



GROUNDWATER MONITORING AND OPERATION AND MAINTENANCE REPORT MAY 2005 THROUGH APRIL 2006

TEXTILE ROAD SITE
WASHTENAW COUNTY, MICHIGAN

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1.0 INTRODUCTION

This Groundwater Monitoring and Operation and Maintenance Report for post Removal Action (RA) activities at the Textile Road Site (Site) has been prepared to document Operation, Maintenance, and Monitoring activities conducted to fulfill the requirements Section V, Paragraph 2(g) of the Administrative Order by Consent (AOC) executed by the United States Environmental Protection Agency (U.S. EPA) on September 23, 1999. The groundwater monitoring, and operation and maintenance (O&M) activities are outlined in the Site Operation, Maintenance and Monitoring Plan (OM&M Plan) dated March 23, 2001.

The OM&M Plan was developed to evaluate the effectiveness of the RA, monitor groundwater at the Site, and to ensure the safe and effective implementation, operation, and maintenance of the cover system associated with the consolidation area. The Site location is shown on Figure 1.1. A Site layout is provided on Figure 1.2.

1.1 SUMMARY OF REMOVAL ACTION

In general, the RA involved the removal and disposal of approximately 9,172 tons of TSCA soil material and 5,647 tons of non-TSCA soil material containing polychlorinated biphenyls (PCBs); removal and appropriate consolidation of approximately 1,362 tons of material containing PCBs at less than 26 mg/kg; collection of verification soil samples; backfilling and grading of excavated areas with clean soil; establishment of a vegetative cover; and groundwater and surface water monitoring. The removal action was completed between October 19, 1999 and June 26, 2000. A complete description of the RA is provided in the Removal Action Construction Report prepared by CRA, originally submitted to the U.S. EPA on August 16, 2000, and amended on December 19, 2000 and March 23, 2001. The Removal Action Construction Report, including the OM&M Plan, was approved by the U.S. EPA on May 2, 2001.

Several groundwater monitoring wells were originally installed as part of the RA to allow for sampling and analysis of the groundwater. Following review of the groundwater results by the U.S. EPA during the RA final inspection, it was determined that several of the wells could be abandoned. Four monitoring wells, MW1U-00, MW2U-93, MW3U-00, and MW4U-00, remaining at the Site were initially used for the long-term groundwater monitoring program (see Figure 1.2). Through the five years of post RA groundwater sampling and analysis, the parameter list and monitoring well locations included in the long-term monitoring have been reduced. Monitoring well

MW4U-00 is the only well currently included in the long-term groundwater monitoring program.

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2.0 GROUNDWATER MONITORING AND OPERATION AND MAINTENANCE

2.1 GROUNDWATER MONITORING ACTIVITIES

Groundwater monitoring began on May 31, 2001, and continued at quarterly intervals for the first year of sampling and then semi-annually in the second year of sampling. The sampling frequency was further reduced to annually in year three pursuant to the OM&M Plan. The annual groundwater monitoring event for year five was conducted on April 5, 2006. During this groundwater monitoring event, field personnel collected samples from MW4U-00 located on the northern boundary of the Site using minimal drawdown sampling techniques.

Groundwater samples (sample and field duplicate) were analyzed for vinyl chloride; the only Site related parameter identified in the OM&M Plan, which continues to be present above applicable criteria. Sampling for PCBs, phenanthrene, beryllium, iron, and manganese was not conducted pursuant to the recommendations of the Groundwater Monitoring and Operation and Maintenance Report, May 2002 through April 2003 and the Groundwater Monitoring and Operation and Maintenance Report, May 2003 to April 2004. As noted, sampling was only conducted at MW4U-00 pursuant to the recommendations of the Groundwater Monitoring and Operation Maintenance, and Monitoring Report, May 2004 through April 2005.

Sampling protocols used during the field activities are provided in the Sampling and Analysis Plan (SAP), Appendix A of the OM&M Plan. Groundwater analytical protocols are provided in the Quality Assurance Project Plan (QAPP) included as Appendix B of the OM&M Plan. Sampling was conducted at a flow rate of approximately 100 mL/min. During the purging of the well, field personnel recorded temperature, conductivity, Oxidation-Reduction Potential (ORP), Dissolved Oxygen (DO), and turbidity measurements. The field measurements recorded prior to sampling at each location are presented in Table 2.1. Groundwater samples were submitted to Severn Trent Laboratories (STL) for Volatile Organic Compound (VOC) analysis in accordance with the QAPP (CRA, March 2001).

2.2 OPERATION AND MAINTENANCE ACTIVITIES

The consolidation and cover area of the Site is inspected a minimum of annually each spring. During the Site inspections, personnel evaluated the Site security, vegetative cover, inspected for areas of soil erosion, and noted general surface conditions of the Site.

The Site was inspected during the April 5, 2006 sampling event. No maintenance issues were identified that needed to be addressed during the inspection. The Site vegetative cover is growing well and no erosion concerns have been identified during this OM&M reporting period.

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3.0 GROUNDWATER MONITORING RESULTS

This section discusses the results of the fifth year of groundwater monitoring which was conducted on April 5, 2006. The analytical results for the groundwater monitoring are summarized on Figure 3.1 for Site related parameters. As discussed in Section 2.1, PCBs, phenanthrene, beryllium, iron, and manganese were not analyzed during the annual sampling event pursuant to the recommendations of the Groundwater and Operation and Maintenance Report, May 2002 through April 2003 and Groundwater and Operation and Maintenance Report, May 2003 through April 2004. As vinyl chloride, the only Site related parameter identified in the OM&M Plan which continues to be present above applicable criteria, was non detect at monitoring wells, MW1U-00, MW2U-93, and MW3U-00 for six consecutive monitoring events, and pursuant to the recommendations of the Groundwater and Operation and Maintenance Report, May 2002 through April 2003, annual groundwater monitoring was not conducted at MW1U-00, MW2U-93, and MW3U-00 in 2006. However, sample results for vinyl chloride from previous OM&M groundwater monitoring are presented on Figure 3.1 for reference. A summary of vinyl chloride concentration from the fifth year of groundwater monitoring is provided in Table 3.1. A complete summary of the laboratory analytical data from the 2006 annual groundwater monitoring event is provided in Table A.1 in Appendix A. The analytical data laboratory report and data validation memorandum is provided in Appendix B.

3.1 VOLATILE ORGANIC COMPOUND RESULTS

Vinyl chloride was detected in the groundwater samples collected from MW4U-00 during the 2006 annual groundwater sampling event, at a concentration of 6.0 µg/L (6.2 µg/L in the duplicate sample), which exceeds the Michigan Act 451, Part 201 Residential Drinking Water Criteria (RDWC) of 2.0 µg/L, but is below the Michigan Act 451, Part 201 Groundwater Surface Water Interface (GSI) Criteria of 15 µg/L. Vinyl chloride was detected at MW4U-00 during each of the previous groundwater monitoring events between May 2001 and April 2005.

It should be noted that there are no drinking water uses of groundwater in the area of the Site, and downgradient of the property is a small, unimproved township park. Furthermore, a clay aquitard with a thickness of 14 to 18 feet exists between the upper water table unit and the lower sands aquifer unit, and is extensive across the Site.

4.0 SUMMARY AND RECOMMENDATIONS

Vinyl chloride continues to exceed the Michigan Act 451, Part 201 generic residential drinking water criteria over the course of five years of groundwater monitoring at MW4U-00. The concentrations of vinyl chloride decreased from 13 µg/L in May 2001, to 6.0 µg/L in April 2006. The MDEQ was notified of the exceedance by letter on August 2, 2001. No other VOCs were detected in the groundwater samples greater than Michigan Act 451 Part 201 generic residential drinking water criteria during the monitoring.

Section 4.0 of the OM&M Plan provides that the monitoring program will be evaluated following each sampling event to determine if changes to the program are warranted. Specifically, the OM&M Plan indicates the following:

"If, after the first year of sampling is complete, a parameter is below applicable standards in all monitoring wells for two consecutive sampling events, that parameter will be removed from the analyte list. The following provides the systematic review process which will be utilized to evaluate groundwater monitoring data above applicable standards:

- 1. If the parameter concentration is above applicable standards in one or more monitoring wells, monitoring of the parameter will be continued to verify the trend of the monitoring data (i.e., increasing, decreasing, or remaining the same). The evaluation of the trend will be based on a statistical analysis;*
- 2. If the parameter concentration is above applicable standards and is maintaining an equilibrium, or reducing, the monitoring program will be continued subject to a yearly review; and*
- 3. If the parameter concentration is above applicable standards and is increasing, the monitoring program will be continued while development of a groundwater contingency plan is evaluated."*

As vinyl chloride remains above the drinking water standard at MW-4U-00, a mathematical statistical trend analysis was performed on the analytical data for vinyl chloride concentrations at MW4U-00 over time to evaluate if the trend is stable, increasing, or decreasing.

The following is a brief summary of the of the mathematical statistical trend analysis used to evaluate the vinyl chloride concentration at MW4U-00.

Helsel and Hirsch (1992)¹ and U.S. EPA (2000)² present a number of statistical trend analysis methods for application to groundwater monitoring data. A recommended statistical procedure for trend assessment commonly applied to environmental data is the Mann-Kendall trend test. The Mann-Kendall test is a non parametric (rank based) method that evaluates a set of data for a monotonic (unidirectional) trend. This procedure makes no assumptions regarding the shape of the trend (e.g., linear, log linear...), except that it is in a single direction (i.e., either consistently upward or downward). The test is robust and suitable for general trend evaluation, however it loses sensitivity if a large proportion of censored data (i.e., non-detect results) are present.

For data sets with large proportions of censored data (i.e., greater than 50 percent non-detects), logistic regression is recommended by Helsel and Hirsch (1992). In this procedure, the numerical values of the monitoring data are not used, but instead the presence or absence of a detectable concentration of the analyte of interest is considered. Thus, the hypothesis tested as a measure of trend using logistic regression is that more detectable results are occurring later than earlier (increasing trend), or earlier than later (decreasing trend). However, as there were no non detect results for vinyl chloride concentrations at MW4U-00, the logistic regression trend analysis was not used.

A minimum of five samples is required to perform the statistical trend tests. The vinyl chloride data set from MW4U-00 has nine individual observations. A summary of the statistical analysis results is provided in Table 4.1.

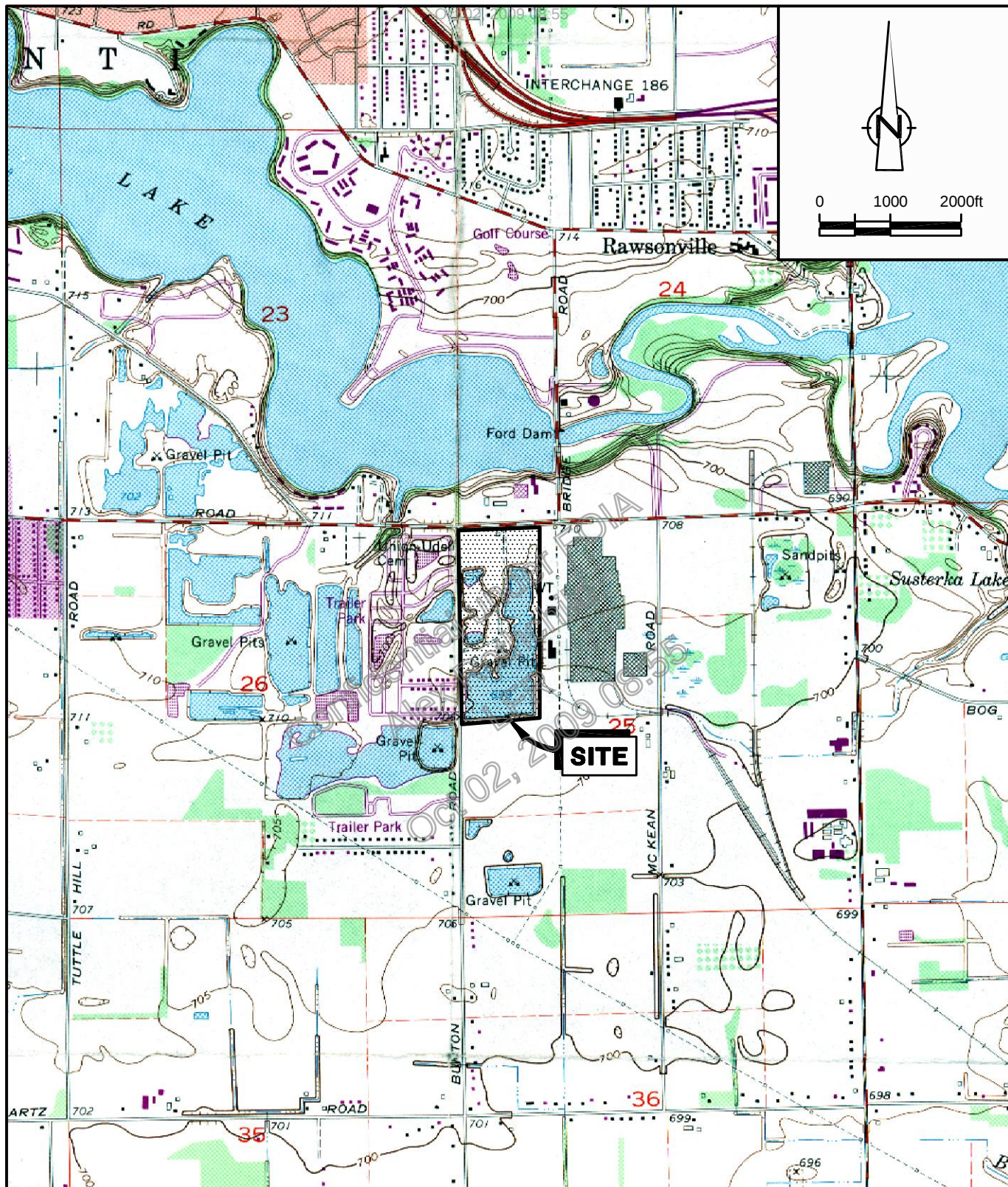
For the statistical trend analyses, a significance level of 0.05 (i.e., 95-percent confidence) was used. When performing the Mann-Kendall trend test, any field duplicate results were averaged prior to carrying out the trend analysis. Data sets were pre-screened for any individual observations with an ambiguous rank in the Mann-Kendall test (i.e., either a detected value - typically "J"-qualified - below other detection limits, or an elevated detection limit above other detected values), that would require special handling on a case-by-case basis. However, as there were no qualified data results for vinyl chloride, therefore, no special handling of this data set was required. As noted in Table 4.1, the trend analysis on the vinyl chloride data from MW4U-00 shows a strong decreasing trend.

¹ Helsel, D.R. & R.M. Hirsch, 1992. Statistical Methods in Water Resources. Amsterdam: Elsevier

² USEPA, July 2000. Guidance for Data Quality Assessment: Practical Methods for Data Analysis (EPA QA/G-9). Office of Environmental Information, United States Environmental Protection Agency, Washington D.C

In conclusion, based on the past five years of groundwater analytical data collected from nine consecutive monitoring events, the analytical data indicates that vinyl chloride is decreasing at MW4U-00 using a mathematical statistical trend analysis (Mann-Kendal Trend Test). As a clay aquitard with a thickness of 14 to 18 feet exists between the upper water table unit and the lower sands aquifer unit, and is extensive across the Site, and in combination with the historical vinyl chloride concentration never exceeding the Michigan Act 451, Part 201 GSI criteria of 15 µg/L, and no present drinking water uses of groundwater in the area of the Site, further groundwater monitoring is not warranted at the Site. In addition, since more than five years has past since the cover system was constructed, and no significant issues associated with the cover have been identified to date, annual inspection of the cover is also no longer warranted.

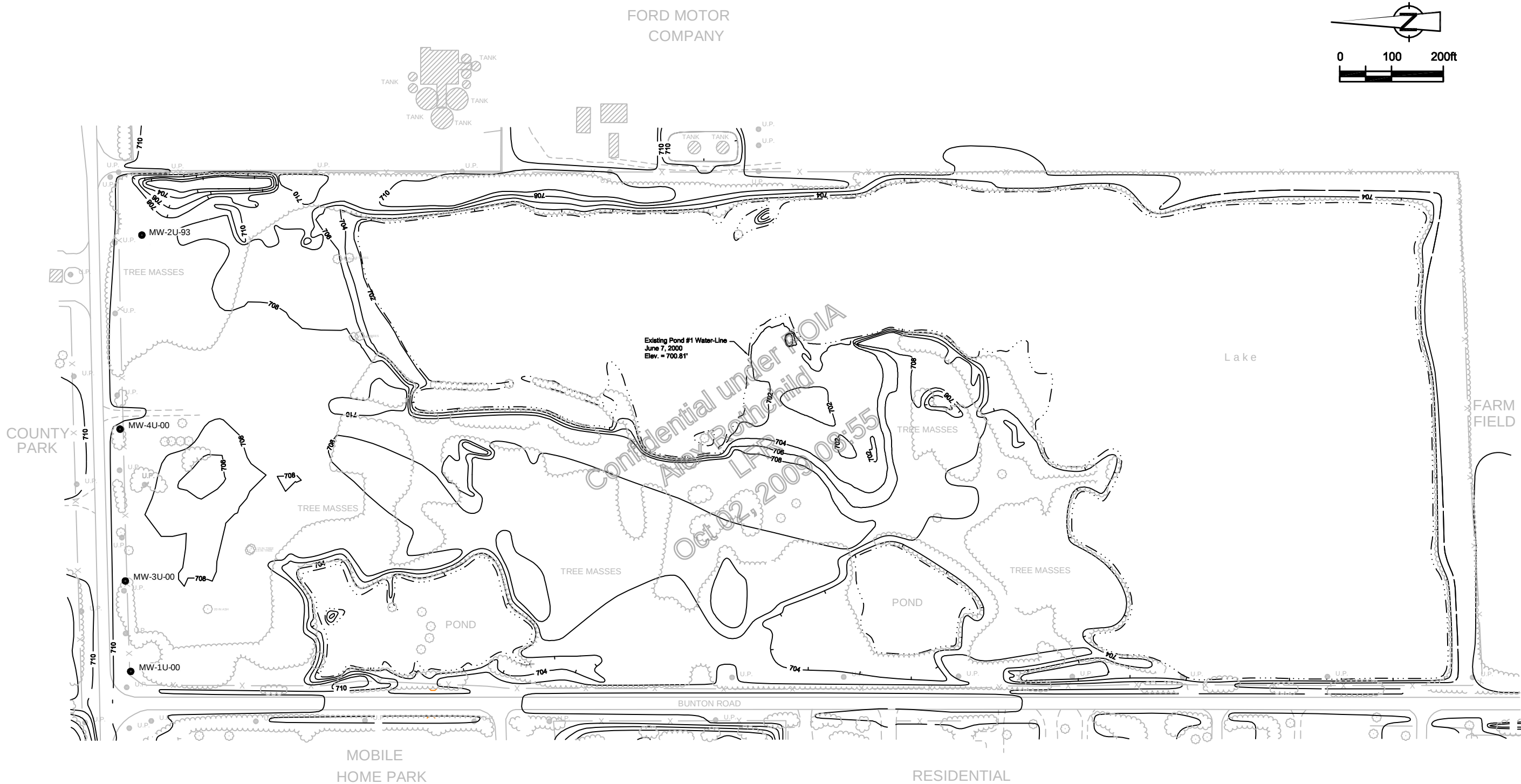
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SOURCE: USGS QUADRANGLE MAP,
YPSILANTI EAST, MICHIGAN



figure 1.1
SITE LOCATION
TEXTILE ROAD SITE
Washtenaw County, Michigan



SOURCES:
ORIGINAL SURVEY: DARRELL HUGHES AND ASSOCIATES, APRIL 1993, FILE NO. 93092
UPDATES: NOVA CONSULTANTS, INC., JUNE 2000, JULY 2000



04770-81(030)GN-WA002 APR 21/2006

figure 1.2
SITE LAYOUT
TEXTILE ROAD SITE
Washtenaw County, Michigan

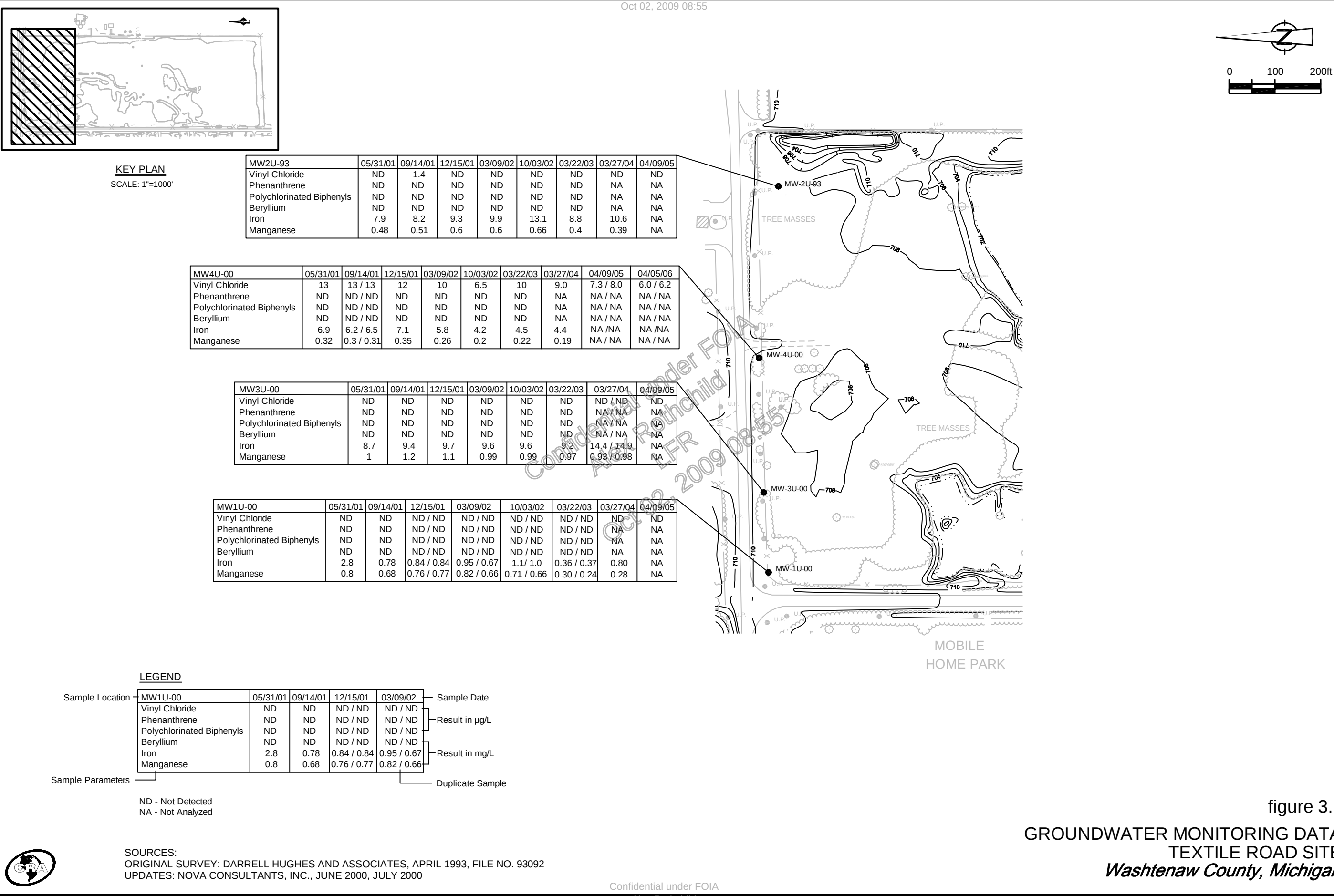


TABLE 2.1

**SUMMARY OF FIELD PARAMETERS
 MAY 2005 TO APRIL 2006
 TEXTILE ROAD SITE
 WASHTENAW COUNTY, MICHIGAN**

<i>Location</i>	<i>Date</i>	<i>Top of Casing Reference Elevation (ft AMSL)</i>	<i>Depth to Water (ft bgs)</i>	<i>Water Level (ft AMSL)</i>	<i>Temperature (° C)</i>	<i>Conductivity (mS/cm)</i>	<i>ORP (mV)</i>	<i>DO (mg/L)</i>	<i>Turbidity (NTU)</i>
MW1U-00	04/05/06	712.22	10.43	701.79	NM	NM	NM	NM	NM
MW2U-93	04/05/06	709.99	9.44	700.55	NM	NM	NM	NM	NM
MW3U-00	04/05/06	711.69	9.93	701.76	NM	NM	NM	NM	NM
MW4U-00	04/05/06	710.89	9.72	701.17	9.8	0.866	25	0.26	9.5

Notes:

ft AMSL feet above mean sea level
 ft bgs feet below ground surface
 ORP oxidation reduction potential
 DO dissolved oxygen
 °C degrees centigrade
 mS/cm millisiemens per centimeter
 mV millivolts
 mg/L milligrams per litre
 NM not measured
 NTU normal turbidity units

**GROUNDWATER ANALYTICAL RESULTS
MAY 2005 TO APRIL 2006
TEXTILE ROAD SITE
WASHTENAW COUNTY, MICHIGAN**

<i>Location ID</i>	<i>Michigan Act 451, Part 201 Criteria</i>		<i>MW4U-00</i>	<i>MW4U-00</i>
<i>Sample ID (GW-4770-)</i>	<i>Residential</i>	<i>Groundwater Surface</i>	<i>040505-BW-043</i>	<i>040504-BW-044</i>
<i>Sample Date</i>	<i>Drinking Water</i>	<i>Water Interface</i>	<i>4/5/2006</i>	<i>4/5/2006</i>
<i>Parameters</i>				<i>Duplicate</i>
<u><i>Volatile Organic Compounds (µg/L)</i></u>				
Vinyl Chloride	2.0 (A)	15.0	6.0	6.2

Notes:

(A) - Criterion is the State of Michigan Drinking Water Standard established pursuant to Section 5 of the Safe Drinking Water Act, Act No. 399 of the Public Acts of 1976.
NA - Criterion or value is not available.
µg/L - Micrograms per liter.

TABLE 4.1

**STATISTICAL TREND TEST RESULTS
MAY 2005 TO APRIL 2006
TESTILE ROAD SITE
WASHTENAW COUNTY, MICHIGAN**

Well Name	Parameter	Number of Samples	Number of Detects	Percentage Non-detects	Applicable Trend Test	Trend Test		
						Statistic	Probability	Conclusion
TEXTILE ROAD FACILITY								
MW4U-00	Vinyl chloride	9	9	0%	Mann-Kendall	-28	0.005	Decreasing trend

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APPENDIX A
SUMMARY OF ANALYTICAL GROUNDWATER SAMPLING
RESULTS FOR MW4U-00

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TABLE A.1

GROUNDWATER MONITORING ANALYTICAL RESULTS
MAY 2004 TO APRIL 2005
TEXTILE ROAD SITE
WASHTENAW COUNTY, MICHIGAN

Sample Location:	MW1U-00	MW2U-93	MW3U-00	MW4U-00	MW4U-00
Sample ID:	GW-4770-040905-BW-037	GW-4770-040905-BW-041	GW-4770-040905-BW-038	GW-4770-040905-BW-039	GW-4770-040905-BW-040
Sample Date:	4/9/2005	4/9/2005	4/9/2005	4/9/2005	4/9/2005 Duplicate

Parameters:

Volatile Organic Compounds (ug/L)

1,1,1-Trichloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,1,2,2-Tetrachloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,1,2-Trichloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,1-Dichloroethene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
1,2-Dichloroethene (total)	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U
1,2-Dichloropropane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
2-Butanone (Methyl Ethyl Ketone)	10 U	1.1 J	10 U	10 U	10 U
2-Hexanone	10 U	25 UJ	10 U	10 U	10 U
4-Methyl-2-Pentanone	10 U	25 U	10 U	10 U	10 U
Acetone	10 U	25 UJ	10 U	10 U	10 U
Benzene	1.0 U	0.98 J	1.0 U	1.0 U	1.0 U
Bromodichloromethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Bromoform	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Bromomethane (Methyl Bromide)	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Carbon disulfide	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Carbon tetrachloride	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Chlorobenzene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Chloroethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Chloroform (Trichloromethane)	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Chloromethane (Methyl Chloride)	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
cis-1,3-Dichloropropene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Dibromochloromethane	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Methylene chloride	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Styrene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Tetrachloroethene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Toluene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
trans-1,3-Dichloropropene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Trichloroethene	1.0 U	2.5 U	1.0 U	1.0 U	1.0 U
Vinyl chloride	1.0 U	2.5 U	1.0 U	7.3	8.0
Xylene (total)	2.0 U	5.0 U	2.0 U	2.0 U	2.0 U

Notes:

J-Estimated concentration

UJ-Estimated reporting limit

TABLE A.1

ANALYTICAL RESULTS SUMMARY
MAY 2005 TO APRIL 2006
TEXTILE ROAD SITE
WASHTENAW COUNTY, MICHIGAN

Sample Location: MW4U-00 MW4U-00 Trip Blank
Sample ID: GW-4770-040506-JY-043 GW-4770-040506-JY-044 TB-4770-040506-JY-045
Sample Date: 4/5/2006 4/5/2006 4/5/2006

	Units	Duplicate	
<i>Volatile Organic Compounds</i>			
Acetone	ug/L	10 U	10 U
Benzene	ug/L	1.0 U	1.0 U
Bromodichloromethane	ug/L	1.0 U	1.0 U
Bromoform	ug/L	1.0 U	1.0 U
Bromomethane (Methyl Bromide)	ug/L	1.0 U	1.0 U
2-Butanone (Methyl Ethyl Ketone)	ug/L	10 U	10 U
Carbon disulfide	ug/L	1.0 U	1.0 U
Carbon tetrachloride	ug/L	1.0 U	1.0 U
Chlorobenzene	ug/L	1.0 U	1.0 U
Chloroethane	ug/L	1.0 U	1.0 U
Chloroform (Trichloromethane)	ug/L	1.0 U	1.0 U
Chloromethane (Methyl Chloride)	ug/L	1.0 U	1.0 U
Dibromochloromethane	ug/L	1.0 U	1.0 U
1,1-Dichloroethane	ug/L	1.0 U	1.0 U
1,2-Dichloroethane	ug/L	1.0 U	1.0 U
1,1-Dichloroethene	ug/L	1.0 U	1.0 U
1,2-Dichloroethene (total)	ug/L	2.0 U	2.0 U
1,2-Dichloropropane	ug/L	1.0 U	1.0 U
cis-1,3-Dichloropropene	ug/L	1.0 U	1.0 U
trans-1,3-Dichloropropene	ug/L	1.0 U	1.0 U
Ethylbenzene	ug/L	1.0 U	1.0 U
2-Hexanone	ug/L	10 U	10 U
4-Methyl-2-Pentanone (Methyl Isobutyl Ketone)	ug/L	10 U	10 U
Methylene chloride	ug/L	1.0 U	2.7 U
Styrene	ug/L	1.0 UJ	1.0 UJ
1,1,2,2-Tetrachloroethane	ug/L	1.0 U	1.0 U
Tetrachloroethene	ug/L	1.0 U	1.0 U
Toluene	ug/L	1.0 U	1.0 U
1,1,1-Trichloroethane	ug/L	1.0 U	1.0 U
1,1,2-Trichloroethane	ug/L	1.0 U	1.0 U
Trichloroethene	ug/L	1.0 U	1.0 U
Vinyl chloride	ug/L	6.0	1.0 U
Xylene (total)	ug/L	2.0 U	2.0 U

APPENDIX B
ANALYTICAL DATA LABORATORY REPORT AND
DATA VALIDATION MEMORANDUM

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STL

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www.stl-inc.com

ANALYTICAL REPORT

PROJECT NO. 4770-80

TEXTILE RD 4770-SSOW-002

Lot #: A6D060176

Paul Wiseman (PM)

Conestoga Rovers & Assoc., Inc
14496 Sheldon Rd Suite 200
Plymouth, MI 48170

SEVERN TRENT LABORATORIES, INC.

A handwritten signature in black ink, appearing to read "Denise D. Heckler" followed by a stylized flourish.

Denise D. Heckler
Project Manager

April 12, 2006

Alex Rothchild
LFR

Oct 02, 2009 08:55

CASE NARRATIVE

A6D060176

The following report contains the analytical results for two water samples and one quality control sample submitted to STL North Canton by Conestoga-Rovers & Associates, Inc. from the Textile Rd 4770-SSOW-002 Site, project number 4770-80. The samples were received April 06, 2006, according to documented sample acceptance procedures.

STL utilizes USEPA approved methods in all analytical work. The samples presented in this report were analyzed for the parameter(s) listed on the analytical methods summary page in accordance with the method(s) indicated. A summary of QC data for these analyses is included at the back of the report.

STL North Canton attests to the validity of the laboratory data generated by STL facilities reported herein. All analyses performed by STL facilities were done using established laboratory SOPs that incorporate QA/QC procedures described in the applicable methods. STL's operations groups have reviewed the data for compliance with the laboratory QA/QC plan, and data have been found to be compliant with laboratory protocols unless otherwise noted below.

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory.

If you have any questions, please call the Project Manager, Denise D. Heckler, at 734-205-2535.

This report is sequentially paginated. The final page of the report is labeled as "END OF REPORT." The total number of pages in this report is 27.

SUPPLEMENTAL QC INFORMATION

SAMPLE RECEIVING

The temperature of the cooler upon sample receipt was 4.6°C.

CASE NARRATIVE (continued)

GC/MS VOLATILES

The sample(s) that contained concentrations of target analyte(s) at a reportable level in the associated Method Blank(s) were flagged with "B". All target analytes in the Method Blank must be below the reporting limit (RL) or the associated sample(s) must be ND with the exception of common laboratory contaminants.

The matrix spike/matrix spike duplicate(s) for batch(es) 6100547 had recoveries outside acceptance limits. However, since the associated method blank(s) and laboratory control sample(s) were in control, no corrective action was necessary.

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QUALITY CONTROL ELEMENTS OF SW-846 METHODS

STL North Canton conducts a quality assurance/quality control (QA/QC) program designed to provide scientifically valid and legally defensible data. Toward this end, several types of quality control indicators are incorporated into the QA/QC program, which is described in detail in QA Policy, QA-003. These indicators are introduced into the sample testing process to provide a mechanism for the assessment of the analytical data.

QC BATCH

Environmental samples are taken through the testing process in groups called QUALITY CONTROL BATCHES (QC batches). A QC batch contains up to twenty environmental samples of a similar matrix (water, soil) that are processed using the same reagents and standards. STL North Canton requires that each environmental sample be associated with a QC batch.

Several quality control samples are included in each QC batch and are processed identically to the twenty environmental samples. These QC samples include a METHOD BLANK (MB), a LABORATORY CONTROL SAMPLE (LCS) and, where appropriate, a MATRIX SPIKE/MATRIX SPIKE DUPLICATE (MS/MSD) pair or a MATRIX SPIKE/SAMPLE DUPLICATE (MS/DU) pair. If there is insufficient sample to perform an MS/MSD or an MS/DU, then a LABORATORY CONTROL SAMPLE DUPLICATE (LCSD) is included in the QC batch.

LABORATORY CONTROL SAMPLE

The Laboratory Control Sample is a QC sample that is created by adding known concentrations of a full or partial set of target analytes to a matrix similar to that of the environmental samples in the QC batch. The LCS analyte recovery results are used to monitor the analytical process and provide evidence that the laboratory is performing the method within acceptable guidelines. All control analytes indicated by a bold type in the LCS must meet acceptance criteria. Failure to meet the established recovery guidelines requires the reparation and reanalysis of all samples in the QC batch. The only exception is that if the LCS recoveries are biased high and the associated sample is ND (non-detected) for the parameter(s) of interest, the batch is acceptable.

At times, a Laboratory Control Sample Duplicate (LCSD) is also included in the QC batch. An LCSD is a QC sample that is created and handled identically to the LCS. Analyte recovery data from the LCSD is assessed in the same way as that of the LCS. The LCSD recoveries, together with the LCS recoveries, are used to determine the reproducibility (precision) of the analytical system. Precision data are expressed as relative percent differences (RPDs). If the RPD fails for an LCS/LCSD and yet the recoveries are within acceptance criteria, the batch is still acceptable.

METHOD BLANK

The Method Blank is a QC sample consisting of all the reagents used in analyzing the environmental samples contained in the QC batch. Method Blank results are used to determine if interference or contamination in the analytical system could lead to the reporting of false positive data or elevated analyte concentrations. All target analytes must be below the reporting limits (RL) or the associated sample(s) must be ND except under the following circumstances:

- Common organic contaminants may be present at concentrations up to 5 times the reporting limits. Common metals contaminants may be present at concentrations up to 2 times the reporting limit, or the reported blank concentration must be twenty fold less than the concentration reported in the associated environmental samples. (See common laboratory contaminants listed below.)

<u>Volatile (GC or GC/MS)</u>	<u>Semivolatile (GC/MS)</u>	<u>Metals ICP-MS</u>	<u>Metals ICP Trace</u>
Methylene Chloride, Acetone, 2-Butanone	Phthalate Esters	Copper, Iron, Zinc, Lead, Calcium, Magnesium, Potassium, Sodium, Barium, Chromium, Manganese	Copper, Iron, Zinc, Lead

QUALITY CONTROL ELEMENTS OF SW-846 METHODS (Continued)

- Organic blanks will be accepted if compounds detected in the blank are present in the associated samples at levels 10 times the blank level. Inorganic blanks will be accepted if elements detected in the blank are present in the associated samples at 20 times the blank level.
- Blanks will be accepted if the compounds/elements detected are not present in any of the associated environmental samples.

Failure to meet these Method Blank criteria requires the reparation and reanalysis of all samples in the QC batch.

MATRIX SPIKE/MATRIX SPIKE DUPLICATE

A Matrix Spike and a Matrix Spike Duplicate are a pair of environmental samples to which known concentrations of a full or partial set of target analytes are added. The MS/MSD results are determined in the same manner as the results of the environmental sample used to prepare the MS/MSD. The analyte recoveries and the relative percent differences (RPDs) of the recoveries are calculated and used to evaluate the effect of the sample matrix on the analytical results. Due to the potential variability of the matrix of each sample, the MS/MSD results may not have an immediate bearing on any samples except the one spiked; therefore, the associated batch MS/MSD may not reflect the same compounds as the samples contained in the analytical report. When these MS/MSD results fail to meet acceptance criteria, the data is evaluated. If the LCS is within acceptance criteria, the batch is considered acceptable. The acceptance criteria do not apply to samples that are diluted for organics if the native sample amount is 4x the concentration of the spike.

For certain methods, a Matrix Spike/Sample Duplicate (MS/DU) may be included in the QC batch in place of the MS/MSD. For the parameters (i.e. pH, ignitability) where it is not possible to prepare a spiked sample, a Sample Duplicate may be included in the QC batch. However, a Sample Duplicate is less likely to provide usable precision statistics depending on the likelihood of finding concentrations below the standard reporting limit. When the Sample Duplicate result fails to meet acceptance criteria, the data is evaluated.

SURROGATE COMPOUNDS

In addition to these batch-related QC indicators, each organic environmental and QC sample is spiked with surrogate compounds. Surrogates are organic chemicals that behave similarly to the analytes of interest and that are rarely present in the environment. Surrogate recoveries are used to monitor the individual performance of a sample in the analytical system.

If surrogate recoveries are biased high in the LCS, LCSD, or the Method Blank, and the associated sample(s) are ND, the batch is acceptable. Otherwise, if the LCS, LCSD, or Method Blank surrogate(s) fail to meet recovery criteria, the entire sample batch is repped and reanalyzed. If the surrogate recoveries are outside criteria for environmental samples, the samples will be repped and reanalyzed unless there is objective evidence of matrix interference or if the sample dilution is greater than the threshold outlined in the associated method SOP.

For the GC/MS BNA methods, the surrogate criterion is that two of the three surrogates for each fraction must meet acceptance criteria. The third surrogate must have a recovery of ten percent or greater.

For the Pesticide, PCB, and PAH methods, the surrogate criterion is that one of two surrogate compounds must meet acceptance criteria.

STL North Canton Certifications and Approvals:

California (#01144CA), Connecticut (#PH-0590), Florida (#E87225),
Illinois (#200004), Kansas (#E10336), Minnesota (#39-999-348), New Jersey (#OH001), New York (#10975), Ohio
(#6090), OhioVAP (#CL0024), Utah (#QUAN9), West Virginia (#210), Wisconsin (#999518190), NAVY, ARMY, USDA
Soil Permit, ACIL Seal of Excellence – Participating Lab Status Award (#82)



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EXECUTIVE SUMMARY - Detection Highlights

A6D060176

PARAMETER	RESULT	REPORTING LIMIT	UNITS	ANALYTICAL METHOD
GW-4770-040506-JY-043 04/05/06 17:56	001			
Vinyl chloride	6.0	1.0	ug/L	SW846 8260B
GW-4770-040506-JY-044 04/05/06 17:58	002			
Vinyl chloride	6.2	1.0	ug/L	SW846 8260B
TB-4770-040506-JY-045 04/05/06	003			
Methylene chloride	2.7 B	1.0	ug/L	SW846 8260B

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ANALYTICAL METHODS SUMMARY

A6D060176

PARAMETER	ANALYTICAL METHOD
Volatile Organics by GC/MS	SW846 8260B

References:

SW846 "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 and its updates.

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SAMPLE SUMMARY

A6D060176

WO #	SAMPLE#	CLIENT SAMPLE ID	SAMPLED DATE	SAMP TIME
H2PVT	001	GW-4770-040506-JY-043	04/05/06	17:56
H2PVV	002	GW-4770-040506-JY-044	04/05/06	17:58
H2PVW	003	TB-4770-040506-JY-045	04/05/06	

NOTE (S) :

- The analytical results of the samples listed above are presented on the following pages.
- All calculations are performed before rounding to avoid round-off errors in calculated results.
- Results noted as "ND" were not detected at or above the stated limit.
- This report must not be reproduced, except in full, without the written approval of the laboratory.
- Results for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, paint filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

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Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-4770-040506-JY-043

GC/MS Volatiles

Lot-Sample #....: A6D060176-001 Work Order #....: H2PVT1AA Matrix.....: WG
 Date Sampled...: 04/05/06 17:56 Date Received...: 04/06/06
 Prep Date.....: 04/11/06 Analysis Date...: 04/11/06
 Prep Batch #....: 6100547
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	1.0	ug/L	0.14
Bromomethane	ND	1.0	ug/L	0.36
Vinyl chloride	6.0	1.0	ug/L	0.21
Chloroethane	ND	1.0	ug/L	0.24
Methylene chloride	ND	1.0	ug/L	0.19
Acetone	ND	10	ug/L	0.74
Carbon disulfide	ND	1.0	ug/L	0.28
1,1-Dichloroethene	ND	1.0	ug/L	0.18
1,1-Dichloroethane	ND	1.0	ug/L	0.21
1,2-Dichloroethene	ND	2.0	ug/L	0.35
(total)				
Chloroform	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.16
2-Butanone	ND	10	ug/L	0.39
1,1,1-Trichloroethane	ND	1.0	ug/L	0.21
Carbon tetrachloride	ND	1.0	ug/L	0.19
Bromodichloromethane	ND	1.0	ug/L	0.14
1,2-Dichloropropane	ND	1.0	ug/L	0.15
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
Trichloroethene	ND	1.0	ug/L	0.28
Dibromochloromethane	ND	1.0	ug/L	0.19
1,1,2-Trichloroethane	ND	1.0	ug/L	0.22
Benzene	ND	1.0	ug/L	0.22
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.17
Bromoform	ND	1.0	ug/L	0.17
4-Methyl-2-pentanone	ND	10	ug/L	0.32
2-Hexanone	ND	10	ug/L	0.35
Tetrachloroethene	ND	1.0	ug/L	0.19
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.22
Toluene	ND	1.0	ug/L	0.17
Chlorobenzene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.19
Styrene	ND	1.0	ug/L	0.13
Xylenes (total)	ND	2.0	ug/L	0.44

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	99	(73 - 122)
1,2-Dichloroethane-d4	101	(61 - 128)
Toluene-d8	99	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: GW-4770-040506-JY-044

GC/MS Volatiles

Lot-Sample #....: A6D060176-002 Work Order #....: H2PVV1AA Matrix.....: WG
 Date Sampled....: 04/05/06 17:58 Date Received...: 04/06/06
 Prep Date.....: 04/11/06 Analysis Date...: 04/11/06
 Prep Batch #....: 6100547
 Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	1.0	ug/L	0.14
Bromomethane	ND	1.0	ug/L	0.36
Vinyl chloride	6.2	1.0	ug/L	0.21
Chloroethane	ND	1.0	ug/L	0.24
Methylene chloride	ND	1.0	ug/L	0.19
Acetone	ND	10	ug/L	0.74
Carbon disulfide	ND	1.0	ug/L	0.28
1,1-Dichloroethene	ND	1.0	ug/L	0.18
1,1-Dichloroethane	ND	1.0	ug/L	0.21
1,2-Dichloroethene	ND	2.0	ug/L	0.35
(total)				
Chloroform	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.16
2-Butanone	ND	10	ug/L	0.39
1,1,1-Trichloroethane	ND	1.0	ug/L	0.21
Carbon tetrachloride	ND	1.0	ug/L	0.19
Bromodichloromethane	ND	1.0	ug/L	0.14
1,2-Dichloropropane	ND	1.0	ug/L	0.15
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
Trichloroethene	ND	1.0	ug/L	0.28
Dibromochloromethane	ND	1.0	ug/L	0.19
1,1,2-Trichloroethane	ND	1.0	ug/L	0.22
Benzene	ND	1.0	ug/L	0.22
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.17
Bromoform	ND	1.0	ug/L	0.17
4-Methyl-2-pentanone	ND	10	ug/L	0.32
2-Hexanone	ND	10	ug/L	0.35
Tetrachloroethene	ND	1.0	ug/L	0.19
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.22
Toluene	ND	1.0	ug/L	0.17
Chlorobenzene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.19
Styrene	ND	1.0	ug/L	0.13
Xylenes (total)	ND	2.0	ug/L	0.44

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(73 - 122)
1,2-Dichloroethane-d4	98	(61 - 128)
Toluene-d8	98	(76 - 110)
4-Bromofluorobenzene	98	(74 - 116)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: TB-4770-040506-JY-045

GC/MS Volatiles

Lot-Sample #....: A6D060176-003 Work Order #....: H2PVW1AA Matrix.....: WQ
Date Sampled....: 04/05/06 Date Received...: 04/06/06
Prep Date.....: 04/11/06 Analysis Date...: 04/11/06
Prep Batch #....: 6100547
Dilution Factor: 1 Method.....: SW846 8260B

PARAMETER	RESULT	REPORTING LIMIT	UNITS	MDL
Chloromethane	ND	1.0	ug/L	0.14
Bromomethane	ND	1.0	ug/L	0.36
Vinyl chloride	ND	1.0	ug/L	0.21
Chloroethane	ND	1.0	ug/L	0.24
Methylene chloride	2.7 B	1.0	ug/L	0.19
Acetone	ND	10	ug/L	0.74
Carbon disulfide	ND	1.0	ug/L	0.28
1,1-Dichloroethene	ND	1.0	ug/L	0.18
1,1-Dichloroethane	ND	1.0	ug/L	0.21
1,2-Dichloroethene	ND	2.0	ug/L	0.35
(total)				
Chloroform	ND	1.0	ug/L	0.16
1,2-Dichloroethane	ND	1.0	ug/L	0.16
2-Butanone	ND	10	ug/L	0.39
1,1,1-Trichloroethane	ND	1.0	ug/L	0.21
Carbon tetrachloride	ND	1.0	ug/L	0.19
Bromodichloromethane	ND	1.0	ug/L	0.14
1,2-Dichloropropane	ND	1.0	ug/L	0.15
cis-1,3-Dichloropropene	ND	1.0	ug/L	0.12
Trichloroethene	ND	1.0	ug/L	0.28
Dibromochloromethane	ND	1.0	ug/L	0.19
1,1,2-Trichloroethane	ND	1.0	ug/L	0.22
Benzene	ND	1.0	ug/L	0.22
trans-1,3-Dichloropropene	ND	1.0	ug/L	0.17
Bromoform	ND	1.0	ug/L	0.17
4-Methyl-2-pentanone	ND	10	ug/L	0.32
2-Hexanone	ND	10	ug/L	0.35
Tetrachloroethene	ND	1.0	ug/L	0.19
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	0.22
Toluene	ND	1.0	ug/L	0.17
Chlorobenzene	ND	1.0	ug/L	0.20
Ethylbenzene	ND	1.0	ug/L	0.19
Styrene	ND	1.0	ug/L	0.13
Xylenes (total)	ND	2.0	ug/L	0.44
	PERCENT	RECOVERY		
SURROGATE	RECOVERY	LIMITS		
Dibromofluoromethane	104	(73 - 122)		
1,2-Dichloroethane-d4	98	(61 - 128)		
Toluene-d8	98	(76 - 110)		
4-Bromofluorobenzene	97	(74 - 116)		

(Continued on next page)

Conestoga-Rovers & Associates, Inc.

Client Sample ID: TB-4770-040506-JY-045

GC/MS Volatiles

Lot-Sample #...: A6D060176-003 Work Order #...: H2PVW1AA Matrix.....: WQ

NOTE(S) :

B Method blank contamination. The associated method blank contains the target analyte at a reportable level.

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QUALITY CONTROL SECTION

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METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A6D060176
MB Lot-Sample #: A6D100000-547

Work Order #...: H20LR1AA

Matrix.....: WATER

Analysis Date...: 04/10/06
Dilution Factor: 1

Prep Date.....: 04/10/06

Prep Batch #...: 6100547

PARAMETER	RESULT	REPORTING LIMIT	UNITS	METHOD
Chloromethane	ND	1.0	ug/L	SW846 8260B
Bromomethane	ND	1.0	ug/L	SW846 8260B
Vinyl chloride	ND	1.0	ug/L	SW846 8260B
Chloroethane	ND	1.0	ug/L	SW846 8260B
Methylene chloride	1.1	1.0	ug/L	SW846 8260B
Acetone	ND	10	ug/L	SW846 8260B
Carbon disulfide	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethene	ND	1.0	ug/L	SW846 8260B
1,1-Dichloroethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethene (total)		2.0	ug/L	SW846 8260B
Chloroform	ND	1.0	ug/L	SW846 8260B
1,2-Dichloroethane	ND	1.0	ug/L	SW846 8260B
2-Butanone	ND	10	ug/L	SW846 8260B
1,1,1-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Carbon tetrachloride	ND	1.0	ug/L	SW846 8260B
Bromodichloromethane	ND	1.0	ug/L	SW846 8260B
1,2-Dichloropropane	ND	1.0	ug/L	SW846 8260B
cis-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Trichloroethene	ND	1.0	ug/L	SW846 8260B
Dibromochloromethane	ND	1.0	ug/L	SW846 8260B
1,1,2-Trichloroethane	ND	1.0	ug/L	SW846 8260B
Benzene	ND	1.0	ug/L	SW846 8260B
trans-1,3-Dichloropropene	ND	1.0	ug/L	SW846 8260B
Bromoform	ND	1.0	ug/L	SW846 8260B
4-Methyl-2-pentanone	ND	10	ug/L	SW846 8260B
2-Hexanone	ND	10	ug/L	SW846 8260B
Tetrachloroethene	ND	1.0	ug/L	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	1.0	ug/L	SW846 8260B
Toluene	ND	1.0	ug/L	SW846 8260B
Chlorobenzene	ND	1.0	ug/L	SW846 8260B
Ethylbenzene	ND	1.0	ug/L	SW846 8260B
Styrene	ND	1.0	ug/L	SW846 8260B
Xylenes (total)	ND	2.0	ug/L	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	102	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
Toluene-d8	101	(76 - 110)
4-Bromofluorobenzene	102	(74 - 116)

(Continued on next page)

METHOD BLANK REPORT

GC/MS Volatiles

Client Lot #...: A6D060176

Work Order #...: H20LR1AA

Matrix.....: WATER

NOTE(S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

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LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #....: A6D060176 Work Order #....: H20LR1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: A6D100000-547 H20LR1AD-LCSD
 Prep Date.....: 04/10/06 Analysis Date...: 04/10/06
 Prep Batch #....: 6100547
 Dilution Factor: 1

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Chloromethane	20	18	ug/L	92		SW846 8260B
	20	18	ug/L	92	0.34	SW846 8260B
Bromomethane	20	20	ug/L	99		SW846 8260B
	20	20	ug/L	100	0.31	SW846 8260B
Vinyl chloride	20	21	ug/L	104		SW846 8260B
	20	21	ug/L	103	0.46	SW846 8260B
Chloroethane	20	19	ug/L	94		SW846 8260B
	20	19	ug/L	94	0.42	SW846 8260B
Methylene chloride	20	21	ug/L	104		SW846 8260B
	20	21	ug/L	103	1.6	SW846 8260B
Acetone	20	18	ug/L	88		SW846 8260B
	20	16	ug/L	81	8.4	SW846 8260B
Carbon disulfide	20	18	ug/L	89		SW846 8260B
	20	18	ug/L	89	0.34	SW846 8260B
1,1-Dichloroethene	20	20	ug/L	101		SW846 8260B
	20	20	ug/L	102	1.2	SW846 8260B
1,1-Dichloroethane	20	21	ug/L	105		SW846 8260B
	20	20	ug/L	102	2.4	SW846 8260B
1,2-Dichloroethene (total)	40	38	ug/L	96		SW846 8260B
	40	39	ug/L	96	0.27	SW846 8260B
Chloroform	20	20	ug/L	102		SW846 8260B
	20	21	ug/L	103	1.2	SW846 8260B
1,2-Dichloroethane	20	21	ug/L	105		SW846 8260B
	20	21	ug/L	103	1.7	SW846 8260B
2-Butanone	20	18	ug/L	90		SW846 8260B
	20	19	ug/L	93	2.9	SW846 8260B
1,1,1-Trichloroethane	20	21	ug/L	104		SW846 8260B
	20	21	ug/L	104	0.050	SW846 8260B
Carbon tetrachloride	20	21	ug/L	105		SW846 8260B
	20	21	ug/L	103	2.3	SW846 8260B
Bromodichloromethane	20	20	ug/L	99		SW846 8260B
	20	20	ug/L	100	1.1	SW846 8260B
1,2-Dichloropropane	20	20	ug/L	99		SW846 8260B
	20	20	ug/L	101	1.8	SW846 8260B
cis-1,3-Dichloropropene	20	20	ug/L	100		SW846 8260B
	20	20	ug/L	100	0.020	SW846 8260B
Trichloroethene	20	20	ug/L	99		SW846 8260B
	20	19	ug/L	97	1.8	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A6D060176 Work Order #...: H20LR1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: A6D100000-547 H20LR1AD-LCSD

PARAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	RPD	METHOD
Dibromochloromethane	20	17	ug/L	84		SW846 8260B
	20	17	ug/L	83	1.4	SW846 8260B
1,1,2-Trichloroethane	20	19	ug/L	96		SW846 8260B
	20	19	ug/L	95	1.2	SW846 8260B
Benzene	20	18	ug/L	92		SW846 8260B
	20	18	ug/L	91	1.3	SW846 8260B
trans-1,3-Dichloropropene	20	18	ug/L	88		SW846 8260B
	20	18	ug/L	88	0.72	SW846 8260B
Bromoform	20	16	ug/L	79		SW846 8260B
	20	16	ug/L	80	1.6	SW846 8260B
4-Methyl-2-pentanone	20	19	ug/L	96		SW846 8260B
	20	20	ug/L	100	4.0	SW846 8260B
2-Hexanone	20	19	ug/L	94		SW846 8260B
	20	20	ug/L	101	6.6	SW846 8260B
Tetrachloroethene	20	20	ug/L	102		SW846 8260B
	20	20	ug/L	99	2.9	SW846 8260B
1,1,2,2-Tetrachloroethane	20	20	ug/L	102		SW846 8260B
	20	21	ug/L	103	1.1	SW846 8260B
Toluene	20	20	ug/L	98		SW846 8260B
	20	19	ug/L	97	2.0	SW846 8260B
Chlorobenzene	20	20	ug/L	98		SW846 8260B
	20	19	ug/L	97	1.6	SW846 8260B
Ethylbenzene	20	20	ug/L	99		SW846 8260B
	20	20	ug/L	99	0.51	SW846 8260B
Styrene	20	17	ug/L	85		SW846 8260B
	20	17 a	ug/L	83	2.2	SW846 8260B
Xylenes (total)	60	60	ug/L	99		SW846 8260B
	60	60	ug/L	100	0.20	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(73 - 122)
	103	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
	97	(61 - 128)
Toluene-d8	100	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	107	(74 - 116)
	106	(74 - 116)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: A6D060176 Work Order #....: H20LR1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: A6D100000-547 H20LR1AD-LCSD
 Prep Date.....: 04/10/06 Analysis Date...: 04/10/06
 Prep Batch #....: 6100547
 Dilution Factor: 1

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chloromethane	92	(48 - 123)			SW846 8260B
	92	(48 - 123)	0.34	(0-30)	SW846 8260B
Bromomethane	99	(64 - 129)			SW846 8260B
	100	(64 - 129)	0.31	(0-30)	SW846 8260B
Vinyl chloride	104	(61 - 120)			SW846 8260B
	103	(61 - 120)	0.46	(0-30)	SW846 8260B
Chloroethane	94	(66 - 126)			SW846 8260B
	94	(66 - 126)	0.42	(0-30)	SW846 8260B
Methylene chloride	104	(78 - 118)			SW846 8260B
	103	(78 - 118)	1.6	(0-30)	SW846 8260B
Acetone	88	(22 - 200)			SW846 8260B
	81	(22 - 200)	8.4	(0-95)	SW846 8260B
Carbon disulfide	89	(73 - 139)			SW846 8260B
	89	(73 - 139)	0.34	(0-30)	SW846 8260B
1,1-Dichloroethene	101	(63 - 130)			SW846 8260B
	102	(63 - 130)	1.2	(0-20)	SW846 8260B
1,1-Dichloroethane	105	(86 - 123)			SW846 8260B
	102	(86 - 123)	2.4	(0-30)	SW846 8260B
1,2-Dichloroethene (total)	96	(82 - 116)			SW846 8260B
	96	(82 - 116)	0.27	(0-30)	SW846 8260B
Chloroform	102	(84 - 128)			SW846 8260B
	103	(84 - 128)	1.2	(0-30)	SW846 8260B
1,2-Dichloroethane	105	(79 - 136)			SW846 8260B
	103	(79 - 136)	1.7	(0-30)	SW846 8260B
2-Butanone	90	(28 - 237)			SW846 8260B
	93	(28 - 237)	2.9	(0-65)	SW846 8260B
1,1,1-Trichloroethane	104	(78 - 140)			SW846 8260B
	104	(78 - 140)	0.050	(0-30)	SW846 8260B
Carbon tetrachloride	105	(75 - 149)			SW846 8260B
	103	(75 - 149)	2.3	(0-30)	SW846 8260B
Bromodichloromethane	99	(87 - 130)			SW846 8260B
	100	(87 - 130)	1.1	(0-30)	SW846 8260B
1,2-Dichloropropane	99	(82 - 115)			SW846 8260B
	101	(82 - 115)	1.8	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	100	(84 - 130)			SW846 8260B
	100	(84 - 130)	0.020	(0-30)	SW846 8260B
Trichloroethene	99	(75 - 122)			SW846 8260B
	97	(75 - 122)	1.8	(0-20)	SW846 8260B

(Continued on next page)

LABORATORY CONTROL SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A6D060176 Work Order #...: H20LR1AC-LCS Matrix.....: WATER
 LCS Lot-Sample#: A6D100000-547 H20LR1AD-LCSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Dibromochloromethane	84	(81 - 138)			SW846 8260B
	83	(81 - 138)	1.4	(0-30)	SW846 8260B
1,1,2-Trichloroethane	96	(83 - 122)			SW846 8260B
	95	(83 - 122)	1.2	(0-30)	SW846 8260B
Benzene	92	(80 - 116)			SW846 8260B
	91	(80 - 116)	1.3	(0-20)	SW846 8260B
trans-1,3-Dichloropropene	88	(84 - 130)			SW846 8260B
	88	(84 - 130)	0.72	(0-30)	SW846 8260B
Bromoform	79	(76 - 150)			SW846 8260B
	80	(76 - 150)	1.6	(0-30)	SW846 8260B
4-Methyl-2-pentanone	96	(78 - 141)			SW846 8260B
	100	(78 - 141)	4.0	(0-32)	SW846 8260B
2-Hexanone	94	(35 - 200)			SW846 8260B
	101	(35 - 200)	6.6	(0-52)	SW846 8260B
Tetrachloroethene	102	(88 - 113)			SW846 8260B
	99	(88 - 113)	2.9	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	102	(85 - 118)			SW846 8260B
	103	(85 - 118)	1.1	(0-30)	SW846 8260B
Toluene	98	(74 - 119)			SW846 8260B
	97	(74 - 119)	2.0	(0-20)	SW846 8260B
Chlorobenzene	98	(76 - 117)			SW846 8260B
	97	(76 - 117)	1.6	(0-20)	SW846 8260B
Ethylbenzene	99	(86 - 116)			SW846 8260B
	99	(86 - 116)	0.51	(0-30)	SW846 8260B
Styrene	85	(85 - 117)			SW846 8260B
	83 a	(85 - 117)	2.2	(0-30)	SW846 8260B
Xylenes (total)	99	(87 - 116)			SW846 8260B
	100	(87 - 116)	0.20	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	105	(73 - 122)
	103	(73 - 122)
1,2-Dichloroethane-d4	95	(61 - 128)
	97	(61 - 128)
Toluene-d8	100	(76 - 110)
	99	(76 - 110)
4-Bromofluorobenzene	107	(74 - 116)
	106	(74 - 116)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A6D060176 Work Order #...: H2QEF1AC-MS Matrix.....: WATER
 MS Lot-Sample #: A6D060253-002 H2QEF1AD-MSD
 Date Sampled...: 04/04/06 12:55 Date Received...: 04/06/06
 Prep Date.....: 04/11/06 Analysis Date...: 04/11/06
 Prep Batch #...: 6100547
 Dilution Factor: 8.33

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Chloromethane	ND	170	150	ug/L	93		SW846 8260B
	ND	170	150	ug/L	91	1.7	SW846 8260B
Bromomethane	ND	170	160	ug/L	95		SW846 8260B
	ND	170	160	ug/L	96	0.63	SW846 8260B
Vinyl chloride	ND	170	170	ug/L	100		SW846 8260B
	ND	170	160	ug/L	97	3.0	SW846 8260B
Chloroethane	ND	170	160	ug/L	96		SW846 8260B
	ND	170	160	ug/L	96	0.23	SW846 8260B
Methylene chloride	7.4	170	170	ug/L	98		SW846 8260B
	7.4	170	170	ug/L	97	1.4	SW846 8260B
Acetone	ND	170	160	ug/L	96		SW846 8260B
	ND	170	160	ug/L	98	1.9	SW846 8260B
Carbon disulfide	ND	170	150	ug/L	88		SW846 8260B
	ND	170	150	ug/L	87	1.2	SW846 8260B
1,1-Dichloroethene	ND	170	180	ug/L	106		SW846 8260B
	ND	170	170	ug/L	104	1.4	SW846 8260B
1,1-Dichloroethane	3.2	170	170	ug/L	101		SW846 8260B
	3.2	170	170	ug/L	102	0.43	SW846 8260B
1,2-Dichloroethene (total)	71	330	390	ug/L	96		SW846 8260B
	71	330	380	ug/L	93	2.0	SW846 8260B
Chloroform	ND	170	170	ug/L	102		SW846 8260B
	ND	170	170	ug/L	101	1.3	SW846 8260B
1,2-Dichloroethane	ND	170	170	ug/L	104		SW846 8260B
	ND	170	170	ug/L	102	1.7	SW846 8260B
2-Butanone	ND	170	160	ug/L	97		SW846 8260B
	ND	170	160	ug/L	95	2.6	SW846 8260B
1,1,1-Trichloroethane	25	170	190	ug/L	100		SW846 8260B
	25	170	190	ug/L	97	3.2	SW846 8260B
Carbon tetrachloride	ND	170	160	ug/L	96		SW846 8260B
	ND	170	160	ug/L	99	3.2	SW846 8260B
Bromodichloromethane	ND	170	160	ug/L	97		SW846 8260B
	ND	170	160	ug/L	98	0.47	SW846 8260B
1,2-Dichloropropane	ND	170	160	ug/L	99		SW846 8260B
	ND	170	170	ug/L	99	0.81	SW846 8260B
cis-1,3-Dichloropropene	ND	170	160	ug/L	93		SW846 8260B
	ND	170	160	ug/L	93	0.03	SW846 8260B
Trichloroethene	380	170	520	ug/L	87		SW846 8260B
	380	170	480	ug/L	60 a	9.1	SW846 8260B

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MATRIX SPIKE SAMPLE DATA REPORT

GC/MS Volatiles

Client Lot #...: A6D060176 Work Order #...: H2QEF1AC-MS Matrix.....: WATER
 MS Lot-Sample #: A6D060253-002 H2QEF1AD-MSD

PARAMETER	SAMPLE AMOUNT	SPIKE AMT	MEASRD AMOUNT	UNITS	PERCNT RECVRY	RPD	METHOD
Dibromochloromethane	ND	170	130	ug/L	78		SW846 8260B
	ND	170	130	ug/L	79	1.5	SW846 8260B
1,1,2-Trichloroethane	ND	170	170	ug/L	101		SW846 8260B
	ND	170	160	ug/L	98	3.6	SW846 8260B
Benzene	ND	170	150	ug/L	92		SW846 8260B
	ND	170	150	ug/L	90	1.4	SW846 8260B
trans-1,3-Dichloropropene	ND	170	140	ug/L	84		SW846 8260B
	ND	170	140	ug/L	85	0.96	SW846 8260B
Bromoform	ND	170	120	ug/L	72		SW846 8260B
	ND	170	120	ug/L	73	2.2	SW846 8260B
4-Methyl-2-pentanone	ND	170	160	ug/L	95		SW846 8260B
	ND	170	150	ug/L	92	3.1	SW846 8260B
2-Hexanone	ND	170	160	ug/L	94		SW846 8260B
	ND	170	160	ug/L	95	0.26	SW846 8260B
Tetrachloroethene	ND	170	170	ug/L	102		SW846 8260B
	ND	170	170	ug/L	101	1.6	SW846 8260B
1,1,2,2-Tetrachloroethane	ND	170	170	ug/L	102		SW846 8260B
	ND	170	170	ug/L	101	0.96	SW846 8260B
Toluene	ND	170	170	ug/L	101		SW846 8260B
	ND	170	170	ug/L	99	1.9	SW846 8260B
Chlorobenzene	ND	170	160	ug/L	99		SW846 8260B
	ND	170	160	ug/L	99	0.25	SW846 8260B
Ethylbenzene	ND	170	170	ug/L	101		SW846 8260B
	ND	170	170	ug/L	99	1.2	SW846 8260B
Styrene	ND	170	140	ug/L	85		SW846 8260B
	ND	170	140	ug/L	85	0.65	SW846 8260B
Xylenes (total)	ND	500	500	ug/L	101		SW846 8260B
	ND	500	510	ug/L	102	1.3	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(73 - 122)
	101	(73 - 122)
1,2-Dichloroethane-d4	103	(61 - 128)
	96	(61 - 128)
Toluene-d8	100	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	105	(74 - 116)
	107	(74 - 116)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #....: A6D060176 Work Order #....: H2QEF1AC-MS Matrix.....: WATER
 MS Lot-Sample #: A6D060253-002 H2QEF1AD-MSD
 Date Sampled...: 04/04/06 12:55 Date Received...: 04/06/06
 Prep Date.....: 04/11/06 Analysis Date...: 04/11/06
 Prep Batch #....: 6100547
 Dilution Factor: 8.33

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Chloromethane	93	(40 - 137)			SW846 8260B
	91	(40 - 137)	1.7	(0-39)	SW846 8260B
Bromomethane	95	(55 - 145)			SW846 8260B
	96	(55 - 145)	0.63	(0-30)	SW846 8260B
Vinyl chloride	100	(88 - 126)			SW846 8260B
	97	(88 - 126)	3.0	(0-30)	SW846 8260B
Chloroethane	96	(59 - 142)			SW846 8260B
	96	(59 - 142)	0.23	(0-30)	SW846 8260B
Methylene chloride	98	(82 - 115)			SW846 8260B
	97	(82 - 115)	1.4	(0-30)	SW846 8260B
Acetone	96	(45 - 128)			SW846 8260B
	98	(45 - 128)	1.9	(0-30)	SW846 8260B
Carbon disulfide	88	(69 - 138)			SW846 8260B
	87	(69 - 138)	1.2	(0-41)	SW846 8260B
1,1-Dichloroethene	106	(62 - 130)			SW846 8260B
	104	(62 - 130)	1.4	(0-20)	SW846 8260B
1,1-Dichloroethane	101	(88 - 127)			SW846 8260B
	102	(88 - 127)	0.43	(0-30)	SW846 8260B
1,2-Dichloroethene (total)	96	(86 - 115)			SW846 8260B
	93	(86 - 115)	2.0	(0-30)	SW846 8260B
Chloroform	102	(83 - 141)			SW846 8260B
	101	(83 - 141)	1.3	(0-30)	SW846 8260B
1,2-Dichloroethane	104	(71 - 160)			SW846 8260B
	102	(71 - 160)	1.7	(0-30)	SW846 8260B
2-Butanone	97	(71 - 123)			SW846 8260B
	95	(71 - 123)	2.6	(0-30)	SW846 8260B
1,1,1-Trichloroethane	100	(71 - 162)			SW846 8260B
	97	(71 - 162)	3.2	(0-30)	SW846 8260B
Carbon tetrachloride	96	(63 - 176)			SW846 8260B
	99	(63 - 176)	3.2	(0-30)	SW846 8260B
Bromodichloromethane	97	(80 - 146)			SW846 8260B
	98	(80 - 146)	0.47	(0-30)	SW846 8260B
1,2-Dichloropropane	99	(87 - 114)			SW846 8260B
	99	(87 - 114)	0.81	(0-30)	SW846 8260B
cis-1,3-Dichloropropene	93	(82 - 130)			SW846 8260B
	93	(82 - 130)	0.03	(0-30)	SW846 8260B
Trichloroethene	87	(62 - 130)			SW846 8260B
	60 a	(62 - 130)	9.1	(0-20)	SW846 8260B

(Continued on next page)

MATRIX SPIKE SAMPLE EVALUATION REPORT

GC/MS Volatiles

Client Lot #...: A6D060176 Work Order #...: H2QEF1AC-MS Matrix.....: WATER
 MS Lot-Sample #: A6D060253-002 H2QEF1AD-MSD

PARAMETER	PERCENT RECOVERY	RECOVERY LIMITS	RPD	RPD LIMITS	METHOD
Dibromochloromethane	78	(71 - 158)			SW846 8260B
	79	(71 - 158)	1.5	(0-30)	SW846 8260B
1,1,2-Trichloroethane	101	(86 - 129)			SW846 8260B
	98	(86 - 129)	3.6	(0-30)	SW846 8260B
Benzene	92	(78 - 118)			SW846 8260B
	90	(78 - 118)	1.4	(0-20)	SW846 8260B
trans-1,3-Dichloropropene	84	(73 - 147)			SW846 8260B
	85	(73 - 147)	0.96	(0-30)	SW846 8260B
Bromoform	72	(58 - 176)			SW846 8260B
	73	(58 - 176)	2.2	(0-30)	SW846 8260B
4-Methyl-2-pentanone	95	(82 - 135)			SW846 8260B
	92	(82 - 135)	3.1	(0-30)	SW846 8260B
2-Hexanone	94	(81 - 128)			SW846 8260B
	95	(81 - 128)	0.26	(0-30)	SW846 8260B
Tetrachloroethene	102	(85 - 121)			SW846 8260B
	101	(85 - 121)	1.6	(0-30)	SW846 8260B
1,1,2,2-Tetrachloroethane	102	(88 - 116)			SW846 8260B
	101	(88 - 116)	0.96	(0-30)	SW846 8260B
Toluene	101	(70 - 119)			SW846 8260B
	99	(70 - 119)	1.9	(0-20)	SW846 8260B
Chlorobenzene	99	(76 - 117)			SW846 8260B
	99	(76 - 117)	0.25	(0-20)	SW846 8260B
Ethylbenzene	101	(86 - 132)			SW846 8260B
	99	(86 - 132)	1.2	(0-30)	SW846 8260B
Styrene	85	(83 - 120)			SW846 8260B
	85	(83 - 120)	0.65	(0-30)	SW846 8260B
Xylenes (total)	101	(89 - 121)			SW846 8260B
	102	(89 - 121)	1.3	(0-30)	SW846 8260B

SURROGATE	PERCENT RECOVERY	RECOVERY LIMITS
Dibromofluoromethane	104	(73 - 122)
	101	(73 - 122)
1,2-Dichloroethane-d4	103	(61 - 128)
	96	(61 - 128)
Toluene-d8	100	(76 - 110)
	100	(76 - 110)
4-Bromofluorobenzene	105	(74 - 116)
	107	(74 - 116)

NOTE (S) :

Calculations are performed before rounding to avoid round-off errors in calculated results.

Bold print denotes control parameters

a Spiked analyte recovery is outside stated control limits.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

Required Client Information:

Company: CRA Report To: Paul Whitman
Address: Plymouth Mi. Copy To:
Invoice To:
P.O.:
Phone: Textile Rd Project Name:
Fax: 4770-80 Project Number:
E-mail:

PAGE 1 OF 1

Laboratory: STL
Laboratory Location: North Canton
Laboratory Contact: Debbie Hepler
Requested Due Date: TAT: Std
QA/QC Requirements:

ID #
No 02175

SSOW Ref. Code:
4770-3500-00R

Sample Identification:

Valid Matrix Codes:
WG Groundwater
WB Borehole Water
WS Surface Water
SO Soil
SE Sediment
See Back for
Additional Codes

Matrix Code

Date Collected

Time Collected

Containers

Unpreserved

HCl

H2SO4

HNO3

NaOH

Other:

Remarks: Lab ID

TOTAL NUMBER OF CONTAINERS

HIPMENT METHOD NO. OF COOLERS RELINQUISHED BY / AFFILIATION

Feed Ex. 1 Porter

DATE TIME

RECEIVED BY / AFFILIATION

DATE TIME

Sample Condition

Temp in C
Received on Ice
Sealed Cooler
Samples Intact

Additional Comments:

Sampler Name:

John Yoh

Date:

4-5-06

Sampler Signature:

[Signature]

Date:

4-5-06

Distribution: WHITE - Fully Executed Copy YELLOW - Receiving Laboratory Copy

PRK - Sampler Copy

RPT - Internal

Discrepancies Cont.



STL

END OF REPORT



**CONESTOGA-ROVERS
& ASSOCIATES**

14496 Sheldon Road, Suite #200
Plymouth, Michigan 48170
Telephone: (734) 453-5123 Fax: (734) 453-5201
www.CRAworld.com

MEMORANDUM

TO: Greg Carli REF. NO.: 4770
FROM: Rawa Fleisher/tl/56/Det DATE: May 30, 2006
RE: Data Quality Assessment and Validation – Reduced Validation
Annual Groundwater Monitoring
Textile Road Site – Belleville, Michigan

The following details a quality assessment and validation of the analytical data resulting from the April 5, 2006, collection of one (1) groundwater and two (2) quality control samples from the Textile Road Site in Belleville, Michigan. The sample summary detailing sample identification, sample location, quality control samples, and analytical parameters is presented in Table 1. Sample analysis was completed at Severn Trent Laboratories, Inc. in North Canton, Ohio (STL) in accordance with the methodologies presented in Table 2.

The quality control criteria used to assess the data were established by the methods and the quality assurance project plan (QAPP). Application of quality assurance criteria was consistent with following guidance documents:

- i. "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review", EPA-540/R-94/012, February 1994.

These guidelines are collectively referred to as "NFGs" in this Memorandum.

CRA MEMORANDUM

The following elements are addressed in this memorandum with qualification if necessary in the identified tables:

	Data Review Element	Qualification Table
1	Sample Quantitation	NA
2	Sample Preservation and Holding Times	NA
3	Method Blank Samples	Table 3
4	Surrogate Compounds – Organic Analyses	NA
5	Matrix Spike/Matrix Spike Duplicate Analyses	NA
6	Laboratory Control Sample Analysis/Laboratory Control Duplicate	Table 4
7	Field Quality Assurance/Quality Control	NA

Sample Preservation and Holding Times

Sample holding time periods and preservation requirements are presented in Table 2. The samples were prepared and/or analyzed within the specified holding time periods.

The samples were shipped and maintained in accordance with the sample preservation requirements.

Method Blank Samples

Contamination of samples contributed by laboratory conditions or procedures was monitored by concurrent preparation and analysis of method blank samples. The samples presented in Table 3 should be qualified due to laboratory contamination. The laboratory flagged these concentrations with a "B", which may be disregarded. The remaining method blank samples were reported to be free from detectable levels of target analytes, indicating no additional laboratory-attributable contamination occurred.

Surrogate Compounds – Organic Analyses

Individual sample performance for organic analyses was monitored by assessing the results of surrogate compound percent recoveries. Surrogate percent recoveries are reviewed against the laboratory developed control limits provided in the analytical report.

The surrogate recovery acceptance criteria were met for all samples.

Matrix Spike/Matrix Spike Duplicate Analyses

To assess the long term accuracy and precision of the analytical methods on various matrices, matrix spike/matrix spike duplicate (MS/MSD) percent recoveries and the relative percent difference (RPD) of the concentrations were determined. The organic MS/MSD percent recovery and RPD control limits are established by the laboratory. A Non Site-specific sample was utilized as the MS/MSD; therefore qualification of samples associated with this MS/MSD was not performed.

CRA MEMORANDUM

Laboratory Control Sample/Laboratory Control Duplicate Analysis

The laboratory control sample and laboratory control duplicate (LCS/LCD) analyses serve as a monitor of the overall performance in all steps of the sample analysis and are analyzed with each sample batch. The sample results that should be qualified due to violation of LCS percent recovery criteria are identified and qualified in Table 4. The remaining LCS percent recoveries were within the acceptance criteria.

Laboratory precision was verified by the relative percent difference (RPD) of the LCS/LCSD when a matrix spike/matrix spike duplicate was not analyzed. The RPDs were within the laboratory control limits, indicating that an acceptable level of overall laboratory precision was achieved.

Field Quality Assurance/Quality Control

The field quality assurance/quality control consisted of one (1) field duplicate sample set and one (1) trip blank sample.

Overall precision for the sampling event and laboratory procedures was monitored using the results of the field duplicate sample set. The RPDs associated with the duplicate sample must be less than 50 percent for water samples. If the reported concentration in either the investigative sample or its duplicate is less than five times the RL, the evaluation criteria is one or two times the RL value for water and soil samples, respectively.

Table 5 presents the RPD of the detected analyte in the duplicate sample set. The data indicate that an adequate level of precision was achieved for the sampling event.

To monitor potential cross-contamination of VOC during aqueous sample transportation and storage, a trip blank was submitted to the laboratory for VOC analysis with each shipping cooler containing multiple samples.

No target analytes were reported as detected in the trip blank sample.

Overall Assessment

The data were found to exhibit acceptable levels of accuracy and precision based on the provided information and may be used with the qualifications noted.

TABLE 1
SAMPLE COLLECTION AND ANALYSIS SUMMARY
SEMI-ANNUAL GW MONITORING
TEXTILE ROAD SITE
BELLEVILLE, MICHIGAN

				Parameter
<i>Sample Identification</i>	<i>Sample Location</i>	<i>Matrix</i>	<i>QC Sample</i>	TCL VOC
GW-4770-040506-JY-043	MW4U-00	Water		X
GW-4770-040506-JY-044	MW4U-00	Water	Duplicate (039)	X
TB-4770-040506-JY-045	Trip Blank	Water	Trip Blank	X

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TCL - Target Compound List
VOC - Volatile Organic Compounds
QC - Quality Control

TABLE 2

SUMMARY OF ANALYTICAL METHODS, HOLDING TIME PERIODS, AND PRESERVATIVES
TEXTILE ROAD SITE
BELLEVILLE, MICHIGAN

<i>Parameter</i>	<i>Method</i>	<i>Matrix</i>	<i>Holding Time</i>	<i>Preservation</i>
TCL VOC	SW-846 8260B	Water	- 14 days from sample collection to completion of analysis.	pH < 2 and Iced, 4 ± 2° C

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¹ SW-846 - "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods", SW-846, 3rd Edition, and Promulgated updates, November 1986

TABLE 3

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO
METHOD BLANK CONTAMINATION
TEXTILE ROAD SITE
BELLEVILLE, MICHIGAN**

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualified Sample Result</i>
TCL VOC	Methylene Chloride	TB-4770-040506-JY-045	ND (2.7) U

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The analyte should be qualified for the listed samples as:

U - The analyte was analyzed for, but was not detected above the reported sample
quantitation limit

TABLE 4

**SUMMARY OF QUALIFIED SAMPLE DATA DUE TO VIOLATION OF
ORGANIC MATRIX SPIKE/MATRIX SPIKE DUPLICATE ACCEPTANCE CRITERIA
TEXTILE ROAD SITE
BELLEVILLE, MICHIGAN**

<i>Analysis</i>	<i>Parameters</i>	<i>Associated Samples</i>	<i>Qualifiers</i> ¹
TCL VOC	Styrene	GW-4770-040506-JY-043	UJ
		GW-4770-040506-JY-044	UJ
		TB-4770-040506-JY-045	UJ

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¹ The parameter results should be qualified for the listed samples as:

UJ – The analyte was not detected 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 (non-detected parameters).

TABLE 5

**SUMMARY OF DETECTED ANALYTES IN FIELD DUPLICATE SAMPLE SET
TEXTILE ROAD SITE
BELLEVILLE, MICHIGAN**

<i>Analysis</i>	<i>Parameters</i>	<i>Investigative Sample</i>	<i>Duplicate Sample</i>	<i>RPD</i> ¹
		GW-4770-040506-JY-043	GW-4770-040506-JY-044	
TCL VOC (µg/L)	Vinyl chloride	6.0	6.2	3.3

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¹ RPD - Relative Percent Difference