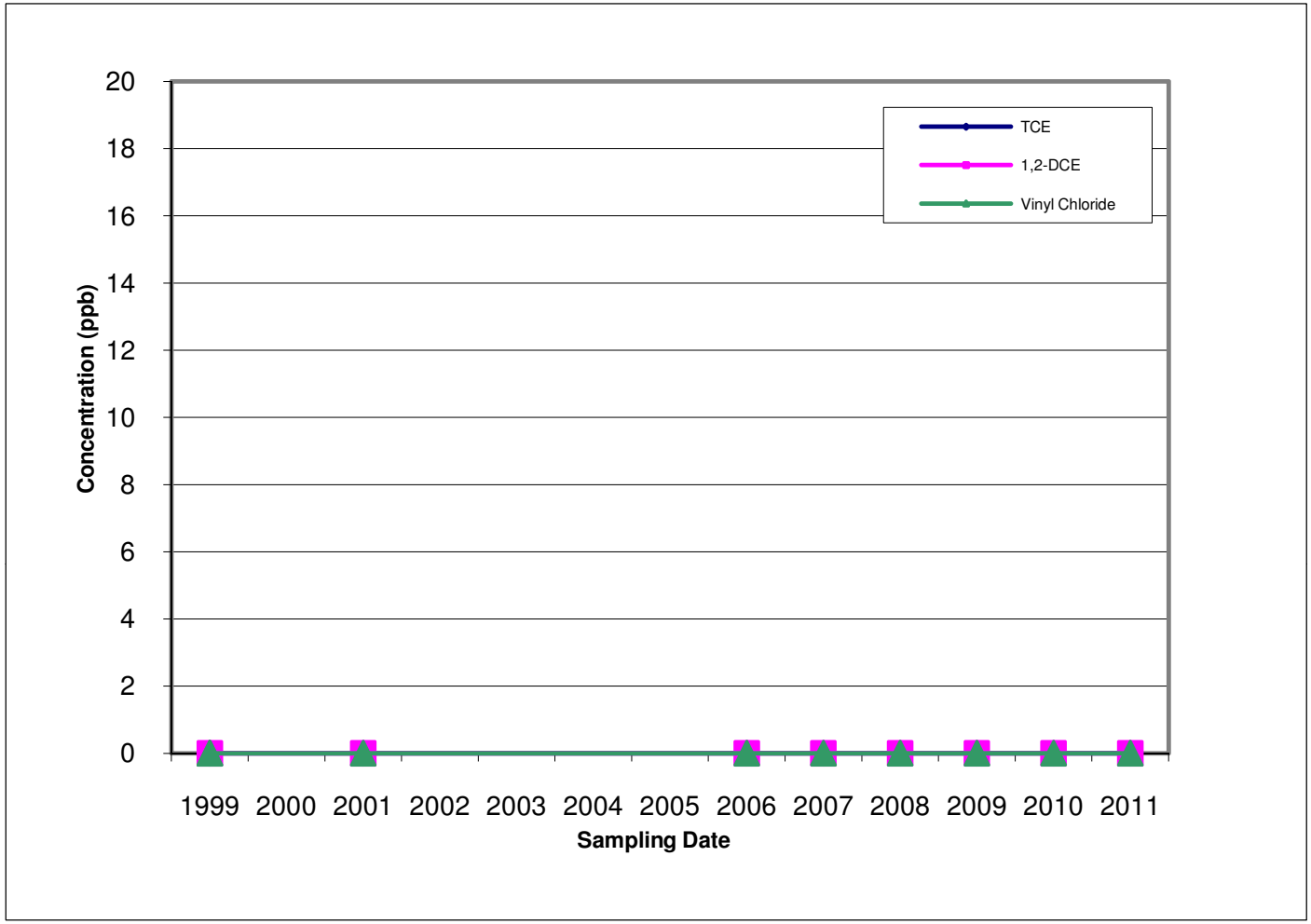
on_GDS



MW-3 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 6

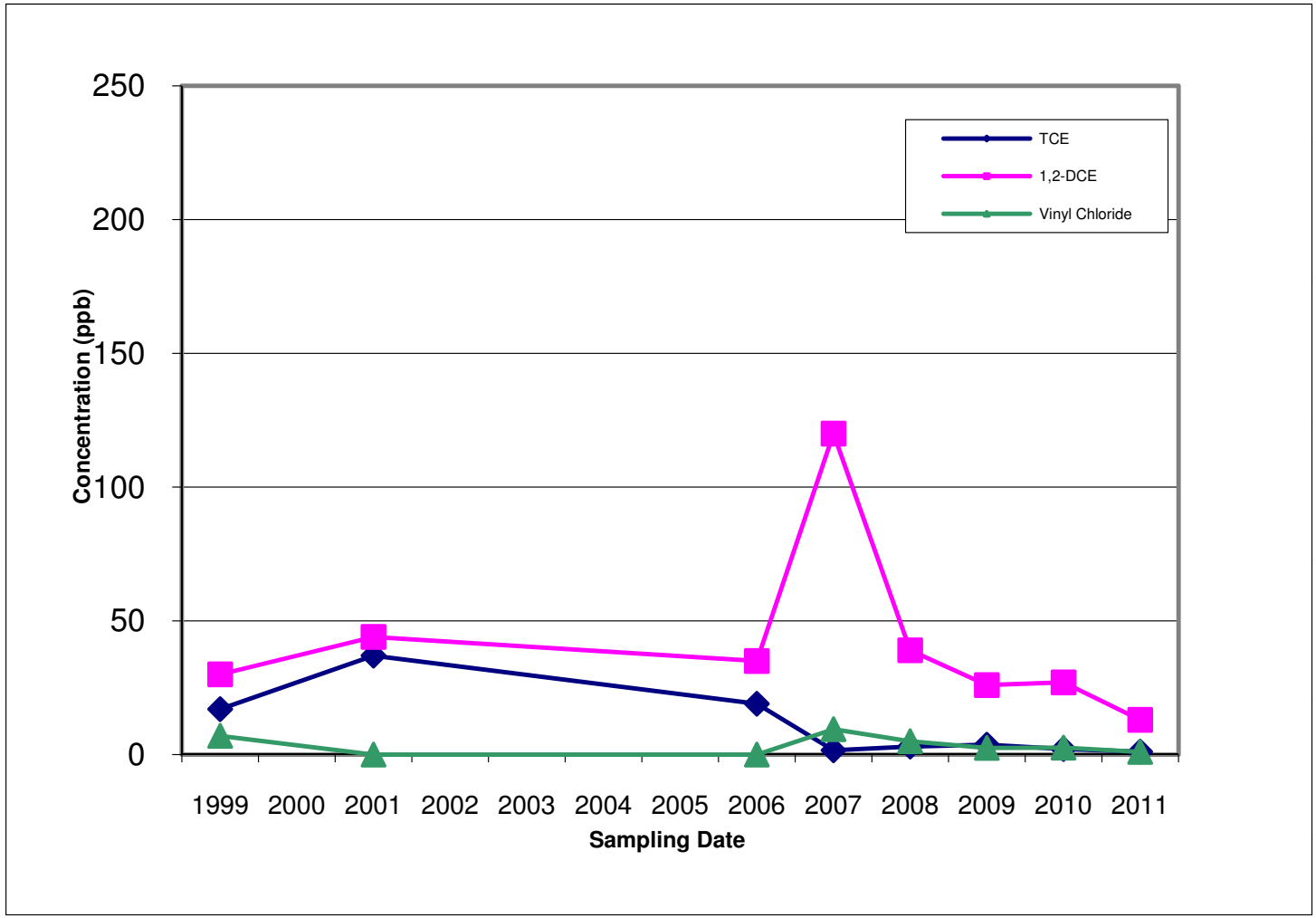
on_GDS



MW-5 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 7

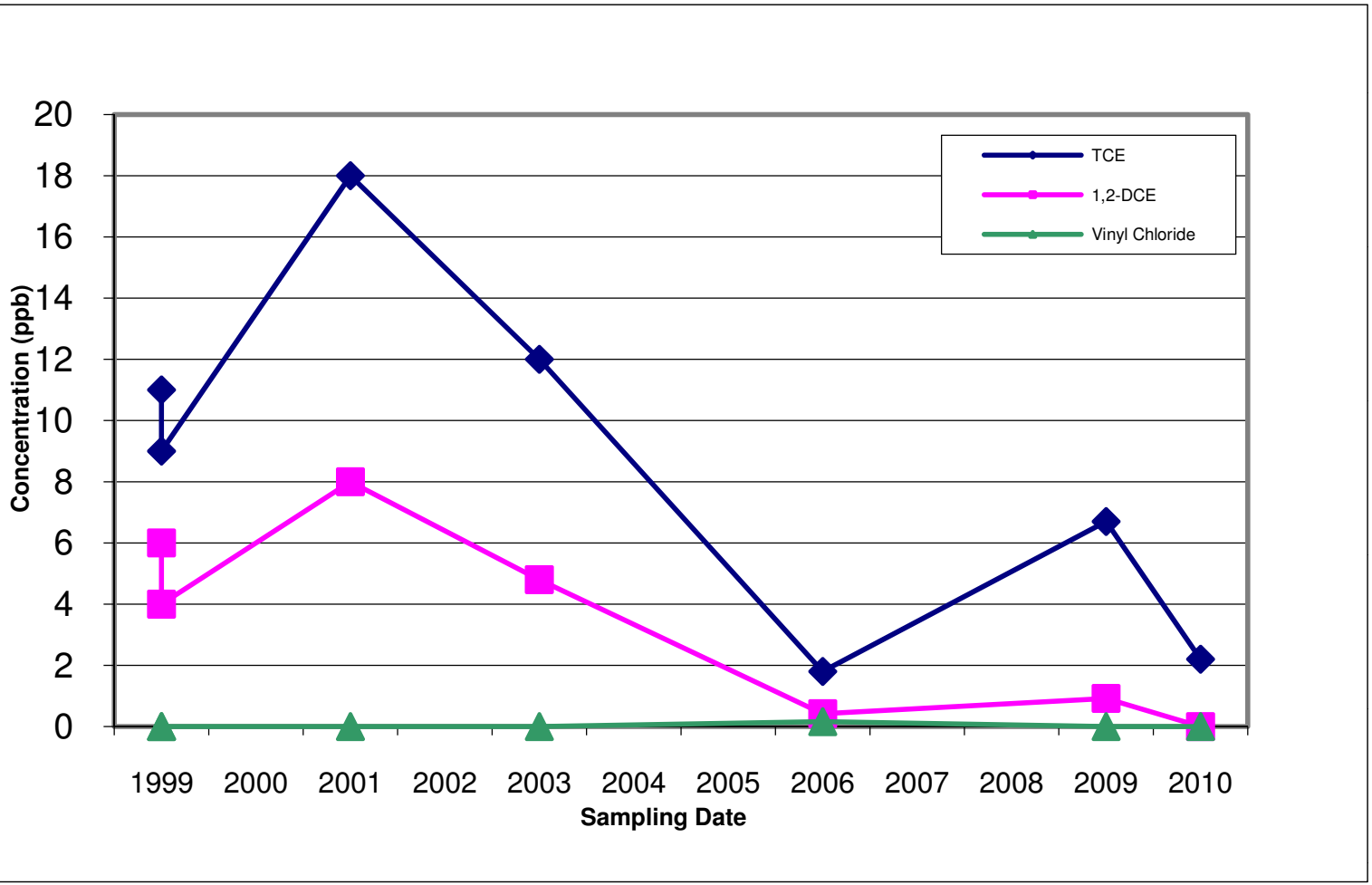
on_GDS



MW-6 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 8

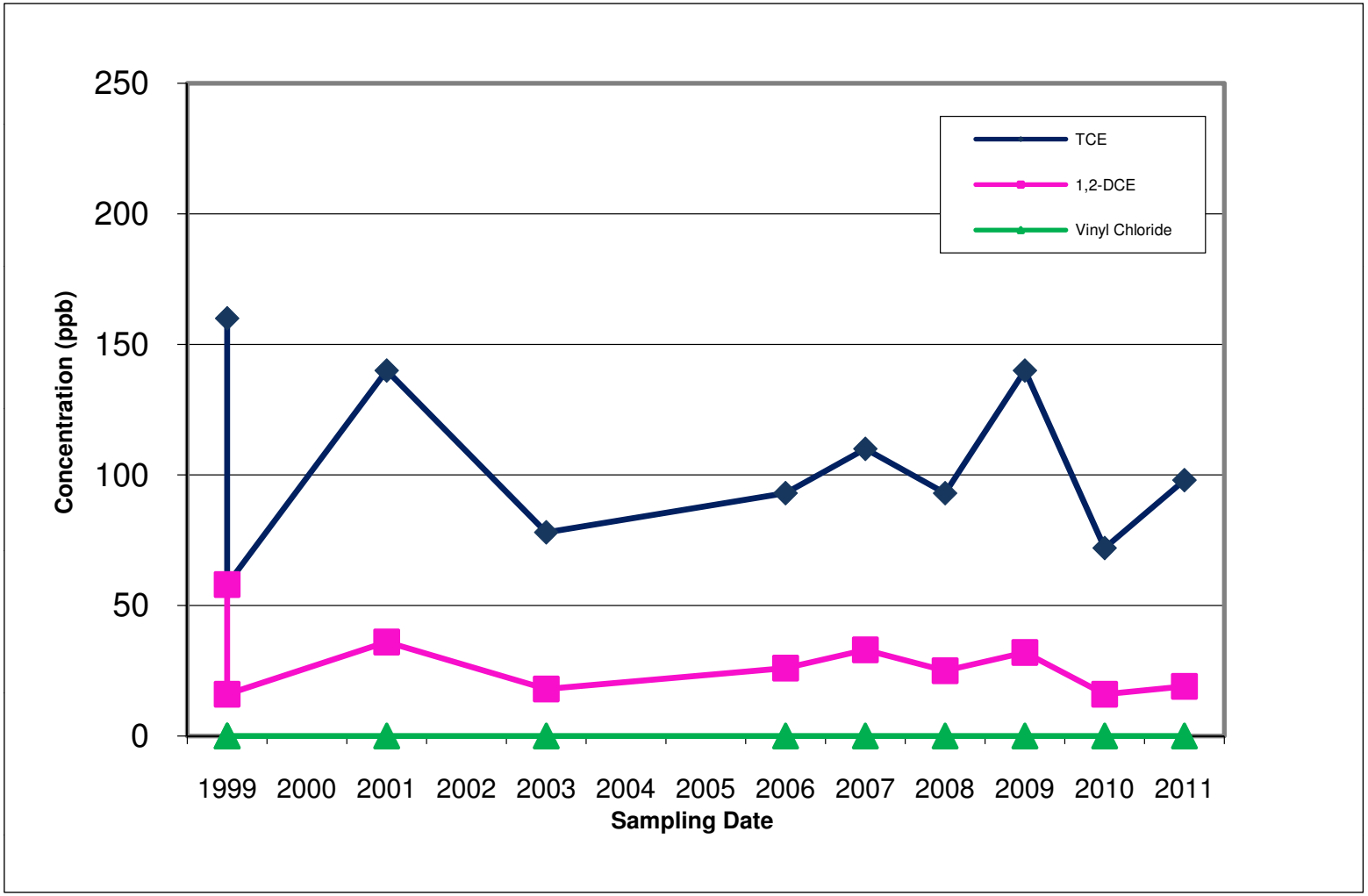
on_GDS



MW-D1 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		Figure 9

on_GDS



MW-D2 VOC TIME-CONCENTRATION PLOT
312 Fair Oak Street
Little Valley, New York

By: DMH	Date: 11/2011	Project No. 6191
AMEC Geomatrix		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

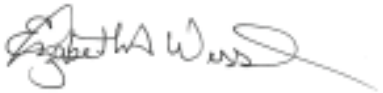
SAMPLE DELIVERY GROUP
J10417-1

PREPARED FOR:

AMEC - Geomatrix
West Amherst, New York

Reviewed by:

Approved by:



Prepared by

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

I. INTRODUCTION

Task Order Title:	Bush Industries
Contract Task Order:	1217.012D.00 003
Sample Delivery Group:	J104171
Project Manager:	Kelly McIntosh
Matrix:	Water
QC Level:	III
No. of Samples:	8
No. of Reanalyses/Dilutions:	0
Laboratory:	TestAmerica-Buffalo

Table 1. Sample Identification

Client ID	Laboratory ID	Matrix	Sample Date	Method
LVRA05-MNAGW-MW-3	480-10417-1	Water	09/28/2011 1040	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175
LVRA05-MNAGW-MW-D2	480-10417-2	Water	09/28/2011 1150	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175
LVRA05-MNAGW-MW-6	480-10417-3	Water	09/28/2011 1400	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175
Rinse Blank	480-10417-4	Water	09/28/2011 1321	8260B
LVRA05-MNAGW-MW-5	480-10417-5	Water	09/28/2011 1500	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175
LVRA05-MNAGW-MW-2	480-10417-6	Water	09/28/2011 1540	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175
Trip Blank	480-10417-7	Water	09/28/2011	8260B
Dup	480-10417-8	Water	09/28/2011	300.0, 353.2, 2320B, 3500FE, 4500-SF, 8260B, 9060, RSK175

II. Sample Management

No anomalies were observed regarding sample management. The samples in this SDG were received at the laboratory within the temperature limits of 4°C ±2°C. The COCs were appropriately signed and dated by field and/or laboratory personnel. No information regarding the custody seals was provided by the laboratory. If necessary, the client ID was added to the sample result summary by the reviewer. No additional sample receipt information was provided by the laboratory.

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 8260B - Volatile Organic Compounds (VOCs)

Reviewed By: P. Meeks
Date Reviewed: October 28, 2011

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 8260B*, *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 8260B* (9/2006).

- Holding Times: According to the Case Narrative sample RINSE BLANK was received at a pH above 2. RINSE BLANK was analyzed beyond the seven-day holding time for unpreserved samples; therefore, all results for this sample (all nondetects), were qualified as estimated, "UJ." The remaining preserved water samples were analyzed within 14 days of collection.

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

- Initial Calibration: The average RRFs for the SPCCs were within the method required criteria of ≥0.1 (for chloromethane, 1,1 -dichoroethane, and bromoform) and ≥0.3 (for chlorobenzene and 1,1,2,2-tetrachloroethane). The average RRFs for the remaining applicable target compounds were ≥0.05. Initial calibration %RSDs were ≤15% or r values were ≥0.99 for all applicable target compounds.

- Continuing Calibration: The continuing calibration RRFs for the SPCCs were within the method required criteria of ≥0.1 for chloromethane, 1,1 -dichoroethane, and bromoform and ≥0.3 for chlorobenzene and 1,1,2,2 -tetrachloroethane. The continuing calibration RRFs for the remaining applicable target compounds were ≥0.05. The %Ds were ≤20%.

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

- Blank Spikes and Laboratory Control Samples: Thirteen target compounds were spiked in the LCS associated with the samples in this SDG. All recoveries were within laboratory-established QC limits.

- Surrogate Recovery: The surrogate recoveries were within laboratory-established QC limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on sample LVRA05-MNAGW-MW-D2. Thirteen target compounds were spiked. Tetrachloroethene was recovered marginally above the control limit in both the MS and MSD; however, tetrachloroethene was not detected in parent sample LVRA05-MNAGW-MW-D2.

Trichloroethene was recovered below the control limit in the MSD only. The remaining recoveries and all RPDs were within laboratory-established QC 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 was the trip blank identified for the samples in this SDG. There were no detects reported above the MDL in the trip blank.

    - Field Blanks and Equipment Rinsates: Sample RINSE BLANK was identified as the equipment blank associated with the samples in this SDG. There were no detects reported above the MDL in this sample.

    - Field Duplicates: Samples LVRA05-MNAGW-MW-3 and DUP were identified as the field duplicate pair in this SDG. There was a common detect for trichloroethene with an RPD of 0%. 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 8260B. The sample result summaries were compared to the raw data and no transcription errors were noted.

- Compound Quantification Compound quantitation was not verified at this level of validation. The reporting limits were supported by the low point of the initial calibration and the MDLs. Any detect between the MDL and the reporting limit was qualified as estimated, “J,” in the samples of this SDG. Reported nondetects are valid to the reporting limit.

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

- System Performance: Review of the raw data indicated no problems with system performance.

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

Reviewed By: P. Meeks
Date Reviewed: October 27, 2010

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), 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).

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- Holding Times: The samples in the SDG were analyzed within 14 days of collection.
- GC/MS Tuning: Not applicable to this analysis.
- Calibration: Calibration criteria were met. Initial calibration r^2 values were $\geq$0.995. The CCV %Ds were $\leq$15%.
- Blanks: There were no detects above the reporting limit in the method blanks.
- Blank Spikes and Laboratory Control Samples: Recoveries were within the laboratory established QC limits.
- Surrogate Recovery: Surrogates were not utilized in this method.
- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed for sample LVRA05-MNAGW-MW-D2 of this SDG. The MS Recoveries were within the laboratory established QC limits. No target analytes were recovered in the MSD. According to the case narrative, the MSD was not spiked and as no volume remained, the analysis could not be repeated. No qualifications were required.
- 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. The sample result summaries were compared to the raw data and no transcription errors were noted.
- Compound Quantification and Reported Detection Limits: Compound quantification was verified. The reporting limits were supported by the low point of the initial calibration and the MDL. Any detect between the MDL and the reporting limit was qualified as estimated, "J," in the samples of this SDG. Reported nondetects are valid to the reporting limit.
- 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 was identified as the trip blank associated with the samples in this SDG. There were no detects above the MDL in the trip blank.

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

- Field Duplicates: Samples LVRA05-MNAGW-MW-3 and DUP were identified as the field duplicate pair in this SDG. There were no detects reported above the MDL in the field duplicate samples and the pair was considered to be in good agreement.

C. VARIOUS EPA METHODS—General Minerals

Reviewed By: P. Meeks
Date Reviewed: October 28, 2011

The samples listed in Table 1 for this analysis 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, 3500FE, 4500-SF, and 9060,* 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, 28 days from collection for chloride, sulfate and TOC, 14 days from collection for alkalinity, seven days from collection for sulfide, and 48 hours from collection for nitrate, were met. As per the method, the analytical holding time for ferrous iron is noted as "in field." As the ferrous iron analyses were performed within 24 hours of receipt at the laboratory, no qualifications were required.

- Calibration: Calibration criteria were met. Chloride, sulfate and ferrous iron initial calibration summary information was not provided by the laboratory; therefore, the reviewer manually confirmed the r^2 values. Initial calibration r^2 values were $\geq$0.995. ICVs were not analyzed for TOC, alkalinity, chloride, sulfate, nitrate and sulfide. As the check standards were acceptably recovered, no qualifications were deemed necessary. All initial and continuing calibration recoveries were within 90-110%. For the titrometric methods, sulfide and alkalinity, no verification of the titrant normalization was provided by the laboratory, although standard identification numbers were provided for the sulfide standards.

- Blanks: There were no applicable detects in the CCBs or method blanks.

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

- Laboratory Duplicates: A laboratory duplicate analysis was performed on LVRA05-MNAGW-MW-2 for TOC. The RPD was within laboratory-established control limits.

- Matrix Spike/Matrix Spike Duplicate: MS/MSD analyses were performed on LVRA05-MNAGW-MW-D2 for all analytes. A matrix spike analysis was performed on sample DUP for TOC only. Both sulfide recoveries were above the control limit; however, sulfide was not detected in the site samples. All remaining recoveries and RPDs were within the

laboratory-established control limits and no qualifications were required.

- Sample Result Verification: Compound identification was not verified at this level of validation. The sample result summaries were compared to the raw data and no transcription errors were noted.

- 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.

    - Field Duplicates: Field Duplicates: Samples LVRA05-MNAGW-MW-3 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 20%.

Analytical Data

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-3**

Lab Sample ID: 480-10417-1
Client Matrix: Water

Date Sampled: 09/28/2011 1040
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6659.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1236			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1236				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND	U	0.82	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.31	1.0
1,1,2-Trichloroethane	ND		0.23	1.0
1,1-Dichloroethane	ND		0.38	1.0
1,1-Dichloroethene	ND		0.29	1.0
1,2-Dibromo-3-Chloropropane	ND		0.39	1.0
1,2-Dibromoethane	ND		0.73	1.0
1,2-Dichlorobenzene	ND		0.79	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2,4-Trichlorobenzene	ND		0.41	1.0
1,2-Dichloropropane	ND		0.72	1.0
1,4-Dichlorobenzene	ND		0.84	1.0
2-Hexanone	ND		1.2	5.0
2-Butanone	ND		1.3	10
4-Methyl-2-pentanone	ND		2.1	5.0
Acetone	ND		3.0	10
Benzene	ND		0.41	1.0
1,3-Dichlorobenzene	ND		0.78	1.0
Bromodichloromethane	ND		0.39	1.0
Bromoform	ND		0.26	1.0
Bromomethane	ND		0.69	1.0
Carbon disulfide	ND		0.19	1.0
Carbon tetrachloride	ND		0.27	1.0
Chlorobenzene	ND		0.75	1.0
Dibromochloromethane	ND		0.32	1.0
Chloroethane	ND		0.32	1.0
Chloroform	ND		0.34	1.0
Chloromethane	ND		0.35	1.0
cis-1,2-Dichloroethene	ND		0.81	1.0
cis-1,3-Dichloropropene	ND		0.36	1.0
Ethylbenzene	ND		0.74	1.0
Methylene Chloride	ND		0.44	1.0
Styrene	ND		0.73	1.0
Tetrachloroethene	ND		0.36	1.0
Toluene	ND		0.51	1.0
trans-1,2-Dichloroethene	ND		0.90	1.0
trans-1,3-Dichloropropene	ND	U	0.37	1.0
Trichloroethene	3.3		0.46	1.0
Trichlorofluoromethane	ND	U	0.88	1.0
Vinyl chloride	ND		0.90	1.0
Xylenes, Total	ND		0.66	2.0
Cyclohexane	ND		0.18	1.0
Dichlorodifluoromethane	ND		0.68	1.0
Isopropylbenzene	ND	U	0.79	1.0

MEC^X validated

Client: AMEC Geomatrix Inc. Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-3**

Lab Sample ID: 480-10417-1 Date Sampled: 09/28/2011 1040
Client Matrix: Water Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6659.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1236			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1236				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	120		66 - 137
Toluene-d8 (Surr)	118		71 - 126
4-Bromofluorobenzene (Surr)	114		73 - 120

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-D2**

Lab Sample ID: 480-10417-2
Client Matrix: Water

Date Sampled: 09/28/2011 1150
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6660.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1259			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1259				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND	U	0.82	1.0
1,1,2,2-Tetrachloroethane	ND	U	0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	0.31	1.0
1,1,2-Trichloroethane	ND	U	0.23	1.0
1,1-Dichloroethane	ND	U	0.38	1.0
1,1-Dichloroethene	ND	U	0.29	1.0
1,2-Dibromo-3-Chloropropane	ND	U	0.39	1.0
1,2-Dibromoethane	ND	U	0.73	1.0
1,2-Dichlorobenzene	ND	U	0.79	1.0
1,2-Dichloroethane	ND	U	0.21	1.0
1,2,4-Trichlorobenzene	ND	U	0.41	1.0
1,2-Dichloropropane	ND	U	0.72	1.0
1,4-Dichlorobenzene	ND	U	0.84	1.0
2-Hexanone	ND	U	1.2	5.0
2-Butanone	ND	U	1.3	10
4-Methyl-2-pentanone	ND	U	2.1	5.0
Acetone	ND	U	3.0	10
Benzene	ND	U	0.41	1.0
1,3-Dichlorobenzene	ND	U	0.78	1.0
Bromodichloromethane	ND	U	0.39	1.0
Bromoform	ND	U	0.26	1.0
Bromomethane	ND	U	0.69	1.0
Carbon disulfide	ND	U	0.19	1.0
Carbon tetrachloride	ND	U	0.27	1.0
Chlorobenzene	ND	U	0.75	1.0
Dibromochloromethane	ND	U	0.32	1.0
Chloroethane	ND	U	0.32	1.0
Chloroform	ND	U	0.34	1.0
Chloromethane	ND	U	0.35	1.0
cis-1,2-Dichloroethene	19		0.81	1.0
cis-1,3-Dichloropropene	ND	U	0.36	1.0
Ethylbenzene	ND	U	0.74	1.0
Methylene Chloride	ND	U	0.44	1.0
Styrene	ND	U	0.73	1.0
Tetrachloroethene	ND	U	0.36	1.0
Toluene	ND	U	0.51	1.0
trans-1,2-Dichloroethene	ND	U	0.90	1.0
trans-1,3-Dichloropropene	ND	U	0.37	1.0
Trichloroethene	98		0.46	1.0
Trichlorofluoromethane	ND	U	0.88	1.0
Vinyl chloride	ND	U	0.90	1.0
Xylenes, Total	ND	U	0.66	2.0
Cyclohexane	ND	U	0.18	1.0
Dichlorodifluoromethane	ND	U	0.68	1.0
Isopropylbenzene	ND	U	0.79	1.0
Methyl acetate	ND	U	0.50	1.0

MEC validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-D2**

Lab Sample ID: 480-10417-2
Client Matrix: Water

Date Sampled: 09/28/2011 1150
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6660.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1259			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1259				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	119		66 - 137
Toluene-d8 (Surr)	116		71 - 126
4-Bromofluorobenzene (Surr)	112		73 - 120

MEC validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: LVRA05-MNAGW-MW-6

Lab Sample ID: 480-10417-3
Client Matrix: Water

Date Sampled: 09/28/2011 1400
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6663.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1409			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1409				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.82	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.31	1.0
1,1,2-Trichloroethane	ND		0.23	1.0
1,1-Dichloroethane	ND		0.38	1.0
1,1-Dichloroethene	ND		0.29	1.0
1,2-Dibromo-3-Chloropropane	ND		0.39	1.0
1,2-Dibromoethane	ND		0.73	1.0
1,2-Dichlorobenzene	ND		0.79	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2,4-Trichlorobenzene	ND		0.41	1.0
1,2-Dichloropropane	ND		0.72	1.0
1,4-Dichlorobenzene	ND		0.84	1.0
2-Hexanone	ND		1.2	5.0
2-Butanone	ND		1.3	10
4-Methyl-2-pentanone	ND		2.1	5.0
Acetone	ND		3.0	10
Benzene	ND		0.41	1.0
1,3-Dichlorobenzene	ND		0.78	1.0
Bromodichloromethane	ND		0.39	1.0
Bromoform	ND		0.26	1.0
Bromomethane	ND		0.69	1.0
Carbon disulfide	ND		0.19	1.0
Carbon tetrachloride	ND		0.27	1.0
Chlorobenzene	ND		0.75	1.0
Dibromochloromethane	ND		0.32	1.0
Chloroethane	ND		0.32	1.0
Chloroform	ND		0.34	1.0
Chloromethane	ND		0.35	1.0
cis-1,2-Dichloroethene	13		0.81	1.0
cis-1,3-Dichloropropene	ND		0.36	1.0
Ethylbenzene	ND		0.74	1.0
Methylene Chloride	ND		0.44	1.0
Styrene	ND		0.73	1.0
Tetrachloroethene	ND		0.36	1.0
Toluene	ND		0.51	1.0
trans-1,2-Dichloroethene	ND		0.90	1.0
trans-1,3-Dichloropropene	ND		0.37	1.0
Trichloroethene	1.1		0.46	1.0
Trichlorofluoromethane	ND		0.88	1.0
Vinyl chloride	0.99	J	0.90	1.0
Xylenes, Total	ND		0.66	2.0
Cyclohexane	ND		0.18	1.0
Dichlorodifluoromethane	ND		0.68	1.0
Isopropylbenzene	ND		0.79	1.0
Methyl acetate	ND		0.50	1.0

MECX Validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-6**

Lab Sample ID: 480-10417-3
Client Matrix: Water

Date Sampled: 09/28/2011 1400
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6663.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1409			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1409				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	117		66 - 137
Toluene-d8 (Surr)	118		71 - 126
4-Bromofluorobenzene (Surr)	110		73 - 120

MECX validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **RINSE BLANK**

Lab Sample ID: 480-10417-4
Client Matrix: Water

Date Sampled: 09/28/2011 1321
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6664.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1431			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1431				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND		0.82	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.31	1.0
1,1,2-Trichloroethane	ND		0.23	1.0
1,1-Dichloroethane	ND		0.38	1.0
1,1-Dichloroethene	ND		0.29	1.0
1,2-Dibromo-3-Chloropropane	ND		0.39	1.0
1,2-Dibromoethane	ND		0.73	1.0
1,2-Dichlorobenzene	ND		0.79	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2,4-Trichlorobenzene	ND		0.41	1.0
1,2-Dichloropropane	ND		0.72	1.0
1,4-Dichlorobenzene	ND		0.84	1.0
2-Hexanone	ND		1.2	5.0
2-Butanone	ND		1.3	10
4-Methyl-2-pentanone	ND		2.1	5.0
Acetone	ND		3.0	10
Benzene	ND		0.41	1.0
1,3-Dichlorobenzene	ND		0.78	1.0
Bromodichloromethane	ND		0.39	1.0
Bromoform	ND		0.26	1.0
Bromomethane	ND		0.69	1.0
Carbon disulfide	ND		0.19	1.0
Carbon tetrachloride	ND		0.27	1.0
Chlorobenzene	ND		0.75	1.0
Dibromochloromethane	ND		0.32	1.0
Chloroethane	ND		0.32	1.0
Chloroform	ND		0.34	1.0
Chloromethane	ND		0.35	1.0
cis-1,2-Dichloroethene	ND		0.81	1.0
cis-1,3-Dichloropropene	ND		0.38	1.0
Ethylbenzene	ND		0.74	1.0
Methylene Chloride	ND		0.44	1.0
Styrene	ND		0.73	1.0
Tetrachloroethene	ND		0.36	1.0
Toluene	ND		0.51	1.0
trans-1,2-Dichloroethene	ND		0.90	1.0
trans-1,3-Dichloropropene	ND		0.37	1.0
Trichloroethene	ND		0.46	1.0
Trichlorofluoromethane	ND		0.88	1.0
Vinyl chloride	ND		0.90	1.0
Xylenes, Total	ND		0.66	2.0
Cyclohexane	ND		0.18	1.0
Dichlorodifluoromethane	ND		0.68	1.0
Isopropylbenzene	ND		0.79	1.0
Methyl acetate	ND		0.50	1.0

UJ/H

MEC validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **RINSE BLANK**

Lab Sample ID: 480-10417-4
Client Matrix: Water

Date Sampled: 09/28/2011 1321
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6664.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1431			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1431				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U J/H	ND		0.16	1.0
Methylcyclohexane	U J/H	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	121		66 - 137
Toluene-d8 (Surr)	119		71 - 126
4-Bromofluorobenzene (Surr)	116		73 - 120

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: LVRA05-MNAGW-MW-5

Lab Sample ID: 480-10417-5
Client Matrix: Water

Date Sampled: 09/28/2011 1500
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6665.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1453			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1453				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND	U	0.82	1.0
1,1,2,2-Tetrachloroethane	ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND		0.31	1.0
1,1,2-Trichloroethane	ND		0.23	1.0
1,1-Dichloroethane	ND		0.38	1.0
1,1-Dichloroethene	ND		0.29	1.0
1,2-Dibromo-3-Chloropropane	ND		0.39	1.0
1,2-Dibromoethane	ND		0.73	1.0
1,2-Dichlorobenzene	ND		0.79	1.0
1,2-Dichloroethane	ND		0.21	1.0
1,2,4-Trichlorobenzene	ND		0.41	1.0
1,2-Dichloropropane	ND		0.72	1.0
1,4-Dichlorobenzene	ND		0.84	1.0
2-Hexanone	ND		1.2	5.0
2-Butanone	ND		1.3	10
4-Methyl-2-pentanone	ND		2.1	5.0
Acetone	ND		3.0	10
Benzene	ND		0.41	1.0
1,3-Dichlorobenzene	ND		0.78	1.0
Bromodichloromethane	ND		0.39	1.0
Bromoform	ND		0.26	1.0
Bromomethane	ND		0.69	1.0
Carbon disulfide	ND		0.19	1.0
Carbon tetrachloride	ND		0.27	1.0
Chlorobenzene	ND		0.75	1.0
Dibromochloromethane	ND		0.32	1.0
Chloroethane	ND		0.32	1.0
Chloroform	ND		0.34	1.0
Chloromethane	ND		0.35	1.0
cis-1,2-Dichloroethene	ND		0.81	1.0
cis-1,3-Dichloropropene	ND		0.36	1.0
Ethylbenzene	ND		0.74	1.0
Methylene Chloride	ND		0.44	1.0
Styrene	ND		0.73	1.0
Tetrachloroethene	ND		0.36	1.0
Toluene	ND		0.51	1.0
trans-1,2-Dichloroethene	ND		0.90	1.0
trans-1,3-Dichloropropene	ND		0.37	1.0
Trichloroethene	ND		0.46	1.0
Trichlorofluoromethane	ND		0.88	1.0
Vinyl chloride	ND		0.90	1.0
Xylenes, Total	ND		0.66	2.0
Cyclohexane	ND		0.18	1.0
Dichlorodifluoromethane	ND		0.68	1.0
Isopropylbenzene	ND		0.79	1.0
Methyl acetate	ND	U	0.50	1.0

MEOX validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-5**

Lab Sample ID: 480-10417-5
Client Matrix: Water

Date Sampled: 09/28/2011 1500
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6665.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1453			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1453				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	120		66 - 137
Toluene-d8 (Surr)	117		71 - 126
4-Bromofluorobenzene (Surr)	113		73 - 120

Meck validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-2**

Lab Sample ID: 480-10417-6
Client Matrix: Water

Date Sampled: 09/28/2011 1540
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6666.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1515			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1515				

Analyte		Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	U	ND		0.82	1.0
1,1,2,2-Tetrachloroethane		ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane		ND		0.31	1.0
1,1,2-Trichloroethane		ND		0.23	1.0
1,1-Dichloroethane		ND		0.38	1.0
1,1-Dichloroethene		ND		0.29	1.0
1,2-Dibromo-3-Chloropropane		ND		0.39	1.0
1,2-Dibromoethane		ND		0.73	1.0
1,2-Dichlorobenzene		ND		0.79	1.0
1,2-Dichloroethane		ND		0.21	1.0
1,2,4-Trichlorobenzene		ND		0.41	1.0
1,2-Dichloropropane		ND		0.72	1.0
1,4-Dichlorobenzene		ND		0.84	1.0
2-Hexanone		ND		1.2	5.0
2-Butanone		ND		1.3	10
4-Methyl-2-pentanone		ND		2.1	5.0
Acetone		ND		3.0	10
Benzene		ND		0.41	1.0
1,3-Dichlorobenzene		ND		0.78	1.0
Bromodichloromethane		ND		0.39	1.0
Bromoform		ND		0.26	1.0
Bromomethane		ND		0.69	1.0
Carbon disulfide		ND		0.19	1.0
Carbon tetrachloride		ND		0.27	1.0
Chlorobenzene		ND		0.75	1.0
Dibromochloromethane		ND		0.32	1.0
Chloroethane		ND		0.32	1.0
Chloroform		ND		0.34	1.0
Chloromethane	U	ND		0.35	1.0
cis-1,2-Dichloroethene		31		0.81	1.0
cis-1,3-Dichloropropene	U	ND		0.36	1.0
Ethylbenzene		ND		0.74	1.0
Methylene Chloride		ND		0.44	1.0
Styrene		ND		0.73	1.0
Tetrachloroethene		ND		0.36	1.0
Toluene		ND		0.51	1.0
trans-1,2-Dichloroethene		ND		0.90	1.0
trans-1,3-Dichloropropene	U	ND		0.37	1.0
Trichloroethene		75		0.46	1.0
Trichlorofluoromethane	U	ND		0.88	1.0
Vinyl chloride		1.2		0.90	1.0
Xylenes, Total	U	ND		0.66	2.0
Cyclohexane		ND		0.18	1.0
Dichlorodifluoromethane		ND		0.68	1.0
Isopropylbenzene		ND		0.79	1.0
Methyl acetate	U	ND		0.50	1.0

MeCx validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-2**

Lab Sample ID: 480-10417-6
Client Matrix: Water

Date Sampled: 09/28/2011 1540
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6666.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1515			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1515				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	118		66 - 137
Toluene-d8 (Surr)	113		71 - 126
4-Bromofluorobenzene (Surr)	112		73 - 120

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: TRIP BLANK

Lab Sample ID: 480-10417-7TB
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6667.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1537			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1537				

Analyte		Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	U	ND		0.82	1.0
1,1,2,2-Tetrachloroethane		ND		0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane		ND		0.31	1.0
1,1,2-Trichloroethane		ND		0.23	1.0
1,1-Dichloroethane		ND		0.38	1.0
1,1-Dichloroethene		ND		0.29	1.0
1,2-Dibromo-3-Chloropropane		ND		0.39	1.0
1,2-Dibromoethane		ND		0.73	1.0
1,2-Dichlorobenzene		ND		0.79	1.0
1,2-Dichloroethane		ND		0.21	1.0
1,2,4-Trichlorobenzene		ND		0.41	1.0
1,2-Dichloropropane		ND		0.72	1.0
1,4-Dichlorobenzene		ND		0.84	1.0
2-Hexanone		ND		1.2	5.0
2-Butanone		ND		1.3	10
4-Methyl-2-pentanone		ND		2.1	5.0
Acetone		ND		3.0	10
Benzene		ND		0.41	1.0
1,3-Dichlorobenzene		ND		0.78	1.0
Bromodichloromethane		ND		0.39	1.0
Bromoform		ND		0.26	1.0
Bromomethane		ND		0.69	1.0
Carbon disulfide		ND		0.19	1.0
Carbon tetrachloride		ND		0.27	1.0
Chlorobenzene		ND		0.75	1.0
Dibromochloromethane		ND		0.32	1.0
Chloroethane		ND		0.32	1.0
Chloroform		ND		0.34	1.0
Chloromethane		ND		0.35	1.0
cis-1,2-Dichloroethene		ND		0.81	1.0
cis-1,3-Dichloropropene		ND		0.36	1.0
Ethylbenzene		ND		0.74	1.0
Methylene Chloride		ND		0.44	1.0
Styrene		ND		0.73	1.0
Tetrachloroethene		ND		0.36	1.0
Toluene		ND		0.51	1.0
trans-1,2-Dichloroethene		ND		0.90	1.0
trans-1,3-Dichloropropene		ND		0.37	1.0
Trichloroethene		ND		0.46	1.0
Trichlorofluoromethane		ND		0.88	1.0
Vinyl chloride		ND		0.90	1.0
Xylenes, Total		ND		0.66	2.0
Cyclohexane		ND		0.18	1.0
Dichlorodifluoromethane		ND		0.68	1.0
Isopropylbenzene		ND		0.79	1.0
Methyl acetate	U	ND		0.50	1.0

MEC* validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 480-10417-7TB
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6667.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1537			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1537				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	122		66 - 137
Toluene-d8 (Surr)	118		71 - 126
4-Bromofluorobenzene (Surr)	114		73 - 120

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: DUP

Lab Sample ID: 480-10417-8FD
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6668.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1559			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1559				

Analyte	Result (ug/L)	Qualifier	MDL	RL
1,1,1-Trichloroethane	ND	U	0.82	1.0
1,1,2,2-Tetrachloroethane	ND	U	0.21	1.0
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	U	0.31	1.0
1,1,2-Trichloroethane	ND	U	0.23	1.0
1,1-Dichloroethane	ND	U	0.38	1.0
1,1-Dichloroethene	ND	U	0.29	1.0
1,2-Dibromo-3-Chloropropane	ND	U	0.39	1.0
1,2-Dibromoethane	ND	U	0.73	1.0
1,2-Dichlorobenzene	ND	U	0.79	1.0
1,2-Dichloroethane	ND	U	0.21	1.0
1,2,4-Trichlorobenzene	ND	U	0.41	1.0
1,2-Dichloropropane	ND	U	0.72	1.0
1,4-Dichlorobenzene	ND	U	0.84	1.0
2-Hexanone	ND	U	1.2	5.0
2-Butanone	ND	U	1.3	10
4-Methyl-2-pentanone	ND	U	2.1	5.0
Acetone	ND	U	3.0	10
Benzene	ND	U	0.41	1.0
1,3-Dichlorobenzene	ND	U	0.78	1.0
Bromodichloromethane	ND	U	0.39	1.0
Bromoform	ND	U	0.26	1.0
Bromomethane	ND	U	0.69	1.0
Carbon disulfide	ND	U	0.19	1.0
Carbon tetrachloride	ND	U	0.27	1.0
Chlorobenzene	ND	U	0.75	1.0
Dibromochloromethane	ND	U	0.32	1.0
Chloroethane	ND	U	0.32	1.0
Chloroform	ND	U	0.34	1.0
Chloromethane	ND	U	0.35	1.0
cis-1,2-Dichloroethene	ND	U	0.81	1.0
cis-1,3-Dichloropropene	ND	U	0.36	1.0
Ethylbenzene	ND	U	0.74	1.0
Methylene Chloride	ND	U	0.44	1.0
Styrene	ND	U	0.73	1.0
Tetrachloroethene	ND	U	0.36	1.0
Toluene	ND	U	0.51	1.0
trans-1,2-Dichloroethene	ND	U	0.90	1.0
trans-1,3-Dichloropropene	ND	U	0.37	1.0
Trichloroethene	3.3		0.46	1.0
Trichlorofluoromethane	ND	U	0.88	1.0
Vinyl chloride	ND	U	0.90	1.0
Xylenes, Total	ND	U	0.66	2.0
Cyclohexane	ND	U	0.18	1.0
Dichlorodifluoromethane	ND	U	0.68	1.0
Isopropylbenzene	ND	U	0.79	1.0
Methyl acetate	ND	U	0.50	1.0

MEC^X validated

Client: AMEC Geomatrix Inc. Job Number: 480-10417-1

Client Sample ID: **DUP**

Lab Sample ID: 480-10417-8FD
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

8260B Volatile Organic Compounds (GC/MS)

Analysis Method:	8260B	Analysis Batch:	480-34202	Instrument ID:	HP5973S
Prep Method:	5030B	Prep Batch:	N/A	Lab File ID:	S6668.D
Dilution:	1.0			Initial Weight/Volume:	5 mL
Analysis Date:	10/06/2011 1559			Final Weight/Volume:	5 mL
Prep Date:	10/06/2011 1559				

Analyte		Result (ug/L)	Qualifier	MDL	RL
Methyl tert-butyl ether	U	ND		0.16	1.0
Methylcyclohexane	U	ND		0.16	1.0

Surrogate	%Rec	Qualifier	Acceptance Limits
1,2-Dichloroethane-d4 (Surr)	122		66 - 137
Toluene-d8 (Surr)	119		71 - 126
4-Bromofluorobenzene (Surr)	114		73 - 120

MEck validated

Client: AMEC Geomatrix Inc. Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-3**

Lab Sample ID: 480-10417-1 Date Sampled: 09/28/2011 1040
Client Matrix: Water Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1236			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane	U	ND		0.22	1.0

MECK validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-D2**

Lab Sample ID: 480-10417-2
Client Matrix: Water

Date Sampled: 09/28/2011 1150
Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1250			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane	U	ND		0.22	1.0

MEC^{x} validated

Client: AMEC Geomatrix Inc. Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-6**

Lab Sample ID: 480-10417-3 Date Sampled: 09/28/2011 1400
Client Matrix: Water Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1332			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane		20		0.22	1.0

MECX validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-5**

Lab Sample ID: 480-10417-5
Client Matrix: Water

Date Sampled: 09/28/2011 1500
Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1346			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane	U	ND		0.22	1.0

MEck validated

Client: AMEC Geomatrix Inc. Job Number: 480-10417-1

Client Sample ID: **LVRA05-MNAGW-MW-2**

Lab Sample ID: 480-10417-6
Client Matrix: Water

Date Sampled: 09/28/2011 1540
Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1400			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane		35		0.22	1.0

MECX validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: **TRIP BLANK**

Lab Sample ID: 480-10417-7TB
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1511			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane	U	ND		0.22	1.0

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

Client Sample ID: DUP

Lab Sample ID: 480-10417-8FD

Client Matrix: Water

Date Sampled: 09/28/2011 0000

Date Received: 09/28/2011 1700

RSK-175 Dissolved Gases (GC)

Analysis Method:	RSK-175	Analysis Batch:	480-33639	Instrument ID:	HP5890-21
	N/A		N/A	Initial Weight/Volume:	1 mL
Dilution:	1.0			Final Weight/Volume:	1.0 mL
Analysis Date:	10/03/2011 1414			Injection Volume:	1 uL
Prep Date:	N/A			Result Type:	PRIMARY

Analyte		Result (ug/L)	Qualifier	MDL	RL
Ethane	U	ND		0.49	1.5
Ethene	U	ND		0.52	1.5
Methane	U	ND		0.22	1.0

MEC^X validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: **LVRA05-MNAGW-MW-3**

Lab Sample ID: 480-10417-1
Client Matrix: Water

Date Sampled: 09/28/2011 1040
Date Received: 09/28/2011 1700

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	26.2		mg/L	0.28	0.50	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1715						
Sulfate	10.9		mg/L	0.35	2.0	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1715						
Nitrate	1.4		mg/L as N	0.011	0.050	1.0	353.2
Analysis Batch: 480-33793	Analysis Date: 09/29/2011 2136						
Total Organic Carbon	ND	U	mg/L	0.43	1.0	1.0	9060
Analysis Batch: 480-33602	Analysis Date: 10/01/2011 0827						
Alkalinity, Total	168		mg/L	0.79	5.0	1.0	SM 2320B
Analysis Batch: 480-34618	Analysis Date: 10/07/2011 1508						
Ferrous Iron-Dissolved	ND	U HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-33438	Analysis Date: 09/29/2011 2238						
Sulfide	ND	U	mg/L	0.67	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-33692	Analysis Date: 10/01/2011 1731						

MEC validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: **LVRA05-MNAGW-MW-D2**

Lab Sample ID: 480-10417-2
Client Matrix: Water

Date Sampled: 09/28/2011 1150
Date Received: 09/28/2011 1700

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	23.9		mg/L	0.28	0.50	1.0	300.0
Analysis Batch: 480-33917	Analysis Date: 10/04/2011 1918						
Sulfate	13.3		mg/L	0.35	2.0	1.0	300.0
Analysis Batch: 480-33917	Analysis Date: 10/04/2011 1918						
Nitrate	0.20		mg/L as N	0.011	0.050	1.0	353.2
Analysis Batch: 480-33793	Analysis Date: 09/29/2011 2137						
Total Organic Carbon U	ND		mg/L	0.43	1.0	1.0	9060
Analysis Batch: 480-33602	Analysis Date: 10/01/2011 0857						
Alkalinity, Total	138		mg/L	0.79	5.0	1.0	SM 2320B
Analysis Batch: 480-34618	Analysis Date: 10/07/2011 1514						
Ferrous Iron-Dissolved U	ND	HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-33438	Analysis Date: 09/29/2011 2240						
Sulfide U	ND		mg/L	0.67	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-34153	Analysis Date: 10/05/2011 1802						

mecx validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: LVRA05-MNAGW-MW-6

Lab Sample ID: 480-10417-3
Client Matrix: Water

Date Sampled: 09/28/2011 1400
Date Received: 09/28/2011 1700

Analyte		Result	Qual	Units	MDL	RL	Dil	Method
Chloride		6.5		mg/L	0.28	0.50	1.0	300.0
	Analysis Batch: 480-33354		Analysis Date: 09/29/2011 1755					
Sulfate		9.4		mg/L	0.35	2.0	1.0	300.0
	Analysis Batch: 480-33354		Analysis Date: 09/29/2011 1755					
Nitrate	U	ND		mg/L as N	0.011	0.050	1.0	353.2
	Analysis Batch: 480-33793		Analysis Date: 09/29/2011 2138					
Total Organic Carbon		2.6		mg/L	0.43	1.0	1.0	9060
	Analysis Batch: 480-33602		Analysis Date: 10/01/2011 0757					
Alkalinity, Total		61.5		mg/L	0.79	5.0	1.0	SM 2320B
	Analysis Batch: 480-34618		Analysis Date: 10/07/2011 1537					
Ferrous Iron-Dissolved	U	ND	HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
	Analysis Batch: 480-33438		Analysis Date: 09/29/2011 2246					
Sulfide	U	ND		mg/L	0.67	1.0	1.0	SM 4500 S2 F
	Analysis Batch: 480-33692		Analysis Date: 10/01/2011 1745					

MEC^x validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: LVRA05-MNAGW-MW-5

Lab Sample ID: 480-10417-5
Client Matrix: Water

Date Sampled: 09/28/2011 1500
Date Received: 09/28/2011 1700

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	11.6		mg/L	0.28	0.50	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1806						
Sulfate	5.4		mg/L	0.35	2.0	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1806						
Nitrate	0.31		mg/L as N	0.011	0.050	1.0	353.2
Analysis Batch: 480-33793	Analysis Date: 09/29/2011 2139						
Total Organic Carbon	0.79	J	mg/L	0.43	1.0	1.0	9060
Analysis Batch: 480-34247	Analysis Date: 10/05/2011 0220						
Alkalinity, Total	66.0		mg/L	0.79	5.0	1.0	SM 2320B
Analysis Batch: 480-34618	Analysis Date: 10/07/2011 1545						
Ferrous Iron-Dissolved U	ND	HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-33438	Analysis Date: 09/29/2011 2248						
Sulfide U	ND		mg/L	0.67	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-34153	Analysis Date: 10/05/2011 1232						

MEC* validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: LVRA05-MNAGW-MW-2

Lab Sample ID: 480-10417-6
Client Matrix: Water

Date Sampled: 09/28/2011 1540
Date Received: 09/28/2011 1700

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	21.9		mg/L	0.28	0.50	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1836						
Sulfate	16.0		mg/L	0.35	2.0	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1836						
Nitrate	ND	U	mg/L as N	0.011	0.050	1.0	353.2
Analysis Batch: 480-33793	Analysis Date: 09/29/2011 2140						
Total Organic Carbon	1.1		mg/L	0.43	1.0	1.0	9060
Analysis Batch: 480-34247	Analysis Date: 10/05/2011 0250						
Alkalinity, Total	189		mg/L	0.79	5.0	1.0	SM 2320B
Analysis Batch: 480-34618	Analysis Date: 10/07/2011 1552						
Ferrous Iron-Dissolved	ND	U HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-33438	Analysis Date: 09/29/2011 2250						
Sulfide	ND	U	mg/L	0.67	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-34153	Analysis Date: 10/05/2011 1252						

MEC* validated

Client: AMEC Geomatrix Inc.

Job Number: 480-10417-1

General Chemistry

Client Sample ID: DUP

Lab Sample ID: 480-10417-8FD
Client Matrix: Water

Date Sampled: 09/28/2011 0000
Date Received: 09/28/2011 1700

Analyte	Result	Qual	Units	MDL	RL	Dil	Method
Chloride	26.1		mg/L	0.28	0.50	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1846						
Sulfate	10.8		mg/L	0.35	2.0	1.0	300.0
Analysis Batch: 480-33354	Analysis Date: 09/29/2011 1846						
Nitrate	1.3		mg/L as N	0.011	0.050	1.0	353.2
Analysis Batch: 480-33793	Analysis Date: 09/29/2011 2142						
Total Organic Carbon	ND	U	mg/L	0.43	1.0	1.0	9060
Analysis Batch: 480-34247	Analysis Date: 10/05/2011 0352						
Alkalinity, Total	167		mg/L	0.79	5.0	1.0	SM 2320B
Analysis Batch: 480-34618	Analysis Date: 10/07/2011 1600						
Ferrous Iron-Dissolved	ND	U HF	mg/L	0.075	0.10	1.0	SM 3500 FE D
Analysis Batch: 480-33438	Analysis Date: 09/29/2011 2252						
Sulfide	ND	U	mg/L	0.67	1.0	1.0	SM 4500 S2 F
Analysis Batch: 480-34153	Analysis Date: 10/05/2011 1311						

MEC^x validated