BT² inc.
Engineering & Science

Madison | Lake Delton | Milwaukee | Chicago

January 5, 2010

Ms. Mae Willkom
Wisconsin Department of Natural Resources
West Central Region Office
P.O. Box 4001
Eau Claire, WI 54702

SUBJECT: **Onalaska Landfill Superfund Site**
October 2009 Data Validation Report
State of Wisconsin Purchase Order #NMI00000967
WDNR FID #632013360
U.S. EPA ID #WID980821656
Bid Item #10
BT² Project #3550

Dear Ms. Willkom:

As required in Section III. Monitoring Requirements of the Scope of Work for the above referenced site, BT², Inc., is submitting the data validation report associated with the groundwater monitoring performed at the site on October 28, 2009. As stated in the Bid Addendum Vendor Questions and Final Agency Answers, only samples from one well for each semiannual groundwater-monitoring event will be submitted for data validation.

Summary

Full data validation was done on one groundwater sample collected by BT² on October 28, 2009. For the October 2009 event, we have chosen monitoring well MW17S for validation. Validation was performed for the volatile organic compounds (VOCs), the inorganic metals, and the inorganic wet chemistry parameters according to the U.S. EPA "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review" and the "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review" with minor modifications to accommodate the non-CLP level data collected. All samples collected were submitted to TestAmerica, Inc., located in Watertown, Wisconsin. All of the samples were processed and reported under the work order number WSJ1008, and were received by BT² on November 13, 2009. Based on the data validation review, the project data quality objectives have been met.

Review Elements

The sample data was reviewed for the following information:

- Agreement of analyses conducted with the chain of custody (COC) requests.
- Sample hold times and sample temperature and preservation.
- Gas chromatography/mass spectrometry (GC/MS) tunes – organic analysis only.
- Initial and continuing calibrations.
- Laboratory blanks, equipment blanks, and field blanks.
- Inductively coupled plasma interference check sample results – metals analysis only.
- Trip blanks and field blanks.

- Surrogate spike recoveries – organic analysis only.
- Laboratory control sample and laboratory control sample duplicate results.
- Matrix spike and matrix spike duplicate results – organic analysis only.
- Internal standard performance.
- Sample quantitation and detection limit results.
- Quantitation limits and sample results.
- Project data quality objectives

Organic Compounds

Discussion

Agreement of Analyses Conducted with the COC Requests
The sample reports were checked to confirm that the results reported corresponded to the analytical tests requested on the COC. VOCs were analyzed using Method SW-8260B. No discrepancies were found between the COC and the laboratory reports.

Sample Hold Times and Sample Temperature and Preservation
Sample MW17S (WSJ1008-07) was collected on October 28, 2009, and analyzed for VOCs on November 2, 2009, within the method-specific holding time of 14 days for a preserved sample. The sample was preserved to a pH <2. The laboratory report documented that the sample cooler was received by TestAmerica with the samples on ice.

GC/MS Tunes
The frequency and abundance of all 4-Bromofluorobenzene (BFB) tunes were within the quality control (QC) acceptable limits. The samples were analyzed within the method specified tune times.

Initial and Continuing Calibrations
The response factors, the percent deviation, and the percent relative standard deviations of all internal standards and the system monitoring compounds were within the QC acceptable limits for the initial calibration and continuing calibration standards associated with the sample except for the following deficiencies:

Calibration	Compound	%Difference (limit is +/- 25%)
Initial Cal. 20 Std. (11/2/09 @ 04:34)	Acetone	81.8% (3.64 of 20)
	2-Butanone	69.1% (6.18 of 20)
	Tetrahydrofuran	65.4% (6.91 of 20)
	o-Xylene	31.4% (13.72 of 20)

Trip Blanks and Field Blanks
A field blank was not submitted with the associated sample, and no further validation action was taken. No detections for any compounds were detected in the laboratory method blanks. The Trip Blank had no detections for any compounds.

Surrogate Spike Recoveries
The surrogate percent recoveries were within the acceptable QC limits for the sample analysis.

Matrix Spike and Matrix Spike Duplicate Results
The matrix spike and matrix spike duplicate analyses were performed on the MW16M sample. All of the percent recoveries (%R) and relative percent differences (RPDs) of all the spiked compounds were within the acceptable QC criteria for the matrix spike and matrix spike duplicate analyses except for Barium and Manganese. The recoveries for these two metals were flagged "M" – spike recovery limits are not applicable when the sample concentration is greater than or equal to four times the spike added. The

laboratory control sample or continuing calibration verification analyzed concurrently with these samples met control criteria.

Internal Standard Performance
The internal standard performance was within the acceptable QC limits for all sample analyses.

Quantitation Limits and Sample Results
Sample MW17S was analyzed with and a 1:4 dilution for VOCs. The dilution was necessary due to 1,2,4-Trimethlybenzene in the original sample run being close to the high-end of the calibration curve. All VOC compounds for sample MW17S were reported at a 1:4 dilution. The result calculation was found to be accurate.

Analytical non-detections were reported at the laboratory method detection limit. Results between the method detection limit and the limit of quantitation were flagged by the laboratory with a "J". The method detection limits and the limit of quantitations for all compounds analyzed were at or below the NR 140 Enforcement Standard (ES) and Preventive Action Level (PAL) except for the following:

Compound	Reporting Limit (µg/l)	MDL (µg/l)	NR 140 ES (µg/l)	NR 140 PAL (µg/l)
Benzene	0.80	0.80	5	0.5
Bromodichloromethane	0.80	0.80	0.6	0.06
Carbon tetrachloride	2.0	2.0	5	0.5
Chloroform	0.80	0.80	6	0.6
1,2-Dibromoethane (EDB)	0.80	0.80	0.05	0.005
Chloromethane	1.2	1.2	3	0.3
1,2-Dichloroethane	2.0	2.0	5	0.5
1,1-Dichloroethene	2.0	2.0	7	0.7
1,2-Dichloropropane	2.0	2.0	5	0.5
1,3-Dichloropropene (cis/trans)	0.8	0.8	0.2	0.02
Methylene chloride	4.0	4.0	5	0.5
1,1,2,2-Tetrachloroethane	0.80	0.8	0.2	0.02
Tetrachloroethene	2.0	2.0	5	0.5
1,1,1-Trichloroethane	1.0	1.0	5	0.5
Trichloroethene	0.80	0.80	5	0.5
Vinyl chloride	0.80	0.8	0.2	0.02

Sample MW17S did not have any detection for the compounds listed in the table above.

Project Data Quality Objectives
The overall accuracy objectives were met, as 100% of the laboratory matrix spikes and laboratory control standards were within control limits. The overall precision objectives were met, as 100% of the field and lab duplicates were within control limits. The overall completeness objectives were met, as 100% of the data were deemed valid.

Inorganic Compounds

Discussion

Agreement of Analyses Conducted with the COC Requests
The sample reports were checked to confirm that the results reported corresponded to the analytical tests requested on the COC. Select metals were analyzed using Methods SW-6020A and EPA 245.1. No discrepancies were found between the COC and the laboratory reports.

Sample Hold Times and Sample Temperature and Preservation
Sample MW17S (WSJ1008-07) was collected on October 28, 2009, and analyzed for the above listed compounds within the method specific holding times. Sample preservation, where applicable, was acceptable for all parameters. The laboratory report documented that the sample cooler was received by TestAmerica with the samples on ice.

Initial and Continuing Calibrations
All QC criteria were met for the calibration curves and the initial calibration verification and continuing calibration verification standards.

Method Blanks, Trip Blanks, and Field Blanks
No field blanks were submitted with the sample set. There were no detections for any of the target compounds in the laboratory blanks, rinse blanks, and initial and continuing calibration verification blanks associated with the sample set.

Inductively Coupled Plasma Interference Check Sample Results
All QC criteria were met for the Inductively Coupled Plasma A and the Interference Check Sample B solutions for metals run by inductively coupled plasma/matrix spike.

Matrix Spike and Matrix Spike Duplicate Results
The matrix spike/matrix spike duplicate analyses were performed on the MW16M sample. All of the %R and RPDs of all the spiked compounds were within the acceptable QC criteria for the matrix spike and matrix spike duplicate analyses.

Sample Quantitation and Detection Limit Results
Sample MW17S was analyzed at no dilution, and at a 1:20 dilution for metals. The dilution was necessary to keep the analytical result inside the high-end of the calibration curve for barium, iron, and manganese. The result calculation was found to be accurate. All other parameters for sample MW17S were reported at no dilution. Analytical non-detections were reported at the laboratory MDL. The method diction limits and the limit of quantitations for all compounds analyzed were at or below the NR 140 ES and PAL.

Project Data Quality Objectives
The overall accuracy objectives were met, as 100% of the laboratory matrix spikes and laboratory control standards were within control limits. The overall precision objectives were met, as 100% of the lab duplicates were within control limits. The overall completeness objectives were met, as 100% of the data were deemed valid.

Please contact us at (608) 224-2830 if you have any questions concerning this report.

Sincerely,
BT^2, Inc.

Steven Smith
Environmental Specialist

Robert Langdon
Project Manager

SS/LR/MT
I:\3550\Reports\GW Reports\DataVal.2.100105.doc