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March 17, 2008

347192.CV.03

Mr. William Ryan
Work Assignment Manager (SR-6J)
U.S. Environmental Protection Agency
77 West Jackson Boulevard
Chicago, IL 60604-3507

Subject: Final Third Quarter Groundwater Report
Oconomowoc Electroplating Company, Inc. Site, Ashippun, Wisconsin
WA No. 003-LRLR-05M8, Contract No. EP-S5-06-01

Dear Mr. Ryan:

Enclosed please find for your review one CD containing the finalized 2007 Third Quarter Groundwater Report for the Oconomowoc Electroplating Company, Inc. Site. Also enclosed are two hardcopy versions of this report, as per your request. This report presents the results of the 2007 third quarter sampling event. Please contact me if you have any questions or concerns at 414-847-0437.

Sincerely,

CH2M HILL

Matt Boekenhauer

Matt Boekenhauer
Site Manager

Enclosures
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3/18/2008

REGION 5 RAC2

REMEDIAL ACTION CONTRACT FOR

Remedial, Enforcement Oversight, and
Non-Time Critical Removal Activities at Sites of Release
or Threatened Release of Hazardous Substances in Region 5

2007 THIRD QUARTER
GROUNDWATER REPORT
OECI Site

Oconomowoc, Wisconsin
WA No. 003-LRLR-05M8/Contract No. EP-S5-06-01
November 2007

PREPARED FOR

U.S. Environmental Protection Agency

PREPARED BY

CH2M HILL
Ecology and Environment, Inc.
Environmental Design International, Inc.
Teska Associates, Inc.

FOR OFFICIAL USE ONLY

2007 Third Quarter Groundwater Report - OECI Site

Work Assignment No. 003-LRLR-05M8 / Contract No. EP-S5-06-01

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Work Assignment Manager (SR-6J)

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DATE: November 19, 2007

PROJECT NUMBER: 347192.CV.03

Introduction

The Oconomowoc Electroplating Company, Inc. (OECI) site is undergoing quarterly groundwater monitoring in accordance with the quality assurance project plan (QAPP; CH2M HILL 2004), QAPP changes letter (CH2M HILL 2007a), and field sampling plan (FSP) (CH2M HILL 2006).

Groundwater sampling was conducted at the OECI site in late June and early July 2007 (for the resampling of three private wells) at 26 monitoring wells, 10 private wells, and 1 onsite potable well. Water level measurements were obtained from the site monitoring wells. This report presents the results of the June and July 2007 third quarter sampling event and includes tables and figures to present these data.

Site Setting

The 10-acre OECI site comprises the former 4-acre OECI facility located at 2573 Oak Street in Ashippun, Wisconsin, and an additional 6 acres of wet, low-lying area located southwest of the facility (Figures 1 and 2). This low-lying area is referred to in historical and recent project plans as a wetland area. Davy Creek flows through this wetland area. Contaminants of concern (COCs) at this site are primarily chlorinated volatile organic compounds (CVOCs), including cis-1,2-dichloroethene (cis-1,2-DCE), trichloroethene (TCE), 1,1,1-trichloroethane (1,1,1-TCA), and vinyl chloride. Recently, methyl tertiary-butyl ether (MTBE) and various xylene isomers have been detected in several site wells, but these detections do not appear to be related to historical site activities.

The local geology beneath the site is comprised of Ordovician shale and dolomite bedrock overlain by Quaternary and Holocene unconsolidated deposits of sand, silt, and clay (Figure 3). Groundwater monitoring wells are installed at the site in the shallow and deep portions of the unconsolidated deposits, and within the upper bedrock. Nested wells are installed in the unconsolidated deposits, with the shallow wells monitoring the upper "water table" portion of the aquifer (shallow unconsolidated aquifer) and deeper wells monitoring the lower portion of this aquifer (deep unconsolidated aquifer). Monitoring wells also are installed in the bedrock aquifer (Figure 3). Private wells located in the vicinity of the site are screened in the uppermost water-bearing portions of the underlying shale and dolomite bedrock. A more detailed description of the site's history and geology is in the 2007 *Annual Groundwater Report and Evaluation of Monitored Natural Attenuation* (CH2M HILL 2007b).

Field Activities

The purpose of each groundwater sampling event is to monitor groundwater contaminant concentrations and natural attenuation parameters in order to assess the effectiveness of natural attenuation at the site. Parameters analyzed include alkalinity, ammonia (surface water only), chloride, dissolved gases (methane, ethane, and ethene), total and dissolved iron and manganese, nitrate, orthophosphate (surface water only), sulfate, sulfide, total organic carbon, and volatile organic compounds (VOCs). Groundwater level measurements also were collected during this sampling event to assess groundwater flow directions in the shallow unconsolidated, deep unconsolidated, and bedrock aquifers.

Water Level Measurements

Depth to groundwater in 33 site monitoring wells, with the exception of well MW-14D, were measured on June 25, 2007. Monitoring well MW-14D could not be accessed due to recent road construction, which buried the well under several inches of gravel and clean fill. Attempts to located MW-14D with a metal detector and shovels were unsuccessful. CH2M HILL will again attempt to locate the well, but if the well cannot be located, it will be considered destroyed and a replacement well will be installed. All water levels were measured in accordance with the FSP field operating procedure (FOP) No. 2—*Groundwater Level Measurements* (CH2M HILL 2006). Water levels at staff gage locations SG-2 and SG-3 along Davy Creek were too low for measurement due to low water conditions in the creek and wetland area. Staff gage SG-1 appears to have been washed away and is no longer present. While historical data collected from SG-1 assisted in site characterization, future information from staff gage SG-1 is not anticipated to enhance the characterization; therefore, staff gage SG-1 will not be replaced unless site characteristics change. Table 1 contains a summary of the depth to groundwater measurements and groundwater elevations for this sampling event.

Shallow Unconsolidated Aquifer

Groundwater elevations in 14 shallow monitoring wells were used to generate a water table elevation map for the shallow unconsolidated aquifer (Figure 4). The apparent groundwater flow direction in this aquifer is primarily toward Davy Creek to the south-southwest of the site. Table 2 contains a summary of the calculated vertical gradients. Vertical gradients

between the shallow and deep unconsolidated aquifers are downward at well nests MW-102, MW-13, and MW-15 to the west of the site, and upward at well nests located to the south and east of the site, within the wetland area and near Davy Creek (MW-12, MW-103, MW-104, MW-105, MW-106, and MW-107). Vertical gradients between the shallow unconsolidated aquifer and bedrock vary across the site, with a downward gradient at well nest MW-4, and slight upward gradients at well nests MW-1 and MW-101.

Deep Unconsolidated Aquifer

Groundwater elevations in 10 deep monitoring wells were used to generate a potentiometric surface map for the deep unconsolidated aquifer (Figure 5). The apparent groundwater flow direction in the deep unconsolidated aquifer also is toward Davy Creek to the southwest. Vertical gradients between the deep unconsolidated aquifer and bedrock vary across the site, with downward gradients at the MW-15 nest, and an upward gradient at nests MW-12 and MW-105.

Bedrock Aquifer

Groundwater elevations in eight bedrock monitoring wells were used to generate a potentiometric surface map for the bedrock aquifer (Figure 6). The apparent groundwater flow direction in the bedrock is generally to the west and southwest. Bedrock groundwater elevations appear to be the highest directly beneath and upgradient from the former facility. The residential subdivision west of the site includes a number of actively pumped private wells that may contribute to the horizontal gradient toward the west.

Sampling Activities and Results

Sampling and analysis were completed in accordance with the FSP (CH2M HILL 2006). All wells were purged and sampled as described in FOP No. 1—*Low Flow Groundwater Sampling Procedures* (CH2M HILL 2006). Groundwater field parameters were monitored with a multimeter during well purging. The wells were purged continuously until monitored field parameters stabilized within the limits specified in FOP No. 1—*Low Flow Groundwater Sampling Procedures* (CH2M HILL 2006). Samples were collected immediately following the stabilization of groundwater field parameters. Procedures for field filtering groundwater samples were followed according to FOP No. 5—*Field Filtering Samples* (CH2M HILL 2006). Samples were processed, packaged, and shipped to the laboratory on the day of collection. Between sampling locations, nondedicated sampling equipment was decontaminated following FOP No. 6—*Field Sampling Equipment Decontamination* (CH2M HILL 2006).

Private well locations were sampled as part of the third quarter June 2007 compliance monitoring in accordance with FOP No. 10—*Private Residential Well Groundwater Sampling Procedures* (CH2M HILL 2006), with the exception of field parameter collection. Due to the variable nature of access points for private well sampling, and the various treatment sequences of these wells, field parameters cannot be used as an indication of proper purging prior to sample collection. Private well taps were opened for 10 to 15 minutes prior to sampling. Each sample was collected from a tap before any water conditioning occurred whenever possible.

Monitoring Well Results

Groundwater from 22 monitoring wells was collected and sampled for natural attenuation and regulatory compliance parameters (VOCs). Groundwater was collected from four monitoring "sentinel" wells (MW-106S/D and MW-107S/D) and analyzed for regulatory compliance parameters only (VOCs). Table 3 summarizes the results from the groundwater collected at these monitoring wells.

Figures 7 through 12 present the distribution and magnitude of site COC concentrations within each aquifer unit, relative to Wisconsin Administrative Code NR 140 preventive action limits (PAL) and enforcement standards (ES). Specifically, Figures 7, 9, and 11 depict concentrations of CVOC "parent" compounds—1,1,1-TCA; tetrachloroethene (PCE); and TCE. Figures 8, 10, and 12 depict common degradation products or "daughter" compounds for these parent compounds—cis-1,2-DCE and vinyl chloride.

Groundwater PAL and ES exceedances of COCs in groundwater from the shallow unconsolidated aquifer are present for both parent and daughter compounds at four monitoring well locations: MW-12S, MW-103S, MW-16S, and MW-105S (Figures 7 and 8). In addition, MW-13S has a PAL exceedance for the parent compound, TCE. Groundwater PAL and ES exceedances of COCs in groundwater from the deep unconsolidated aquifer are slightly more widespread (Figures 8 and 9). PAL or ES exceedances are present for both parent and daughter compounds at MW-102D and MW-15D west of the site, and at MW-5D, MW-12D, MW-103D, and MW-105D immediately downgradient from the site. It should be noted that a number of these exceedances are due to elevated laboratory detection limits caused by sample dilution.

In the bedrock aquifer, groundwater at two monitoring well locations contains vinyl chloride concentrations that exceed the PAL (upgradient well MW-1D and down/cross gradient well MW-4D). In the bedrock monitoring wells, no other COCs were identified that exceed the PAL or ES.

Groundwater from sentinel well MW-107D (screened in the deep unconsolidated aquifer), located on the south side of Davy Creek, had an unconfirmed detection of cis-1,2-DCE (0.12 micrograms per liter [µg/L]) during the April 2007 sampling event. This compound was not detected in groundwater collected during the June 2007 sampling event; however, chloromethane was detected at low levels in groundwater from both shallow and deep wells at this location (MW-107S/D). While chloromethane is both anthropogenic and naturally occurring, it can be common in areas of decaying organic materials, such as the wetlands area in which the MW-107 well nest was installed (U.S. Health and Human Services 1998). Presently, these groundwater detections of chloromethane are unconfirmed. Chloromethane is not a degradation product of the site COCs; therefore, its origin is unlikely to be related to historical site activities.

Based on the concentrations of analytical natural attenuation and field parameters collected (favorable oxidation-reduction potential conditions and elevated concentrations of sulfate, chloride, dissolved gases, and total/dissolved iron and manganese), natural attenuation continues occurring most favorably in the shallow and deep unconsolidated wells located in or just upgradient of the wetland. A further assessment of the natural attenuation and VOC concentrations across the site will be provided in the next annual report, which will be

generated following completion of the most recent four rounds of sampling conducted during 2007.

Private Well Results

Groundwater from 10 private wells and one onsite potable well was collected and sampled for regulatory compliance parameters (VOCs). Table 4 contains a summary of the results from the samples collected at these wells. Figures 11 and 12 show the distribution and magnitude of the detections of site COCs in bedrock. In the bedrock aquifer, vinyl chloride was detected at concentrations exceeding the PAL at two private wells (PW-08 and PW-09, with groundwater concentrations of 0.035 and 0.05 µg/L, respectively). TCE was detected at a concentration of 0.65 µg/L, exceeding the PAL of 0.5 µg/L in groundwater collected from PW-03. All three of these wells are on the downgradient/western side of the OECI site. No other COCs were identified that exceed the PAL or ES in the bedrock private wells; however, low-level detections of 1,2-dichloroethane (1,2-DCA); cis-1,2-DCE; chloromethane; isopropylbenzene; MTBE; trans-1,2-DCE; TCE; and xylenes also were detected in several private wells at concentrations below the PAL.

Surface Water Results

Surface water samples could not be collected at any of the staff gage locations along Davy Creek, as water levels were too low at SG-2 and SG-3, and only a few inches of stagnant water was present at the former location of SG-1. Another attempt will be made to collect surface water during the September 2007 sampling event.

Data Management

U.S. Environmental Protection Agency (USEPA) software Forms II Lite 5.1 was used in the field to enter field sample data and create chain-of-custody forms. The USEPA copies of the chains-of-custody were used to enter sample information into the sample tracking spreadsheet. Upon receipt of the samples, the laboratory transmitted an electronic sample receipt to CH2M HILL, which was then compared to the chain-of-custody and entered into the sample tracking spreadsheet. On July 18, 2007, the laboratory provided CH2M HILL with the first of two electronic data deliverables (EDD), including one hard copy package, and a portable document format (.pdf) electronic file of the data package. This first set of laboratory data was sent to USEPA for validation on July 18, 2007. On July 26, 2007, the laboratory provided CH2M HILL with the second EDD, including one hard copy package, and a .pdf electronic file of the data package. This second set of laboratory data was sent to USEPA for validation on July 31, 2007. Following USEPA data validation, a CH2M HILL project chemist reviewed the validation summaries, and the qualifiers were entered into the EQuIS database for use in this quarterly groundwater report. CH2M HILL's data usability memorandum for this June 2007 data is included in Appendix A.

Summary and Recommendations

The 2007 third quarter sampling event was conducted at the OECI site in late June and early July 2007. Twenty-six monitoring wells, ten private wells, and one onsite potable well were sampled during this event. Groundwater elevations determined from water level

measurements collected indicate that the apparent groundwater flow direction in the shallow and deep unconsolidated aquifers is toward Davy Creek to the southwest. Groundwater elevations in the bedrock aquifer indicate that the apparent groundwater flow direction is to the west and southwest, toward the residential subdivision where the bedrock aquifer is actively pumped by private wells.

Groundwater analytical results indicate that COCs are present across the site at concentrations exceeding the PAL and/or ES, and that natural attenuation conditions remain favorable. PAL and ES exceedances of COCs in the shallow and deep unconsolidated aquifers are located directly adjacent to the facility (MW-5D, MW-103S, and MW-103D), immediately downgradient to the southwest (MW-12S, MW-12D, MW-13S, MW-13D, MW-16S, MW-105S, and MW-105D), or crossgradient to the west (MW-15D and MW-102D). In the bedrock aquifer, groundwater at two monitoring well and two private well locations contains vinyl chloride concentrations that exceed the PAL (upgradient monitoring well MW-1D, down/cross gradient well MW-4D, and private wells PW-08 and PW-09). In the bedrock monitoring wells, no other COCs were identified that exceed the PAL or ES. Groundwater from private well PW-03 exceeds the PAL for TCE. No other COCs were identified that exceed the PAL or ES in the bedrock private wells; however, 1,2-DCA; cis-1,2-DCE; chloromethane; isopropylbenzene; MTBE; trans-1,2-DCE; TCE; and xylenes also were detected in several private wells at concentrations below the PAL. Recently, MTBE and various xylene isomers have been detected in several site wells, but these detections do not appear to be related to historical site activities.

Surface water samples were not collected during the June 2007 sampling event due to dry conditions in Davy Creek and its surrounding wetlands.

Monitoring well MW-14D was inaccessible due to local road construction activities. CH2M HILL will again attempt to locate the well; but if the well cannot be located, it will be considered destroyed and a replacement well will be installed. If the well is located, but damaged, CH2M HILL will attempt to repair the well. If the well cannot be repaired, then proper well abandonment per Wisconsin Administrative Code NR 141 will be completed.

CH2M HILL recommends that monitoring continue for both regulatory compliance and natural attenuation parameters at the same group of wells (monitoring and private). The next quarterly monitoring event is scheduled for January 2008.

References

CH2M HILL. 2004. *Quality Assurance Project Plan, Oconomowoc Electroplating, Oconomowoc, Wisconsin.* WA No. 236-RALR-05M8 Contract No. 68-W6-0025.

CH2M HILL. 2006. *Field Sampling Plan, Oconomowoc Electroplating, Oconomowoc, Wisconsin.* WA No. 003-LRLR-05MS Contract No. EP-SS-06-01, December.

CH2M HILL. 2007a. *Quality Assurance Project Plan Changes, Oconomowoc Electroplating, Ashippun, Wisconsin, Long Term Remedial Action.* WA No. 003-LRLR-05MS Contract No. EP-SS-06-01. January.

CH2M HILL. 2007b. *Annual Groundwater Report and Evaluation of Monitored Natural Attenuation.* WA No. 003-LRLR-05MS Contract No. EP-SS-06-01. May.

United States Department of Health and Human Services. 1998. *Agency for Toxic Substances and Disease Registry Website Toxicological Profile for Chloromethane.* Accessed online at http://www.atsdr.cdc.gov/toxprofiles/tp106.html. December.

Tables

TABLE 1
Groundwater Elevations--June 2007
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Well ID	Hydrostratigraphic Unit Screened	Top of Casing (TOC) Elevation (ft amsl)	Groundwater Depth (measured from TOC)	Groundwater Elevation June 2007 (ft amsl)
MW-1S	Shallow Unconsolidated	853.42	6.74	846.68
MW-1D	Bedrock	853.14	6.29	846.85
MW-2D	Bedrock	852.36	6.27	846.09
MW-3S	Shallow Unconsolidated	853.39	Dry	--
MW-3D	Bedrock	853.51	8.35	845.16
MW-4S	Shallow Unconsolidated	854.58	8.12	846.46
MW-4D	Bedrock	854.63	8.83	845.80
MW-5	Shallow Unconsolidated	849.07	Broken	--
MW-5D	Deep Unconsolidated	848.80	3.82	844.98
MW-9S	Shallow Unconsolidated	851.57	5.80	845.77
MW-12S	Shallow Unconsolidated	849.17	4.65	844.52
MW-12D	Deep Unconsolidated	848.31	3.48	844.83
MW-12B	Bedrock	849.40	4.41	844.99
MW-13S	Shallow Unconsolidated	850.91	6.01	844.90
MW-13D	Deep Unconsolidated	850.02	5.18	844.84
MW-14D	Deep Unconsolidated	850.58	Buried-inaccessible	--
MW-15S	Shallow Unconsolidated	854.68	9.09	845.59
MW-15D	Deep Unconsolidated	855.30	10.35	844.95
MW-15B	Bedrock	854.35	17.91	836.44
MW-16S	Shallow Unconsolidated	847.90	3.51	844.39
MW-101S	Shallow Unconsolidated	851.24	4.88	846.36
MW-101B	Bedrock	851.08	5.75	845.33
MW-102S	Shallow Unconsolidated	853.65	8.14	845.51
MW-102D	Deep Unconsolidated	853.70	8.65	845.05
MW-103S	Shallow Unconsolidated	851.84	6.43	845.41
MW-103D	Deep Unconsolidated	851.97	6.52	845.45
MW-104S	Shallow Unconsolidated	850.56	5.33	845.23
MW-104D	Deep Unconsolidated	850.57	5.26	845.31
MW-105S	Shallow Unconsolidated	849.01	4.46	844.55
MW-105D	Deep Unconsolidated	848.90	4.13	844.77
MW-105B	Bedrock	848.90	3.93	844.97
MW-106S	Shallow Unconsolidated	848.92	4.90	844.02
MW-106D	Deep Unconsolidated	849.01	4.18	844.83
MW-107S	Shallow Unconsolidated	848.66	4.67	843.99
MW-107D	Deep Unconsolidated	848.64	3.97	844.67

ft amsl = feet above mean sea level

TABLE 2
Vertical Gradient Summary - June 2007
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Well Nest	Screen Midpoint Shallow	Screen Midpoint Deep	Screen Midpoint Bedrock	GW Elev. Shallow June 2007	GW Elev. Deep June 2007	Unconsolidated (Shallow to Deep) Vertical Gradient (ft/ft)	GW Elev. Unconsolidated June 2007	GW Elev. Bedrock June 2007	Unconsolidated to Bedrock Vertical Gradient (ft/ft)
1	842.62		806.04	846.68			846.68	846.85	-0.0046
3	844.59		810.51				Dry	846.16	NA
4	844.78		809.73	846.46			846.46	845.80	0.0188
5	841.07	825.30		Well Broken	844.98	NA			
12	841.17	827.81	810.90	844.52	844.83	-0.023	844.83	844.99	-0.009
13	842.91	823.52		844.90	844.84	0.003			
15	843.18	818.30	799.35	845.59	844.95	0.026	844.95	836.44	0.449
101	843.24		804.58	846.36			846.36	845.33	-0.001
102	842.65	807.20		845.51	845.05	0.013			
103	842.84	830.47		845.41	845.45	-0.003			
104	840.56	825.07		845.23	845.31	-0.005			
105	841.01	824.40	807.40	844.55	844.77	-0.013	844.77	844.97	-0.012
106	838.92	797.51		844.02	844.83	-0.020			
107	835.62	818.24		843.99	844.67	-0.039			

Note: Negative values for vertical gradients indicate upward movement. Positive values indicate downward movement.
NA = Not Available
All elevations in feet above mean sea level

TABLE 3

Monitoring Well Field and Analytical Results - June 2007

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Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-1S	MW-1D	MW-3D	MW-4S	MW-4D	MW-5D	MW-12B	MW-12S	MW-12D	MW-13S	MW-13D
Field Parameters														
Dissolved Oxygen (DO)	mg/L			0.41	0.42	8.77	1.57	0.43	0.20	3.0	1.70	0.12	1.64	0.16
Oxidation Reduction Potential (ORP)	millivolts			196.8	-121.8	125.2	184.0	78.1	-58.4	190.6	58.0	-3.2	-24.4	-33.1
pH	pH units			6.43	6.60	7.05	6.40	7.04	6.79	7.50	6.48	6.78	7.07	7.04
Specific Conductivity	mmhos/cm			1.273	0.688	1.034	1.503	1.110	1.281	1.034	1.375	1.408	1.066	1.101
Temperature	deg C			15.91	16.74	16.27	15.75	14.22	14.31	11.54	11.80	10.98	11.73	10.86
Depth to water	feet			6.74	6.29	8.35	8.12	8.83	3.82	4.41	4.65	3.48	6.01	5.18
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	380	360	350	670	350	400	330 J	440 J	400 J	340 J	360
Chloride (as Cl)	mg/L	125	250	**140**	8.8	110	67	**130**	**160**	120	**190**	**180**	110	120
Ethane	µg/L	N/A	N/A	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.46 J	0.4 UJ	0.4 UJ
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	150	300	**220 J**	**3,200**	**1,500 J**	**180 J**	**3,600**	**2,300**	100 J	**250 J**	**1,100 J**	**570 J**	**2,300**
Iron, dissolved	µg/L	150	300	10 UJ	**2,600**	**1,300 J**	100 J	**620 J**	**1,800**	10 UJ	27 J	**1,000 J**	10 UJ	**670 J**
Manganese, total	µg/L	25	50	**85**	**76**	22	**160**	**200**	**71**	23	**140**	**37**	**31**	**40**
Manganese, dissolved	µg/L	25	50	**71**	**70**	18	**140**	**110**	**61**	20	**130**	**37**	11	**34**
Methane	µg/L	N/A	N/A	11	1,000	7.9	2.5	21	31	50	40	18	0.25 U	15
Nitrogen, nitrate (as N)	mg/L	2	10	0.23 J	0.11 U	0.41	0.11 U	0.56	0.11 U	0.26 J	0.11 U	0.26 J	**2.4**	0.11 U
Sulfate (as SO4)	mg/L	125	250	**140**	0.9 J	45	98	45	51	30 J	47 J	79 J	50	67
Sulfide	mg/L	N/A	N/A	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Organic Carbon	mg/L	N/A	N/A	0.5 UJ	0.5 UJ	0.5 UJ	7.1 J	0.5 UJ	0.57 J	0.5 UJ	2 J	1.7 J	0.5 UJ	1.3 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	1 U	0.05 U	**77**	3.7	0.45	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 UJ	0.019 U	0.019 U	0.019 U	**0.38 U**	0.019 U	**0.38 U**	**0.038 U**	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	**1.2 U**	0.06 U	**1.2 U**	0.12 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	12	0.06 J	45	17	0.14 J	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**2.3 J**	0.05 U	**12**	0.41	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	1.4 U	0.07 U	1.4 U	0.14 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	1.2 U	0.06 U	1.2 U	0.12 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 U**	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 U**	**1 U**	**0.05 U**	**1 U**	**0.1 U**	**0.05 U**	**0.05 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**1 U**	0.05 U	**1 U**	0.1 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	1 U	0.05 U	1 U	0.1 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 UJ	0.03 U	0.03 U	0.03 U	**0.6 U**	0.03 U	**0.6 U**	0.11 J	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**1 U**	0.05 U	**1 U**	0.1 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 UJ	0.027 U	0.027 U	0.027 U	0.54 U	0.027 U	0.54 U	0.054 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.8 U	0.04 U	0.8 U	0.08 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 UJ	0.6 U	0.6 U	0.6 U	12 U	0.6 U	12 U	1.2 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 UJ	1.6 UJ	1.6 UJ	1.6 UJ	1.6 U	32 U	1.6 U	32 U	3.2 U	1.6 U	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	0.8 UJ	16 UJ	0.8 U	16 UJ	1.6 UJ	0.8 U	0.8 U
Acetone	µg/L	200	1,000	1.5 U	1.5 UJ	1.5 U	1.5 U	1.5 UJ	30 UJ	1.5 U	30 UJ	3 UJ	1.5 U	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.062 J	0.05 U	0.05 U	0.05 U	**1 U**	0.05 U	**1 U**	0.14 J	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 UJ	0.028 U	0.028 U	0.028 U	0.56 U	0.028 U	0.56 U	0.056 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	0.03 UJ	**0.6 UJ**	0.03 U	**0.87 J**	**0.06 UJ**	0.03 U	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	**0.8 UJ**	0.04 U	**0.8 UJ**	0.08 UJ	0.04 U	0.04 U
Bromomethane	µg/L	1	10	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	**1.4 U**	0.07 U	**1.4 U**	0.14 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 UJ	0.09 U	0.09 U	0.09 U	1.8 U	0.09 U	1.8 U	0.18 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 UJ	0.022 U	0.022 U	0.022 U	0.44 U	0.022 U	0.44 U	0.044 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.8 U	0.04 U	0.8 U	0.08 U	**0.04 U**	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	1.4 U	0.07 U	1.4 U	0.14 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 UJ	0.022 U	0.022 U	0.022 U	0.44 U	0.022 U	0.44 U	0.044 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**1 U**	0.05 U	**1 U**	0.19 J	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/L	7	70	0.084 J	0.05 UJ	0.088 J	0.05 U	0.05 UJ	**120 J**	0.05 UJ	**32 J**	**7.7 J**	0.45 UJ	0.81 J
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 UJ	0.017 U	0.017 U	0.017 U	**0.34 U**	0.017 U	**0.34 U**	**0.034 U**	0.017 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 UJ	0.026 U	0.026 U	0.026 U	0.52 U	0.026 U	0.52 U	0.052 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 UJ	0.03 U	0.03 U	0.03 U	0.6 U	0.03 U	0.6 U	0.06 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 UJ	0.024 U	0.024 U	0.024 U	0.48 U	0.024 U	0.48 U	0.048 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.083 J	0.04 U	0.04 U	0.04 U	0.8 U	0.04 U	0.8 U	0.08 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.08 UJ	0.08 U	0.08 U	0.08 U	1.6 U	0.08 U	1.6 U	0.16 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 UJ	0.23 J	0.08 U	2	1.6 UJ	0.08 U	1.6 UJ	0.3 J	0.08 U	0.45
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	**3.6 UJ**	0.18 U	**3.6 UJ**	**2.2**	0.18 U	0.18 U
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 UJ	0.023 U	0.023 U	0.023 U	0.46 U	0.023 U	0.46 U	0.046 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 U	0.022 UJ	0.022 U	0.022 U	0.022 U	0.44 U	0.022 U	0.44 U	0.044 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 UJ	0.092 J	0.05 U	0.05 U	**1 U**	0.05 U	**1 U**	0.1 U	0.067 J	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	1.2 U	0.06 U	1.2 U	0.12 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	8.7	0.06 U	**21**	1.4	0.078 J	0.079 J
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 UJ	0.017 U	0.017 U	0.017 U	**0.34 U**	0.017 U	**0.34 U**	**0.034 U**	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.11 J	0.05 UJ	0.091 J	0.05 U	0.05 U	**140**	0.05 U	**98**	**0.91**	**1.6**	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	**0.11 J**	0.013 U	0.013 U	**0.035 J**	**2.6**	0.013 U	**0.96**	**1.6**	0.013 U	0.013 U

J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

U indicates that the constituent was not detected above the method detection limit.

UJ indicates that the constituent was not detected above the estimated method detection limit.

UB indicates that the constiuent is considered to be below the detection limit listed due to blank contamination.

Bolded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 PAL

Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 ES.

mg/L (milligrams per liter)

mmhos/cm (millimhos per centimeter)

µg/L (micrograms per liter)

TABLE 3

Monitoring Well Field and Analytical Results - June 2007

2007 3rd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-15B	MW-15S	MW-15D	MW-16S	MW-101B	MW-102D	MW-103S	MW-103D	MW-105B	MW-105S	MW-105D
Field Parameters														
Dissolved Oxygen (DO)	mg/L			1.18	8.97	0.20	0.93	1.25	2.21	0.42	1.48	1.32	0.19	1.19
Oxidation Reduction Potential (ORP)	millivolts			-35.4	83.1	23.3	-149.0	37.5	-72.1	197.0	128.1	-110.1	-13.1	-76.4
pH	pH units			6.73	7.12	6.89	6.51	6.16	6.72	6.11	6.67	7.02	6.86	6.96
Specific Conductivity	mmhos/cm			0.915	0.624	1.322	4.383	1.082	1.848	1.888	1.249	1.098	1.700	1.382
Temperature	deg C			15.71	14.61	13.27	11.38	14.34	14.46	14.78	14.87	11.74	10.88	11.11
Depth to water	feet			17.91	9.09	10.35	3.51	5.75	8.65	6.43	6.52	3.93	4.46	4.13
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	380	290	370	900	360	480	490	410	370 J	450 J	420 J
Chloride (as Cl)	mg/L	125	250	26	25	**210**	**270**	100	**250**	**210**	**160**	**130**	**260**	**170**
Ethane	µg/L	N/A	N/A	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.4 UJ	0.46 J	1.3 J	0.4 UJ
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	150	300	**990 J**	39 UJ	39 UJ	**9,500**	65 J	**2,100**	39 UJ	39 UJ	**750 J**	**2,300**	**1,400 J**
Iron, dissolved	µg/L	150	300	21 J	10 UJ	10 UJ	**7,700**	14 J	**1,800**	12 J	10 UJ	**700 J**	**1,200 J**	**1,400 J**
Manganese, total	µg/L	25	50	**920**	6.3 J	**330**	**110**	**88**	**55**	**440**	**270**	**1,100**	**230**	**64**
Manganese, dissolved	µg/L	25	50	**780**	1.3 J	**310**	**79**	**71**	**49**	**420**	**260**	**1,000**	**190**	**60**
Methane	µg/L	N/A	N/A	640	0.25 U	2.3	20	47	6.2	76	120	880	230 J	89
Nitrogen, nitrate (as N)	mg/L	2	10	0.11 U	1.5	1.7	0.21 J	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U	0.11 U
Sulfate (as SO4)	mg/L	125	250	67	17	49	**1,500**	49	**130**	88	36	13	50	56
Sulfide	mg/L	N/A	N/A	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Organic Carbon	mg/L	N/A	N/A	0.5 UJ	0.5 UJ	0.5 UJ	2.3 J	0.5 UJ	1.3 J	3.8 J	1.5 J	0.5 UJ	1.1 J	2.7 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.25 U	10 U	0.05 U	0.41 J	**180**	**120**	0.05 U	5 U	0.25 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	**0.095 U**	**3.8 U**	0.019 U	**0.095 U**	**0.38 U**	**1.9 U**	0.019 U	**1.9 U**	**0.095 U**
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.3 U	**12 U**	0.06 U	0.3 U	**1.2 U**	**6 U**	0.06 U	**6 U**	0.3 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.3 U	12 U	0.06 U	0.3 U	8.5	11 J	0.06 U	63	6.2
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**4.3**	**8.2 J**	0.05 U	**23**	**1.1**
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.35 U	14 U	0.07 U	0.35 U	1.4 U	7 U	0.07 U	7 U	0.35 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.3 U	12 U	0.06 U	0.3 U	1.2 U	6 U	0.06 U	6 U	0.3 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 U**	**0.05 U**	**0.25 U**	**10 U**	**0.05 U**	**0.25 U**	**1 U**	**5 U**	**0.05 U**	**5 U**	**0.25 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**1 U**	**5 U**	0.05 U	**5 U**	0.25 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.25 U	10 U	0.05 U	0.25 U	1 U	5 U	0.05 U	5 U	0.25 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 U	0.15 U	**6 U**	0.03 U	0.36 J	**0.6 U**	**3 U**	0.03 U	**3 U**	0.15 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**1 U**	**5 U**	0.05 U	**5 U**	0.25 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.14 U	5.4 U	0.027 U	0.14 U	0.54 U	2.7 U	0.027 U	2.7 U	0.14 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.2 U	8 U	0.04 U	0.2 U	0.8 U	4 U	0.04 U	4 U	0.2 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	3 U	120 U	0.6 U	3 U	12 U	60 U	0.6 U	60 U	3 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	8 U	320 U	1.6 UJ	8 U	32 U	160 U	1.6 U	160 U	8 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 UJ	0.8 UJ	4 UJ	160 UJ	0.8 UJ	4 UJ	16 U	80 U	0.8 U	80 U	4 UJ
Acetone	µg/L	200	1,000	1.5 UJ	1.5 UJ	7.5 UJ	**300 UJ**	1.5 U	7.5 UJ	30 U	150 U	1.5 U	**220 J**	7.5 UJ
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**1 U**	**5 U**	0.05 U	**5 U**	0.25 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.14 U	5.6 U	0.028 U	0.14 U	0.56 U	2.8 U	0.028 U	2.8 U	0.14 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 UJ	0.03 UJ	**0.2 J**	**12 J**	0.03 UJ	**0.34 J**	**0.6 U**	**5.8 J**	0.03 U	**3 U**	**0.28 J**
Bromoform	µg/L	0.44	4.4	0.04 UJ	0.04 UJ	0.2 UJ	**8 UJ**	0.04 UJ	0.2 UJ	**0.8 UJ**	**4 UJ**	0.04 U	**4 UJ**	0.2 UJ
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.35 U	**14 U**	0.07 U	0.35 U	**1.4 U**	**7 U**	0.07 U	**7 U**	0.35 U
Carbon disulfide	µg/L	200	1,000	0.71	0.09 U	0.45 U	18 U	0.09 U	0.45 UJ	1.8 U	9 U	0.09 U	9 U	0.45 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.11 U	**4.4 U**	0.022 U	0.11 U	0.44 U	**2.2 U**	0.022 U	**2.2 U**	0.11 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	2.2	8 U	0.04 U	0.2 U	3.9	4 U	0.04 U	4 U	0.2 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.35 U	14 U	0.07 U	0.35 U	1.4 U	7 U	0.07 U	7 U	0.35 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.11 U	**16 U**	0.022 U	0.47 U	0.44 U	**7.1 J**	0.022 U	**2.2 U**	0.37 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**1 UJ**	**5 UJ**	0.05 U	**5 U**	**0.35 J**
cis-1,2-Dichloroethene	µg/L	7	70	0.05 UJ	0.05 UJ	1.2 J	**1,300 J**	0.19	**23 J**	**25**	**89**	0.1 J	**180 J**	**35 J**
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	**0.085 U**	**3.4 U**	0.017 U	**0.085 U**	**0.34 U**	**1.7 U**	0.017 U	**1.7 U**	**0.085 U**
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.13 U	5.2 U	0.026 U	0.13 U	0.52 U	2.6 U	0.026 U	2.6 UJ	0.13 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.15 U	6 U	0.03 U	0.15 U	0.6 U	3 U	0.03 U	3 U	0.15 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.12 U	4.8 U	0.024 U	0.12 U	0.48 U	2.4 U	0.024 U	2.4 U	0.12 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.2 U	8 U	0.04 U	0.2 U	0.8 U	4 U	0.04 U	4 U	0.2 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.08 U	0.4 U	16 U	0.08 U	0.4 U	1.6 U	8 U	0.08 U	8 U	0.4 U
Methyl tert-butyl ether	µg/L	12	60	0.08 UJ	0.08 UJ	0.4 UJ	**16 UJ**	0.24 J	1.2 J	1.6 U	8 U	0.08 U	8 U	0.4 UJ
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	**0.9 UJ**	**36 J**	0.18 UJ	**1.6 J**	**3.6 UJ**	**18 UJ**	0.18 U	**280 UJ**	**0.9 UJ**
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 U	0.12 U	4.6 U	0.023 U	0.12 U	0.46 U	2.3 U	0.023 U	2.3 U	0.12 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.11 U	4.4 U	0.022 U	0.11 UJ	0.44 U	2.2 U	0.022 U	2.2 U	0.11 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**10 U**	0.05 U	0.25 U	**1.8 J**	**5 U**	0.05 U	**5 U**	0.25 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.3 U	12 U	0.06 U	0.3 U	1.2 U	6 U	0.06 U	6 U	0.3 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.3 U	**27 J**	0.06 U	1.4	1.2 J	6 U	0.06 U	6.1 J	1.1
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	**0.085 U**	**3.4 U**	0.017 U	**0.085 U**	**0.34 U**	**1.7 U**	0.017 U	**1.7 U**	**0.085 U**
Trichloroethene	µg/L	0.5	5	0.06 J	0.05 U	**20**	**10 U**	0.055 J	**1.5**	**300**	**820**	0.05 U	**560**	**31**
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	**0.065 U**	**48**	0.013 U	**0.14 J**	**0.26 U**	**1.3 U**	0.013 U	**11 J**	**0.74**

J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

U indicates that the constituent was not detected above the method detection limit.

UJ indicates that the constituent was not detected above the estimated method detection limit.

UB indicates that the constiuent is considered to be below the detection limit listed due to blank contamination.

Bolded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 PAL

Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 ES.

mg/L (milligrams per liter)

mmhos/cm (millimhos per centimeter)

µg/L (micrograms per liter)

TABLE 3

Monitoring Well Field and Analytical Results - June 2007

2007 3rd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-106S	MW-106D	MW-107S	MW-107D
Field Parameters							
Dissolved Oxygen (DO)	mg/L			0.21	1.52	0.24	2.33
Oxidation Reduction Potential (ORP)	millivolts			-59.1	-47.3	-61.4	-76.6
pH	pH units			6.58	6.33	7.15	7.02
Specific Conductivity	mmhos/cm			0.924	1.328	0.747	1.233
Temperature	deg C			11.64	11.81	10.73	10.36
Depth to water	feet			4.90	4.18	4.67	3.97
Natural Attenuation Parameters							
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	Sentinel Well - VOCs only	Sentinel Well - VOCs only	Sentinel Well - VOCs only	Sentinel Well - VOCs only
Chloride (as Cl)	mg/L	125	250				
Ethane	µg/L	N/A	N/A				
Ethene	µg/L	N/A	N/A				
Iron, total	µg/L	150	300				
Iron, dissolved	µg/L	150	300				
Manganese, total	µg/L	25	50				
Manganese, dissolved	µg/L	25	50				
Methane	µg/L	N/A	N/A				
Nitrogen, nitrate (as N)	mg/L	2	10				
Sulfate (as SO4)	mg/L	125	250				
Sulfide	mg/L	N/A	N/A				
Total Organic Carbon	mg/L	N/A	N/A				
VOCs							
1,1,1-Trichloroethane	µg/L	40	200	0.05 UJ	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 UJ	0.019 U	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 UJ	0.06 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 UJ	0.06 U	0.06 U	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 UJ	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 UJ	0.07 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 UJ	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 UJ**	**0.05 U**	**0.05 U**	**0.05 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 UJ	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 UJ	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 UJ	0.027 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 UJ	0.04 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 UJ	0.6 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 UJ	1.6 U	1.6 U	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 UJ	0.8 UJ	0.8 U	0.8 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 UJ	1.5 U	1.5 U
Benzene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 UJ	0.028 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 UJ	0.03 UJ	0.03 U	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 UJ	0.04 UJ	0.04 U	0.04 U
Bromomethane	µg/L	1	10	0.07 UJ	0.07 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 UJ	0.09 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 UJ	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 UJ	0.04 U	0.04 U	0.04 U
Chloroethane	µg/L	80	400	0.07 UJ	0.07 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 UJ	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 UJ	0.05 U	0.26	0.23
cis-1,2-Dichloroethene	µg/L	7	70	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 UJ	0.017 U	0.017 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 UJ	0.026 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 UJ	0.03 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 UJ	0.024 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 UJ	0.04 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 R	0.08 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 UJ	0.08 U	0.08 U	0.08 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 U	0.18 U
o-Xylene	µg/L	N/A	N/A	0.023 UJ	0.023 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 R	0.022 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 UJ	0.06 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 UJ	0.06 U	0.06 U	0.06 U
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 UJ	0.017 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 U	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 UJ	0.013 U	0.013 U	0.013 U

J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

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mg/L (milligrams per liter)

mmhos/cm (millimhos per centimeter)

µg/L (micrograms per liter)

TABLE 4

Private Well Analytical Results—June 2007

2007 3rd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	PW-01	PW-02	PW-03	PW-04	PW-05	PW-07	PW-08	PW-09	PW-10	PW-11	DW-01
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**	**0.05 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.24	0.03 U	0.058 J	0.03 U	0.066 J	0.043 J	0.03 U	0.062 J	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 UJ
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 UJ
Acetone	µg/L	200	1,000	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 UJ
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 U	0.04 U	0.04 UJ	0.04 U	0.04 U	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ	0.04 UJ
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.19	0.19	0.24	0.05 UJ	0.14 J	0.27	0.05 UJ	0.05 UJ	0.05 UJ	0.05 UJ	0.05 U
cis-1,2-Dichloroethene	µg/L	7	70	0.05 UJ	0.05 UJ	0.91 J	1.3	1.4 J	2.9 J	1.7	5.6	0.05 U	0.6	0.05 U
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.15	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 UJ	0.5	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.79	0.71	1	0.73	0.67	0.83	0.24 J	0.81	0.08 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 UJ	0.69	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 R	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.13 U	0.06 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.11 J	0.12 J	0.13 J	0.2 J	0.14 J	0.59	0.06 U	0.074 J	0.06 U
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	**0.65**	0.055 J	0.13 J	0.05 U	0.17	0.089 J	0.05 U	0.05 U	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	**0.035 J**	**0.05**	0.013 U	0.013 U	0.013 U

J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

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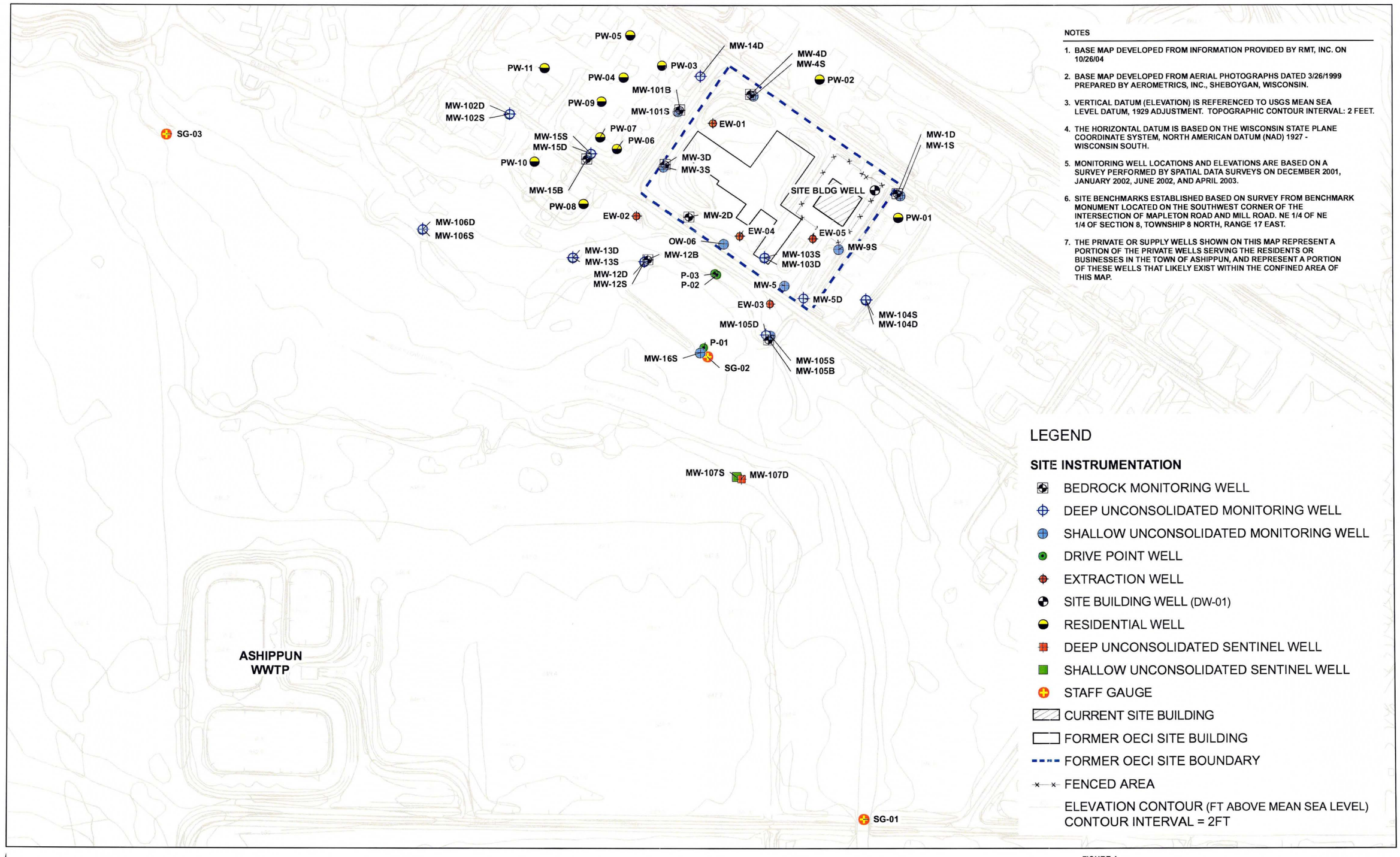
Figures



NOTES

1. BASE MAP DEVELOPED FROM INFORMATION PROVIDED BY RMT, INC. ON 10/26/04
2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPHS DATED 3/26/1999 PREPARED BY AEROMETRICS, INC., SHEBOYGAN, WISCONSIN.
3. VERTICAL DATUM (ELEVATION) IS REFERENCED TO USGS MEAN SEA LEVEL DATUM, 1929 ADJUSTMENT. TOPOGRAPHIC CONTOUR INTERVAL: 2 FEET.
4. THE HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1927 - WISCONSIN SOUTH.
5. MONITORING WELL LOCATIONS AND ELEVATIONS ARE BASED ON A SURVEY PERFORMED BY SPATIAL DATA SURVEYS ON DECEMBER 2001, JANUARY 2002, JUNE 2002, AND APRIL 2003.
6. SITE BENCHMARKS ESTABLISHED BASED ON SURVEY FROM BENCHMARK MONUMENT LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION OF MAPLETON ROAD AND MILL ROAD. NE 1/4 OF NE 1/4 OF SECTION 8, TOWNSHIP 8 NORTH, RANGE 17 EAST.
7. THE PRIVATE OR SUPPLY WELLS SHOWN ON THIS MAP REPRESENT A PORTION OF THE PRIVATE WELLS SERVING THE RESIDENTS OR BUSINESSES IN THE TOWN OF ASHIPPUN, AND REPRESENT A PORTION OF THESE WELLS THAT LIKELY EXIST WITHIN THE CONFINED AREA OF THIS MAP.

LEGEND

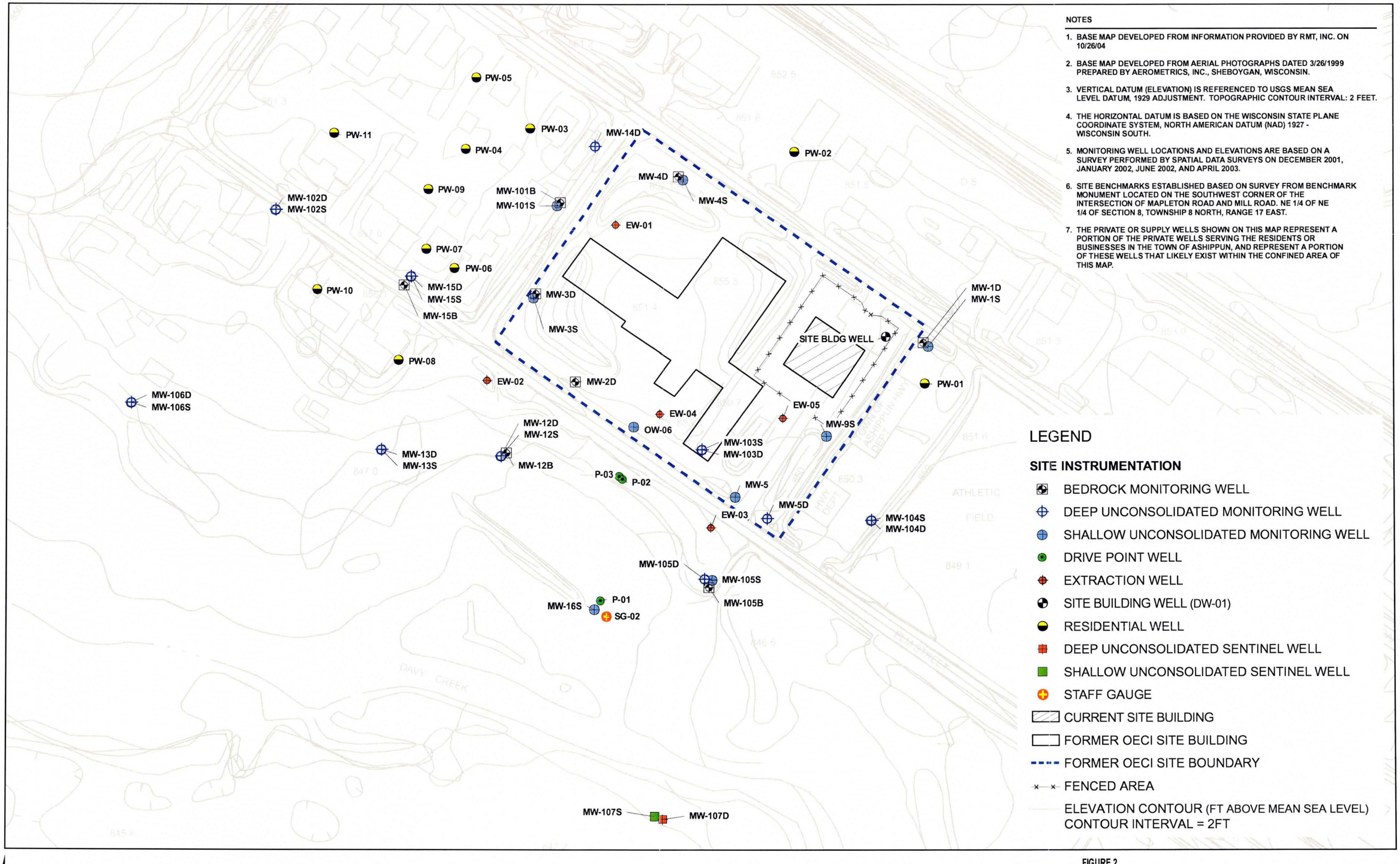
SITE INSTRUMENTATION

- BEDROCK MONITORING WELL
- DEEP UNCONSOLIDATED MONITORING WELL
- SHALLOW UNCONSOLIDATED MONITORING WELL
- DRIVE POINT WELL
- EXTRACTION WELL
- SITE BUILDING WELL (DW-01)
- RESIDENTIAL WELL
- DEEP UNCONSOLIDATED SENTINEL WELL
- SHALLOW UNCONSOLIDATED SENTINEL WELL
- STAFF GAUGE
- CURRENT SITE BUILDING
- FORMER OECI SITE BUILDING
- FORMER OECI SITE BOUNDARY
- FENCED AREA
- ELEVATION CONTOUR (FT ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 2FT

FIGURE 1
Site Monitoring Locations
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_Site_MonitoringLocations_Fig01_3rdQR_v04

CH2MHILL



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- FENCED AREA
- ELEVATION CONTOUR (FT ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 2FT

FIGURE 2
Site Monitoring Well Locations
2007 3rd Quarter Groundwater Report
OECI Site

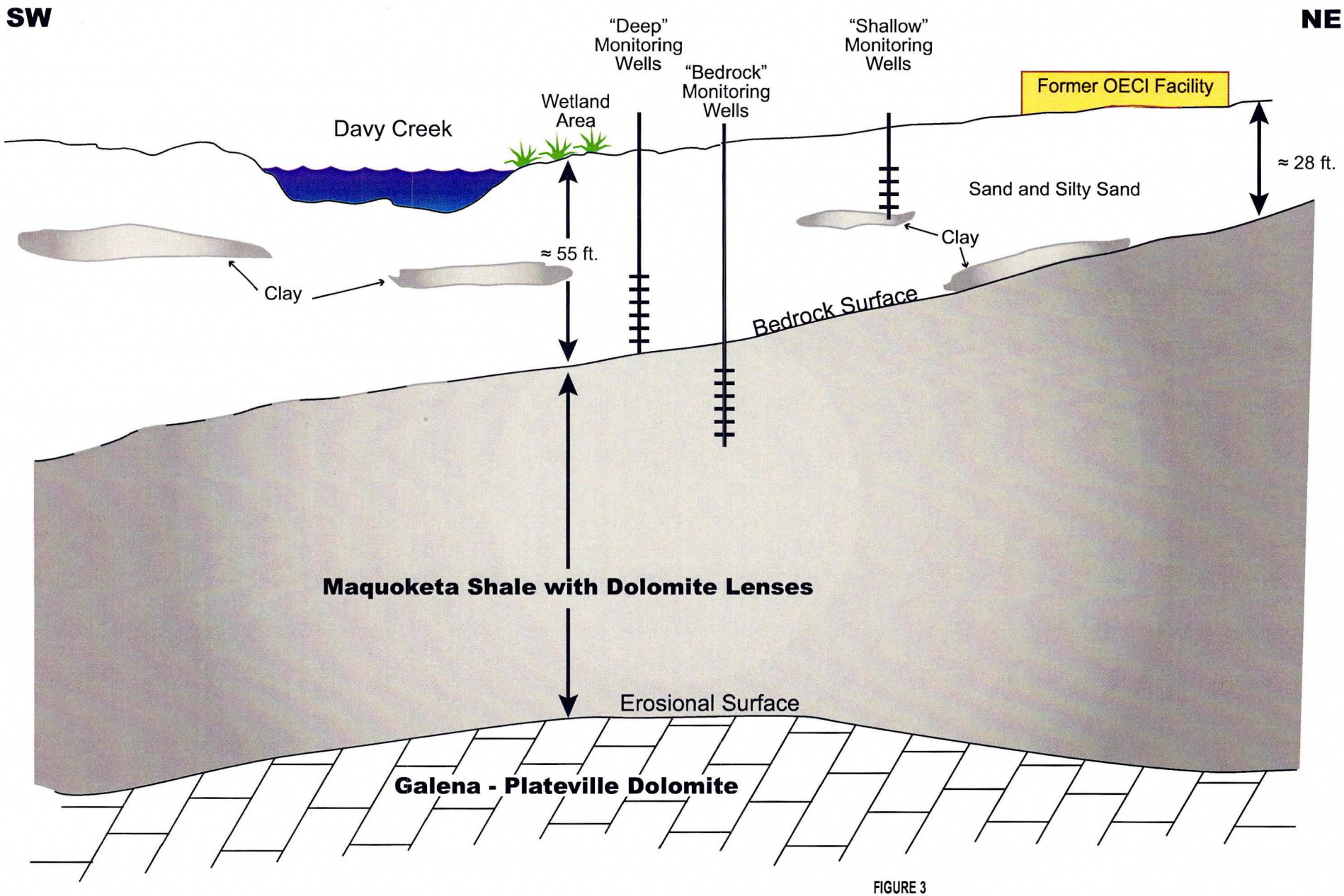

FIGURE 3
Conceptual Depiction of Site Aquifer Units and Well Placement
2007 3rd Quarter Groundwater Report
OECI Site

- NOT TO SCALE -

NOTES

1. BASE MAP DEVELOPED FROM INFORMATION PROVIDED BY RMT, INC. ON 10/26/04.

2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPHS DATED 3/26/1999 PREPARED BY AEROMETRICS, INC., SHEBOYGAN, WISCONSIN.

3. THE HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1927- WISCONSIN SOUTH.

4. VERTICAL DATUM (ELEVATION) IS REFERENCED TO USGS MEAN SEA LEVEL DATUM, 1929 ADJUSTMENT. TOPOGRAPHIC CONTOUR INTERVAL: 2 FEET.

5. MONITORING WELL LOCATIONS AND ELEVATIONS ARE BASED ON A SURVEYS PERFORMED BY SPATIAL DATA SURVEYS ON DECEMBER 2001, JANUARY 2002, JUNE 2002 AND APRIL 2003.

6. SITE BENCHMARKS ESTABLISHED BASED ON SURVEY FROM BENCHMARK MONUMENT LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION OF MAPLETON ROAD AND MILL ROAD. NE 1/4 OF NE 1/4 OF SECTION 8, TOWNSHIP 8 NORTH, RANGE 17 EAST.

7. THE PRIVATE OR SUPPLY WELLS SHOWN ON THIS MAP REPRESENT A PORTION OF THE PRIVATE WELLS SERVING THE RESIDENTS OR BUSINESSES IN THE TOWN OF ASHIPPUN, AND REPRESENT A PORTION OF THESE WELLS THAT LIKELY EXIST WITHIN THE CONFINED AREA OF THIS MAP.

MW-102S
845.51

MW-101S
846.36

MW-4S
846.46

MW-15S
845.59

MW-3S
Dry

MW-1S
846.68

MW-9S
845.77

MW-103S
845.41

MW-106S
844.02

MW-13S
844.90

MW-12S
844.52

MW-5
Well Broken

MW-104S
845.23

MW-105S
844.55

MW-16S
844.39

MW-107S
843.99

846.6
846.4
846.2
846
845.8
845.6
845.4
845.2
845
844.8
844.6
844.4
844.2
844
843.8

LEGEND

Site Instrumentation

- Shallow Unconsolidated Monitoring Well
- Shallow Unconsolidated Sentinel Well
- Estimated Groundwater Contour (0.2 foot contour interval; dashed where inferred)
- Approximate Site Boundary
- Existing 2' Topographic Contour
- Fence
- OECI Treatment Plant

N

0 60 120
Feet

FIGURE 4
Shallow Unconsolidated Groundwater Elevations - June 2007
2007 3rd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OEIC\MAPFILES\GROUNDWATER ELEVATION MAPS JUNE 2007\FIGURE04_SHALLOW_UNCONSOLIDATED_AQUIFER_JUNE2007_GW_ELEV.MXD 8/1/2007 10:13:19

NOTES

1. BASE MAP DEVELOPED FROM INFORMATION PROVIDED BY RMT, INC. ON 10/26/04.

2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPHS DATED 3/26/1999 PREPARED BY AEROMETRICS, INC., SHEBOYGAN, WISCONSIN.

3. THE HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1927- WISCONSIN SOUTH.

4. VERTICAL DATUM (ELEVATION) IS REFERENCED TO USGS MEAN SEA LEVEL DATUM, 1929 ADJUSTMENT. TOPOGRAPHIC CONTOUR INTERVAL: 2 FEET.

5. MONITORING WELL LOCATIONS AND ELEVATIONS ARE BASED ON A SURVEYS PERFORMED BY SPATIAL DATA SURVEYS ON DECEMBER 2001, JANUARY 2002, JUNE 2002 AND APRIL 2003.

6. SITE BENCHMARKS ESTABLISHED BASED ON SURVEY FROM BENCHMARK MONUMENT LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION OF MAPLETON ROAD AND MILL ROAD. NE 1/4 OF NE 1/4 OF SECTION 8, TOWNSHIP 8 NORTH, RANGE 17 EAST.

7. THE PRIVATE OR SUPPLY WELLS SHOWN ON THIS MAP REPRESENT A PORTION OF THE PRIVATE WELLS SERVING THE RESIDENTS OR BUSINESSES IN THE TOWN OF ASHIPPUN, AND REPRESENT A PORTION OF THESE WELLS THAT LIKELY EXIST WITHIN THE CONFINED AREA OF THIS MAP.

MW-14D
Well Inaccessible

MW-102D
845.05

MW-15D
844.95

MW-106D
844.83

MW-13D
844.84

MW-12D
844.83

MW-103D
845.45

MW-104D
845.31

MW-5D
844.98

MW-105D
844.77

MW-107D
844.67

845.4
845.3
845.2
845.1
845
844.9
844.8
844.7

LEGEND

Site Instrumentation

- Deep Unconsolidated Monitoring Well
- Deep Unconsolidated Sentinel Well
- Estimated Groundwater Contour (0.1 foot contour interval; dashed where inferred)
- Approximate Site Boundary
- Existing 2' Topographic Contour
- Fence
- OECI Treatment Plant

N

0 60 120
Feet

FIGURE 5
Deep Unconsolidated Groundwater Elevations - June 2007
2007 3rd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OEIC\MAPFILES\GROUNDWATER ELEVATION MAPS JUNE 2007\FIGURE05_DEEP_UNCONSOLIDATED_AQUIFER_JUNE2007_GW_ELEV.MXD 7/31/2007 17:31:30

NOTES

1. BASE MAP DEVELOPED FROM INFORMATION PROVIDED BY RMT, INC. ON 10/26/04.

2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPHS DATED 3/26/1999 PREPARED BY AEROMETRICS, INC., SHEBOYGAN, WISCONSIN.

3. THE HORIZONTAL DATUM IS BASED ON THE WISCONSIN STATE PLANE COORDINATE SYSTEM, NORTH AMERICAN DATUM (NAD) 1927- WISCONSIN SOUTH.

4. VERTICAL DATUM (ELEVATION) IS REFERENCED TO USGS MEAN SEA LEVEL DATUM, 1929 ADJUSTMENT. TOPOGRAPHIC CONTOUR INTERVAL: 2 FEET.

5. MONITORING WELL LOCATIONS AND ELEVATIONS ARE BASED ON A SURVEYS PERFORMED BY SPATIAL DATA SURVEYS ON DECEMBER 2001, JANUARY 2002, JUNE 2002 AND APRIL 2003.

6. SITE BENCHMARKS ESTABLISHED BASED ON SURVEY FROM BENCHMARK MONUMENT LOCATED ON THE SOUTHWEST CORNER OF THE INTERSECTION OF MAPLETON ROAD AND MILL ROAD. NE 1/4 OF NE 1/4 OF SECTION 8, TOWNSHIP 8 NORTH, RANGE 17 EAST.

7. THE PRIVATE OR SUPPLY WELLS SHOWN ON THIS MAP REPRESENT A PORTION OF THE PRIVATE WELLS SERVING THE RESIDENTS OR BUSINESSES IN THE TOWN OF ASHIPPUN, AND REPRESENT A PORTION OF THESE WELLS THAT LIKELY EXIST WITHIN THE CONFINED AREA OF THIS MAP.

MW-4D
845.80

MW-101B
845.33

MW-15B
836.44

MW-3D
845.16

MW-1D
846.85

MW-2D
846.09

MW-12B
844.99

MW-105B
844.97

837 838 839 840 841 842 843 844 845 846

LEGEND

Site Instrumentation

- Bedrock Well
- Estimated Bedrock Contour (1 foot contour interval, dashed where inferred)
- Approximate Site Boundary
- Existing 2' Topographic Contour
- Fence
- OECI Treatment Plant

N

0 60 120
Feet

FIGURE 6
Bedrock Groundwater Elevations - June 2007
2007 3rd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OEIC\MAPFILES\GROUNDWATER ELEVATION MAPS JUNE 2007\FIGURE06_BEDROCK_CONTOUR_JUNE2007_GW_ELEV.MXD 7/31/2007 16:46:23

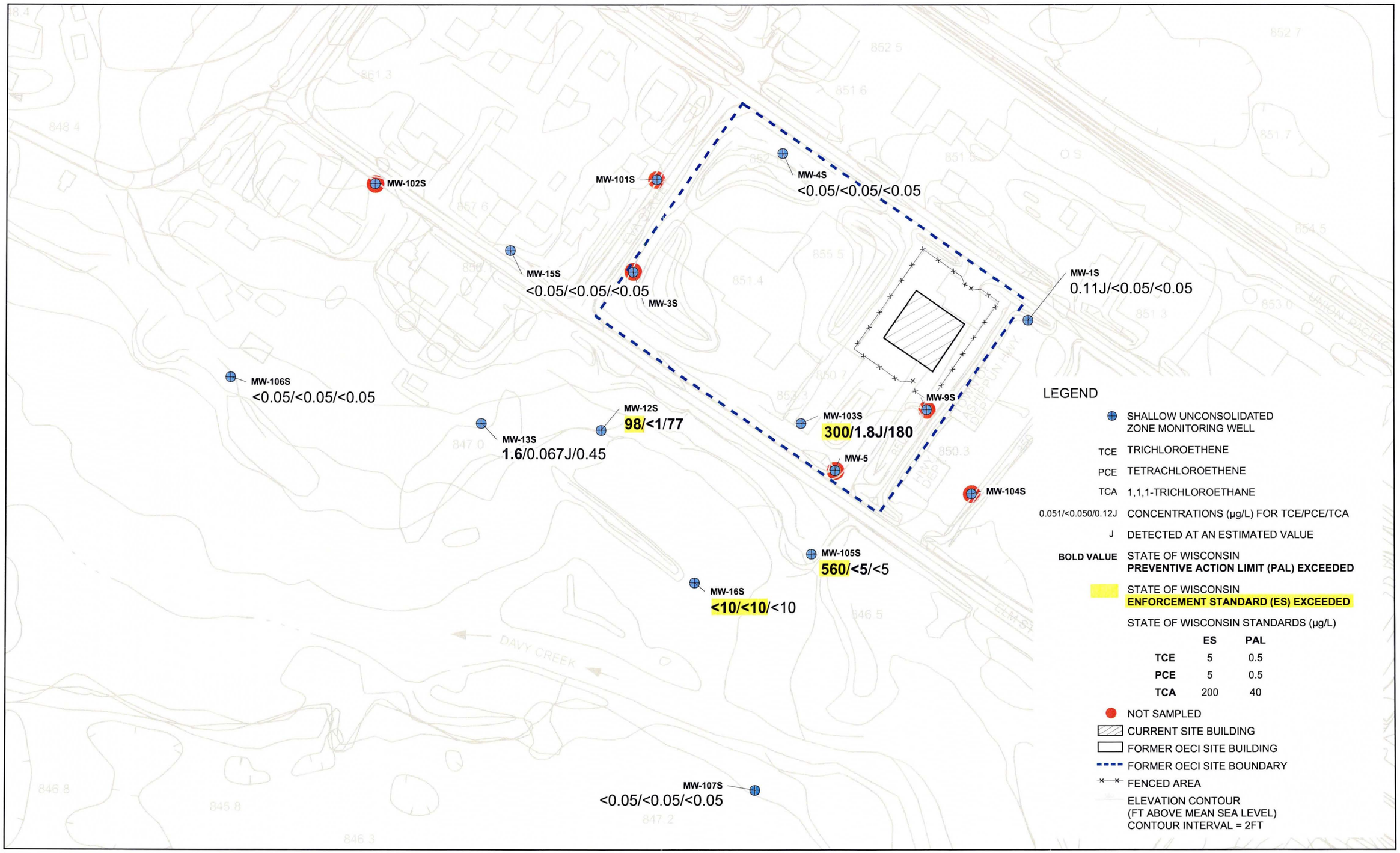

FIGURE 7
Groundwater TCE, PCE and TCA Concentrations in Shallow Unconsolidated Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCE_PCE_TCA_Shallow_Fig07_3rdQR_v06

CH2MHILL

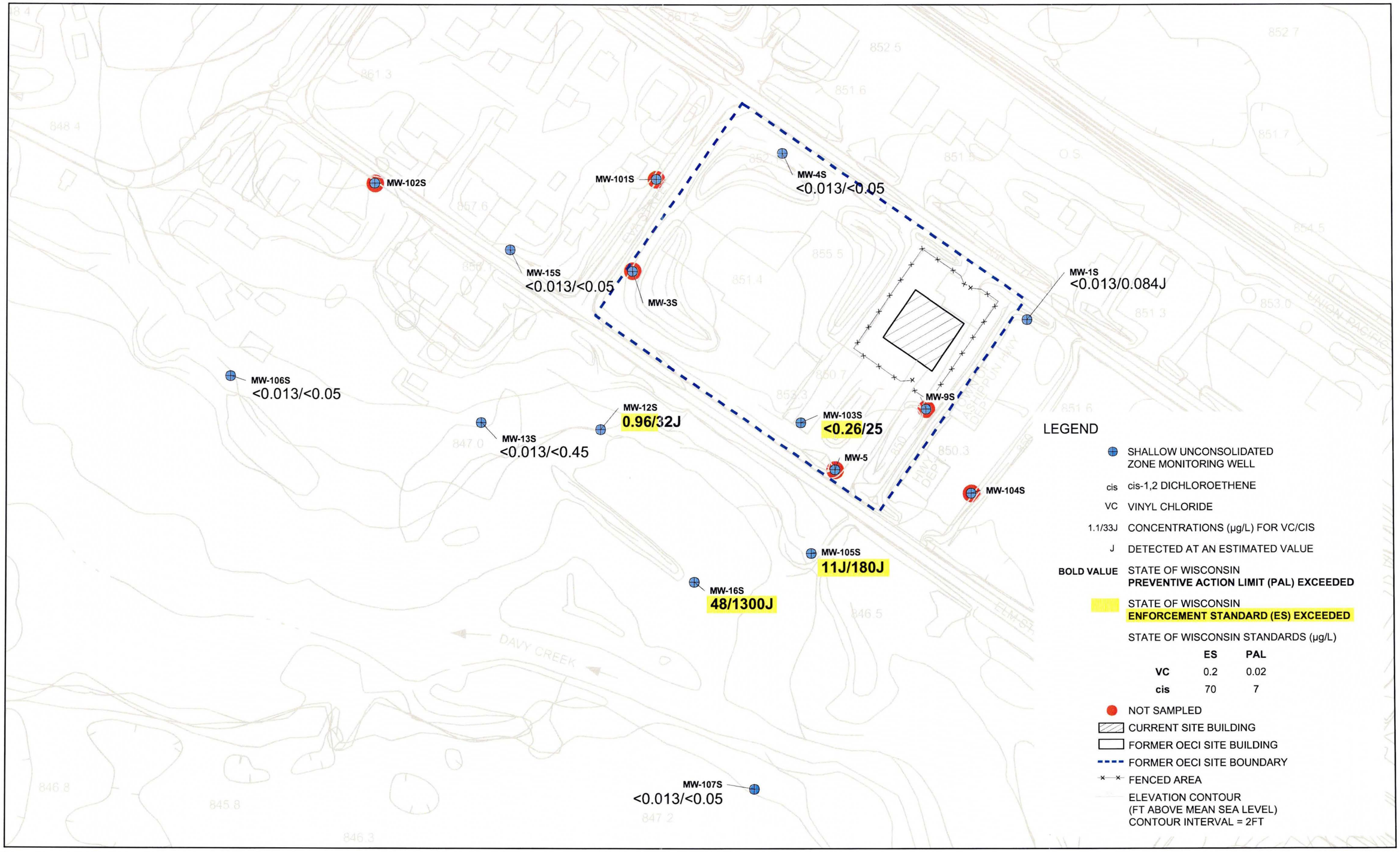

FIGURE 8
Groundwater VC and cis Concentrations in Shallow Unconsolidated Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_VEcis_Shallow_Fig08_3rdQR_v07

CH2MHILL

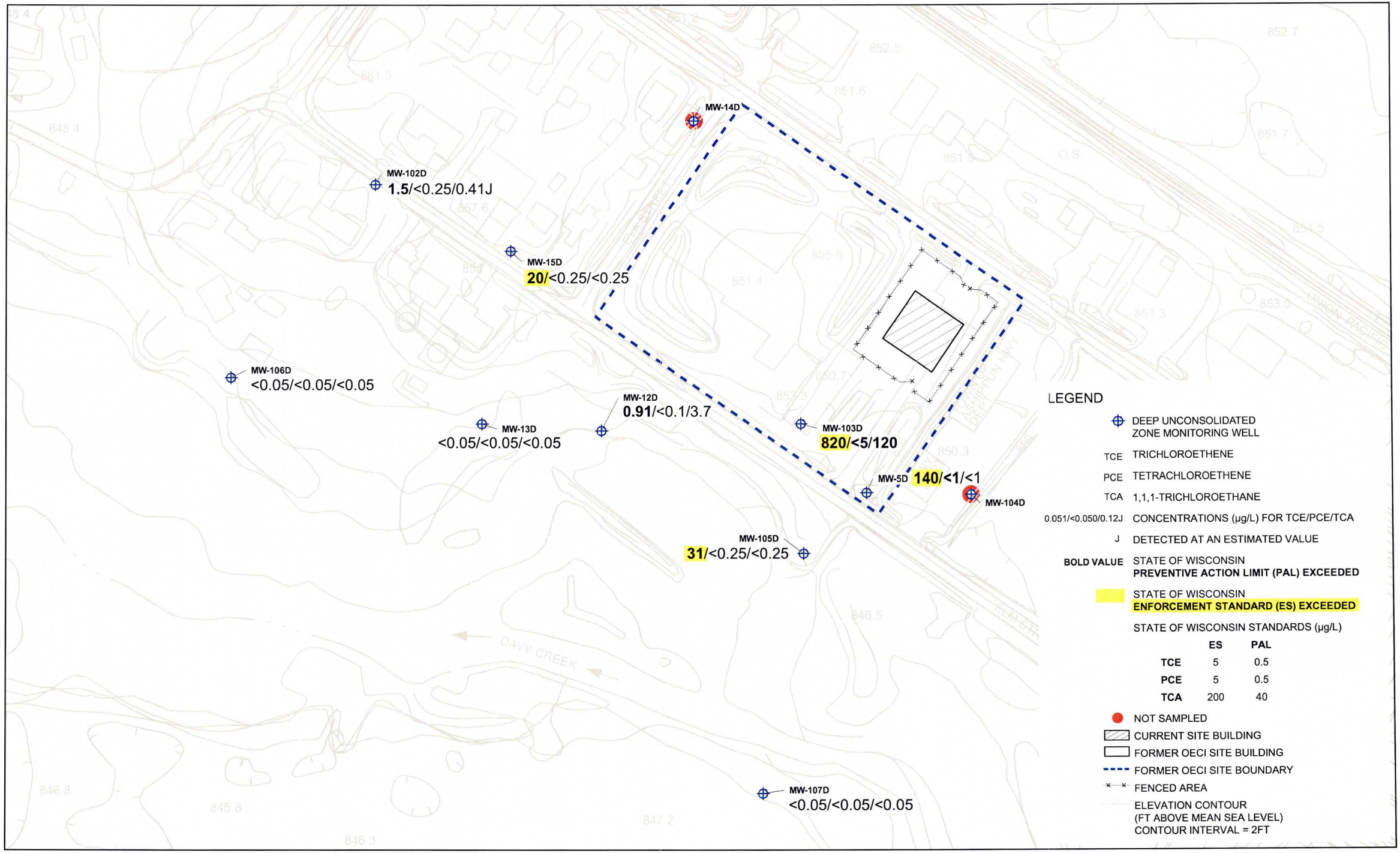

FIGURE 9
Groundwater TCE, PCE and TCA Concentrations in Deep Unconsolidated Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCE_PCE_TCA_Deep_Fig09_3rdQR_v07

CH2MHILL

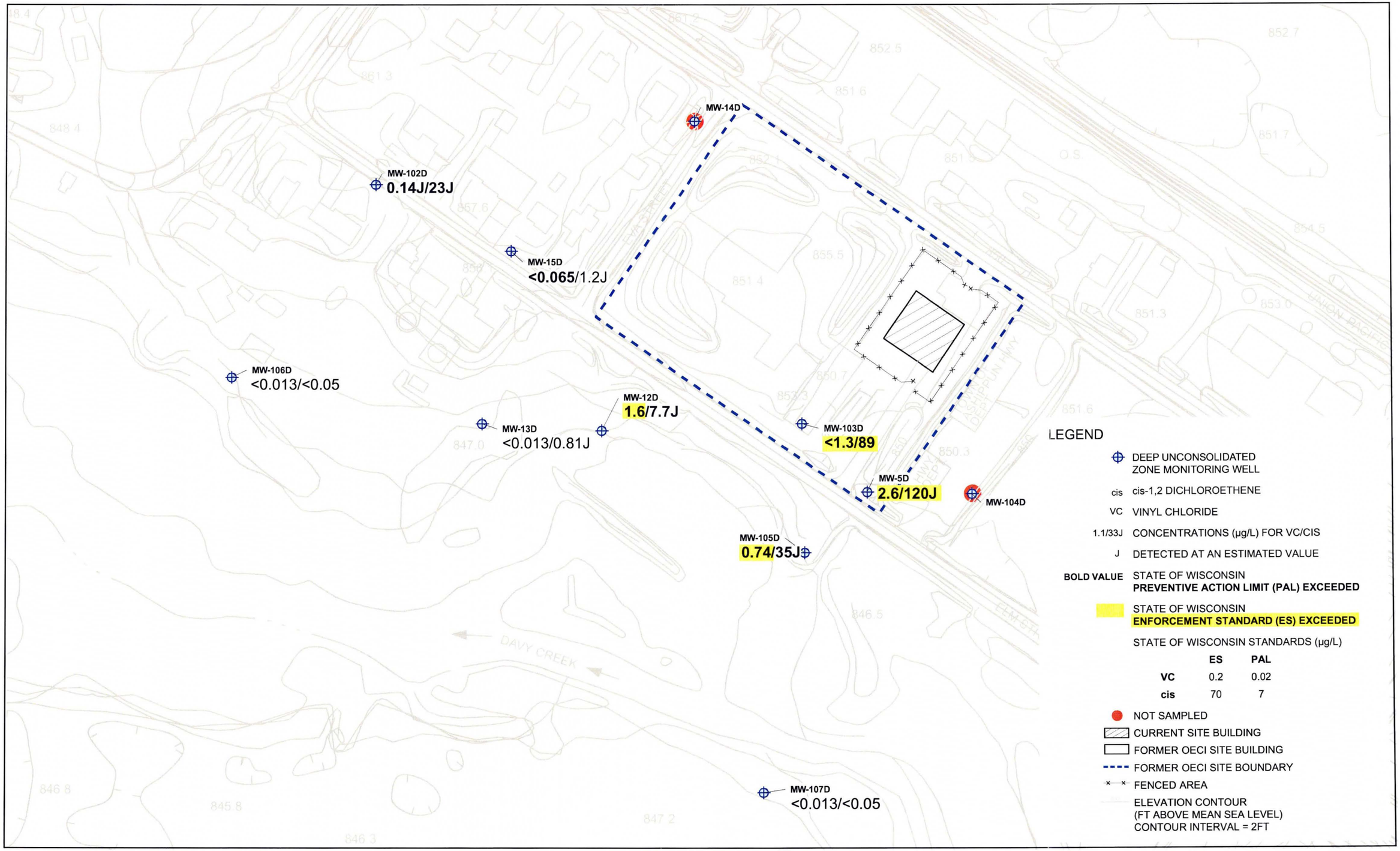

FIGURE 10
Groundwater VC and cis Concentrations in Deep Unconsolidated Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_VEcis_Deep_Fig10_3rdQR_v07

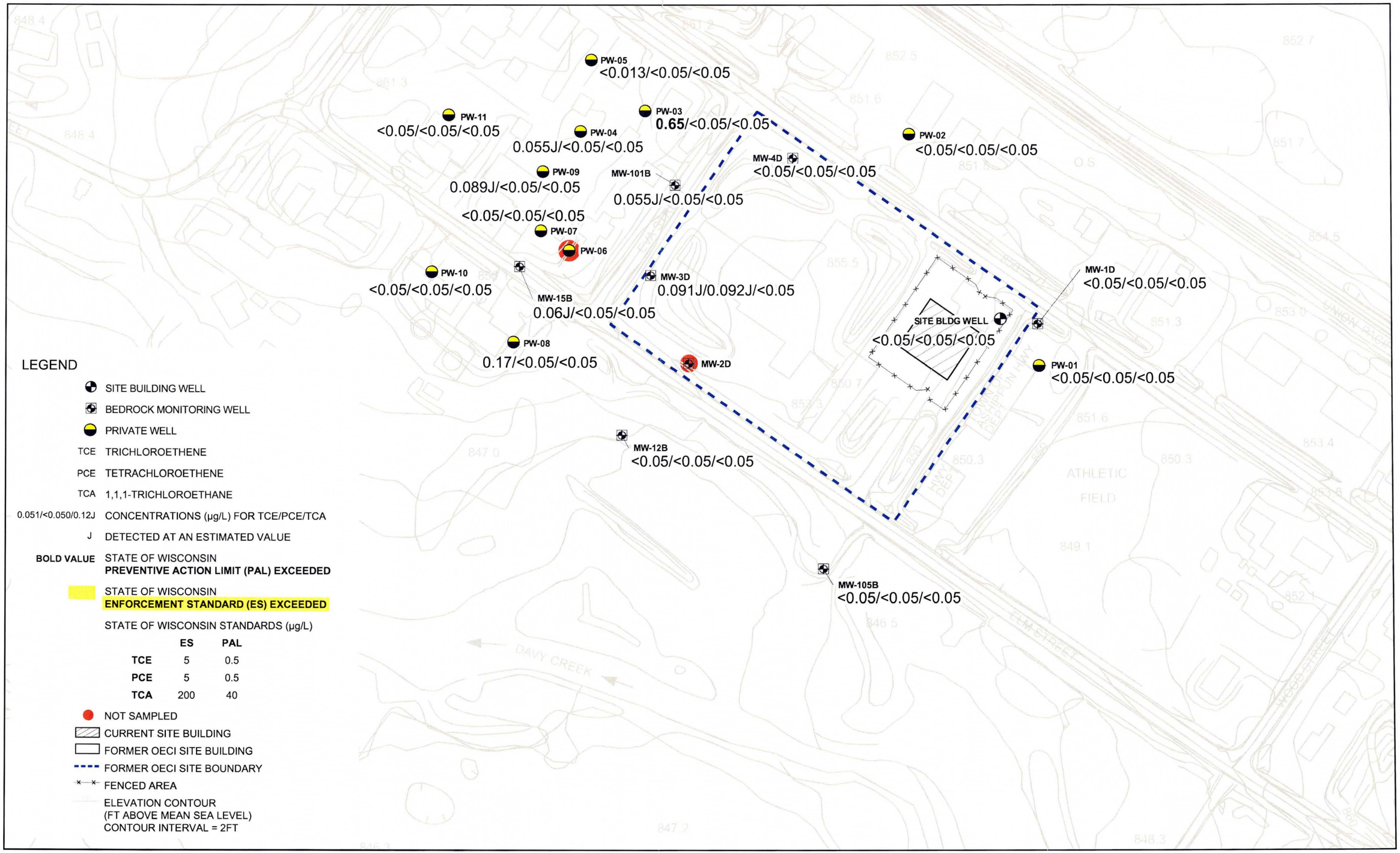

FIGURE 11
Groundwater TCE, PCE and TCA Concentrations in Bedrock Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCA_PCE_TCE_Bedrock_Fig11_3rdQR_v09

CH2MHILL

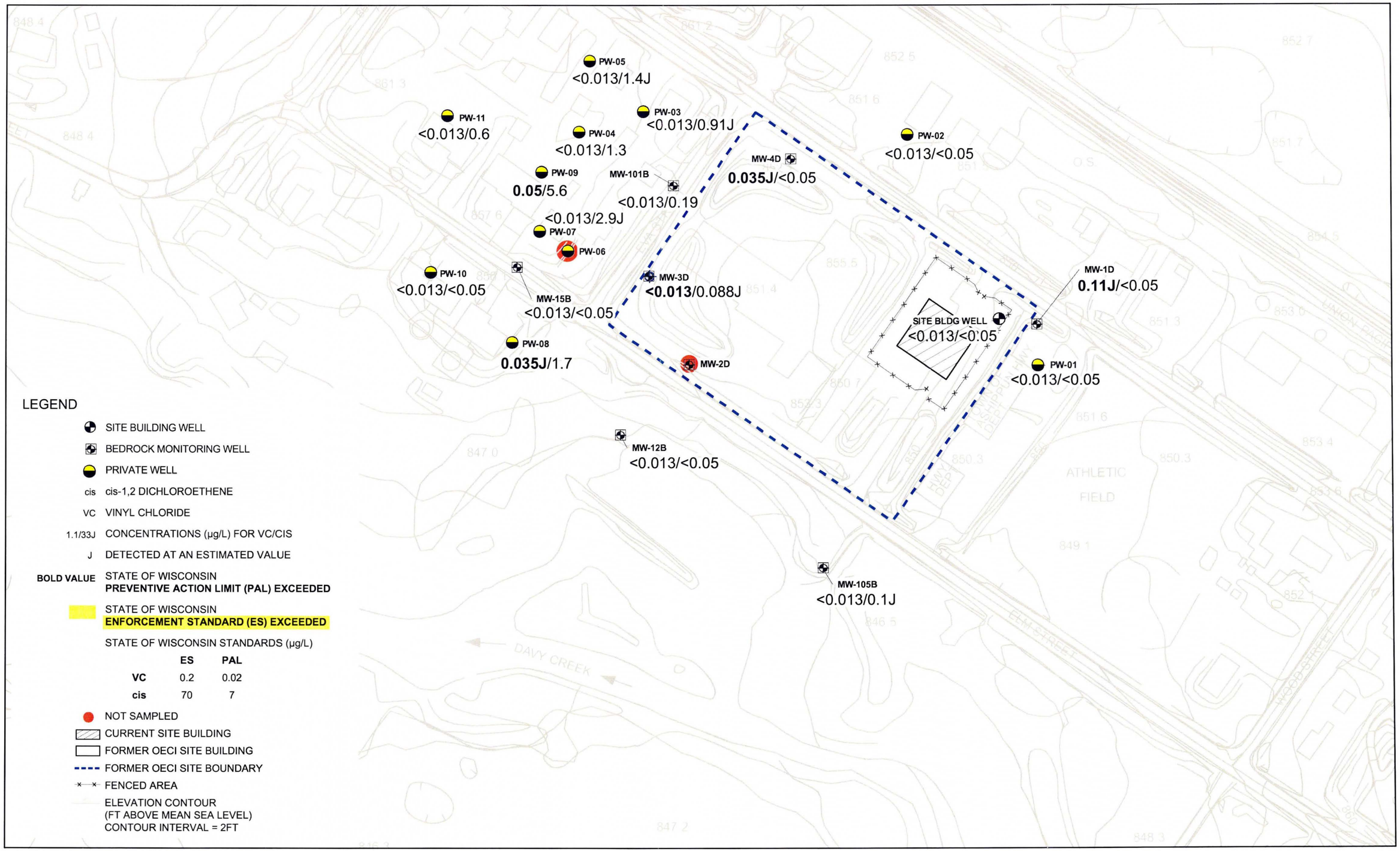

FIGURE 12
Groundwater VC and cis Concentrations in Bedrock Wells – June 2007
2007 3rd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_VCcis_Bedrock_Fig12_2ndQR_v09

CH2MHILL

Appendix A

Data Validation Memorandum

Data Usability Evaluation
Oconomowoc Electroplating Company, Inc. Site, Ashippun, Wisconsin
WA No. 003-LRLR-05M8, Contract No. EP-S5-06-01

PREPARED FOR: U.S. Environmental Protection Agency

PREPARED BY: Adrienne Unger/CH2M HILL

DATE: November 19, 2007

This memorandum presents the data usability evaluation of the groundwater samples collected during the field investigation conducted at the Oconomowoc Electroplating Company, Inc. site in Ashippun, Wisconsin, during June 2007. CH2M HILL performed the sampling. CT Laboratories, Inc. of Baraboo, Wisconsin, performed the analyses.

Fifty-seven groundwater and surface water samples were collected, including quality control (QC) samples, and analyzed for one or more of the following U.S. Environmental Protection Agency (USEPA)-approved methods:

- Volatile organic compounds (VOCs) by USEPA SW-846 Method 8260
- Alkalinity by USEPA 310.2
- Ammonia by USEPA 350.1
- Chloride by USEPA SW-846 Method 9056
- Methane, ethane, and ethene by RSK 175
- Nitrate by USEPA SW-846 Method 9056
- Orthophosphate by USEPA SW-846 Method 9056
- Sulfate by USEPA SW-846 Method 9056
- Sulfide by USEPA 376.1
- Total organic carbon by USEPA SW-846 Method 9060
- Total metals by USEPA SW-846 Method 6010B
- Dissolved metals by USEPA SW-846 Method 6010B

As part of the quality assurance (QA) process outlined in the field sampling plan (CH2M HILL 2006), QC samples were collected in the field to complement the assessment of overall data quality and usability. These QC samples collected were field duplicates, aliquots for laboratory matrix spike/matrix spike duplicates (MS/MSDs), a field blank, and an equipment blank. VOC trip blanks also were used as a means of QC; these samples were supplied by the laboratory.

The dataset was reviewed by the USEPA Environmental Service Assistance Team (ESAT) contractor, TechLaw, (Attachment 1) to assess the accuracy and precision of the method and the matrix using criteria established in the National Functional Guidelines (NFG) for data review. Completeness of the dataset was then derived. USEPA validators added data

qualifiers when the QC statistics indicated a possible bias to specific compounds or analytes associated with a particular method and sample batch.

Standard data qualifiers were used as a means of classifying the data as to their conformance to QC requirements. The applied data qualifiers are defined as follows:

[U] The sample target was analyzed for but not detected above the level of the associated limit of detection or quantitation.

[J] The associated value is an estimated quantity. This qualifier was appended when the data indicated the presence of a specific target analyte but was below the stated reporting (or quantitation) limit, and/or when QC statistics alluded to an analytical bias.

[UJ] The component was analyzed for but not detected at a level equal to or greater than the level of detection (LOD) or quantification (often the reporting limit [RL]). This flag was used when QC measurements indicated a possible low bias in the analytical data.

[R] Rejected. The data were of insufficient quality to be deemed acceptable as reported or otherwise qualified.

Groundwater Samples

CH2M HILL conducted a review of the validation performed by USEPA for the groundwater samples in sample delivery group (SDG) 61033 and 61248. Table 1 lists the sample identifications (IDs) and SDGs that were reviewed (100 percent of all samples collected).

TABLE 1
Sample Summary by Laboratory ID and Sample Delivery Group
Oconomowoc Electroplating

Sample ID	SDG	Sample ID	SDG	Sample ID	SDG
07CE37-01	61033	07CE37-29	61033	07CE37-57	61033
07CE37-02	61033	07CE37-30	61033	07CE37-58	61033
07CE37-03	61033	07CE37-31	61033	07CE37-59	61033
07CE37-04	61033	07CE37-32	61033	07CE37-60	61033
07CE37-05	61033	07CE37-33	61033	07CE37-61	61033
07CE37-06	61033	07CE37-34	61033	07CE37-62	61033
07CE37-07	61033	07CE37-35	61033	07CE37-63	61033
07CE37-08	61033	07CE37-36	61033	07CE37-64	61033
07CE37-09	61033	07CE37-37	61033	07CE37-65	61033
07CE37-10	61033	07CE37-38	61033	07CE37-66	61033
07CE37-11	61033	07CE37-39	61033	07CE37-67	61033
07CE37-12	61033	07CE37-40	61033	07CE37-68	61033
07CE37-13	61033	07CE37-41	61033	07CE37-69	61033

TABLE 1
Sample Summary by Laboratory ID and Sample Delivery Group
Oconomowoc Electroplating

Sample ID	SDG	Sample ID	SDG	Sample ID	SDG
07CE37-14	61033	07CE37-42	61033	07CE37-70	61033
07CE37-15	61033	07CE37-43	61033	07CE37-71	61033
07CE37-16	61033	07CE37-44	61033	07CE37-72	61033
07CE37-17	61033	07CE37-45	61033	07CE37-73	61033
07CE37-18	61033	07CE37-46	61033	07CE37-80	61033
07CE37-19	61033	07CE37-47	61033	07CE37-83	61033
07CE37-20	61033	07CE37-48	61033	07CE37-84	61033
07CE37-21	61033	07CE37-49	61033	07CE37-74	61248
07CE37-22	61033	07CE37-50	61033	07CE37-75	61248
07CE37-23	61033	07CE37-51	61033	07CE37-76	61248
07CE37-24	61033	07CE37-52	61033	07CE37-77	61248
07CE37-25	61033	07CE37-53	61033	07CE37-78	61248
07CE37-26	61033	07CE37-54	61033	07CE37-79	61248
07CE37-27	61033	07CE37-55	61033	07CE37-81	61248
07CE37-28	61033	07CE37-56	61033	--	--

The USEPA validation case narratives and worksheets indicate which of these sample results were biased due to applicable QC statistics or other NFG requirements. The qualifications are described in Attachment 1. Some results were rejected; those are summarized as follows:

- The MS/MSD recoveries for m & p-xylene and styrene were below 20 percent for sample 07CE37-46. These nondetected sample results were qualified as unusable "R".
- The MS/MSD recovery for styrene was below 20 percent for sample 07CE37-74. This nondetected sample result was qualified as unusable "R".

The dataset completeness is 99.9 percent usable and may be used in the project decision-making process with qualification. In addition, approximately 10 percent of the data underwent a comparative review to evaluate the accuracy between the database and the USEPA validation reports. No discrepancies were noted.

Conclusions

The USEPA validation reports were verified to comply with the applicable NFG for data review. This verification confirmed that the validation performed by USEPA was complete for the entire dataset analyzed by CT Laboratories. Qualified data, if not rejected, are considered usuable for the project decision-making process. The project data quality objectives (DQOs) established a completeness goal for the project at 90 percent. The percent completeness for these groundwater data is 99.9 percent (0.1 percent of the data were

rejected) and met the established DQOs set forth in the quality assurance project plan (CH2M HILL 2004).

Data summary tables of the results have been provided as a table in the *2007 Third Quarter Groundwater Report – OECI Site.* An electronic file of these data also will be submitted as part of this deliverable.

Reference Cited

CH2M HILL. 2004. *Quality Assurance Project Plan, Oconomowoc Electroplating, Oconomowoc, Wisconsin.* WA No. 236-RALR-05M8 Contract No. 68-W6-0025. October.

CH2M HILL. 2006. *Field Sampling Plan, Oconomowoc Electroplating, Oconomowoc, Wisconsin.* WA No. 003-LRLR-05MS Contract No. EP-SS-06-01. October.

Attachment 1

Validation Narratives

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: August 20, 2007

SUBJECT: Review of Data
Received for review on July 19, 2007

FROM: Stephen L. Ostrodka, Chief (SRT-4J)
Superfund Field Services Section

TO: Data User: CH2M HILL

We have reviewed the data for the following case:

SITE NAME: Oconomowoc Electroplating Company (WI)

CASE NUMBER: 07CE37 **SDG NUMBER:** 61033-INO

Number and Type of Samples: 27 water samples

Sample Numbers: 07CE37-01, -03, -05, -07, -10, -11, -12, -22, -25, -27, -29, -33, -35, -37, -39, -41, -43, -50, -52, -54, -56, -61, -63, -65, -68, -70, -72

Laboratory: CT Laboratories **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TOPO
Mail Code: SRT-4J

Case: 07CE37
Site: Oconomowoc Electroplating

SDG: 61033-INO
Laboratory: CT Laboratories

Narrative

The laboratory's portion of this case contains 27 water samples (see TABLE 1). The samples were collected between June 25 and 29, 2007. They were analyzed for alkalinity, total organic carbon (TOC), sulfide, nitrate, sulfate and chloride. All sample results are reported to the MDL. The samples were analyzed using SW846 9056 (anions), 9060 (total organic carbon), EPA 310.2 (alkalinity), and 376.1 (sulfide) analysis procedures.

Evidential Audit: All reporting forms provided are CLP-like documents. All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 forms or sample tags were provided.

No MDL summaries were provided. It is unknown when MDLs were performed. MDL (LOD) values recorded on the results Form 1 were used for evaluation of the data. MDL and RL values on Form 1s are equal.

Alkalinity: The SAS requires that the lowest calibration point be run at 10.0 mg/L. The lowest point performed was 25 mg/L. All sample results were above 25 mg/L except samples 07CE37-05 and 07CE37-07, which are non-detects. These results are estimated "UJ" due to the laboratories inability to meet the SAS required RL. The recovery of alkalinity for 07CE37-61MS was below the SAS QC limit. The alkalinity results for 07CE37-54, 07CE37-56, 07CE37-61, 07CE37-63, 07CE37-65, 07CE37-68, 07CE37-70 and 07CE37-72 are estimated "J" due to low bias. All other alkalinity results are acceptable.

Chloride: No defects were found. All chloride results are acceptable.

Nitrate: No defects were found. All nitrate results are acceptable.

Sulfate: Sulfate result for 07CE37-11 was reported incorrectly at 140 mg/L on Form I. Raw data showed sulfate was detected at 63 mg/L. Correction for sulfate result of 07CE37-11 was made by the reviewer. The sulfate recovery for 07CE37-72MS was below the SAS QC limit. The sulfate results for 07CE37-68, 07CE37-70 and 07CE37-72 are estimated "J" due to low bias. All remaining sulfate results are acceptable.

Sulfide: No defects were found. All sulfide results are acceptable.

TOC: The SAS requires a low standard be run to confirm the reporting limit of 1.0 mg/L. This was not performed. All TOC results are below the lowest calibration standard of 10 mg/L. The TOC results are estimated "J" for detects and "UJ" for non-detects.

Other comments: Samples 07CE37-22/07CE37-25, 07CE37-35/07CE37-37 and 07CE37-54/07CE37-56 were identified as field duplicates. Duplicates were evaluated according to the same criteria as laboratory duplicates. All showed good correlation. Sample 07CE37-07 was identified

Reviewed by: Steffanie Tobin (TechLaw/ESAT)
Date: 08/20/2007

as field blank. Sample 07CE37-05 was identified as equipment blank. No contamination was found in the field blank. The equipment blank contains nitrate (0.20 mg/L) above the laboratory reporting limit (0.11 mg/L) but less than the SAS reporting limit (1.0 mg/L). No qualification for the sample results since nitrate result for the equipment blank is less than the SAS required reporting limit.

TABLE 1

Lab ID	*EPA sample ID*	*Sample location*	*Cooler Tem.*	*Collection date*	*Collection time*	*Reciecved date*
481496	07CE37-01	OPE-MW-103D	2.6	6/25/2007	15:25	6/26/2007
481498	07CE37-03	OPE-MW-103S	2.6	6/25/2007	15:35	6/26/2007
481492	07CE37-05	OEP-EB	2.9	6/25/2007	14:25	6/26/2007
481494	07CE37-07	OEP-FB	2.9	6/25/2007	14:35	6/26/2007
481770	07CE37-10	OEP-MW-01D	3.7	6/26/2007	11:15	6/27/2007
481771	07CE37-11	OEP-MW-01S	3.7	6/26/2007	10:00	6/27/2007
481786	07CE37-12	OEP-MW-04S	3.9	6/26/2007	10:00	6/27/2007
481782	07CE37-22	OEP-MW101B	3.7	6/26/2007	15:10	6/27/2007
481785	07CE37-25	OEP-MW101B-FR	3.5	6/26/2007	15:10	6/27/2007
481788	07CE37-27	OEP-MW-03D	3.9	6/26/2007	15:40	6/27/2007
481790	07CE37-29	OEP-MW-04D	3.9	6/26/2007	11:20	6/27/2007
482144	07CE37-33	OEP-MW-05D	4.1	6/27/2007	10:10	6/28/2007
482146	07CE37-35	OEP-MW-15D	4.1	6/27/2007	11:55	6/28/2007
482151	07CE37-37	OEP-MW-15D-FR	2.1	6/27/2007	11:55	6/28/2007
482141	07CE37-39	OEP-MW-102D	3.8	6/27/2007	10:10	6/28/2007
482153	07CE37-41	OEP-MW-15S	2.1	6/27/2007	13:09	6/28/2007
482155	07CE37-43	OEP-MW-15B	2.1	6/27/2007	12:15	6/28/2007
482658	07CE37-50	OEP-MW-16S	3.6	6/28/2007	10:20	6/29/2007
482679	07CE37-52	OEP-MW13D	3.6	6/28/2007	11:59	6/29/2007
482683	07CE37-54	OEP-MW-13S	2.1	6/28/2007	11:45	6/29/2007
482685	07CE37-56	OEP-MW-13S-FR	2.1	6/28/2007	11:45	6/29/2007
482697	07CE37-61	OEP-MW-105S	5.9	6/28/2007	15:30	6/29/2007
482695	07CE37-63	OEP-MW-105B	4.8	6/28/2007	15:00	6/29/2007
482690	07CE37-65	OEP-MW-105D	2.1	6/28/2007	15:45	6/29/2007
482967	07CE37-68	OEP-MW-12B	2.2	6/29/2007	10:30	6/30/2007
482969	07CE37-70	OEP-MW-12D	2.2	6/29/2007	11:40	6/30/2007
482962	07CE37-72	OEP-MW-12S	2.2	6/29/2007	10:30	6/30/2007

Reviewed by: Steffanie Tobin (TechLaw/ESAT)
Date: 08/20/2007

Case: 07CE37
Site: Oconomowoc Electroplating

SDG: 61033-INO
Laboratory: CT Laboratories

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Steffanie Tobin (TechLaw/ESAT)
Date: 08/20/2007

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: August 26, 2007

SUBJECT: Review of Data
Received for review on July 19, 2007

FROM: Stephen L. Ostrodka, Chief (SRT-4J)
Superfund Field Services Section

TO: Data User: CH2M Hill

We have reviewed the data for the following case:

SITE NAME: Oconomowoc Electroplating (WI)

CASE NUMBER: 07CE37 **SDG NUMBER:** 61033-MET

Number and Type of Samples: 53 waters (27 total/26 dissolved)

Sample Numbers: 07CE35-01 thru -07, -10 thru -15, -22 thru -25, -27 thru -30, -33 thru -44, -50 thru -57, -61 thru -66, -68 thru -73

Laboratory: CT Laboratories **Hrs. for Review:**

Following are our findings:

CC: Howard Pham
Region 5 TOPO
Mail Code: SRT-4J

Case: 07CE37 SDG: 61033-MET
Site: Oconomowoc Electroplating Laboratory: CT laboratory

Narrative

The laboratory's portion of this case contains 53 water samples (27 total and 26 dissolved, see attached table) which were collected between June 25 and 29, 2007 and received at the laboratory between June 26 and 30, 2007. The samples were analyzed for iron and manganese. All sample results are reported to the MDL. The samples were analyzed using SW846 6010B (ICP-AES) analysis procedures.

Evidential Audit: All provided ICP reporting forms are CLP-like documents. All documents provided are copies. No location is noted for the originals. No DC-1 or DC-2 forms, or sample tags were provided. Field Chain-of-Custody Records (copies) were provided for less than half of the samples in the case. Levels recorded on the Form for the RL check sample ("CRDL" sample) were not at the SAS required levels.

No analytical date was provided on the MDL Summary Form, ICP Interelement Correction Factor Forms or ICP Linearity Form. MDL values recorded on the forms provided were used for evaluation of the data. The values provided for MDLs on the calibration or preparation blank forms (29.2, 63, 39 for Fe and 5.7, 1.57, 0.5 for Mn, respectively) were different from the Level of Detection (LOD) listed on the Form 1s (39 for total Fe, 10 for dissolved Fe, 0.5 for total Mn, 0.4 for dissolved Mn). Dissolved LOD/RL values are used for evaluation of the dissolved blank and ICB/CCB data. Total LOD/RL values are used for evaluation of the total digestion blank data.

The Duplicate Forms included are for the LCS/LCSD. Duplicate forms are also included for the MS/MSD. One serial dilution was performed for the entire case on one of the total samples. Post digestion matrix spike analyses were performed on all total QC samples. Analytical Run Logs have large gaps in the reported analytical times during the run. These are believed to areas where no data were reported for samples from this case. Four run logs were included with the case. Two of the run logs were for the same analytical run. Calibration times are not included in the run logs.

ICP-AES: Section 8(d) of the SAS requires that the RL must be shown to have been met before any samples are analyzed; since the "CRDL" sample was not analyzed at the SAS required RL (the sample contains 1500 ug/L Fe and 10 ug/L Mn; the SAS requires 30 ug/L Fe and 6 ug/L Mn), this requirement was not met. The sample results are qualified as below due to the failure of the laboratory to meet the SAS required reporting limit:

> All detected Fe results less than 1500 ug/L (total Fe results for 07CE35-11, -12, -22, -25, -27, -43, -54, -56, -63, -65, -68, -70, -72 and dissolved Fe results for 07CE35-04, -15, -23, -24, -28, -30, -44, -53, -62, -64, -66, -71, -73) are estimated "J".
>
> The detected Mn result less than 10 ug/L (total Mn results for 07CE35-05, -07, -41 and dissolved Fe results for 07CE35-06, -42) are estimated "J".
>
> All non-detect sample results for total Fe results for 07CE35-01, -03, -05, -07, -35, -37, -41 and dissolved Fe results for 07CE35-02, -06, -14, -36, -38, -42, -55, -57, -69 are estimated "UJ".

For Fe, a method blank for total metal contains Fe above the SAS RL (52.9 ug/L). The total Fe

Case: 07CE37 SDG: 61033-MET
Site: Oconomowoc Electroplating Laboratory: CT laboratory

result for 07CE35-11, -12, -22, -25 are less than 5X the method blank result and are estimated "J+" due to possible contamination. An ICB contains dissolved Fe above the lab RL but less than SAS RL. The dissolved Fe results for 07CE35-04, -23, -24, -44 are between the LOD/RL and the SAS required RL and are estimated "J" due to possible contamination. A CCB contains dissolved Fe with negative concentration whose absolute value is greater than the LOD/RL. The dissolved Fe result for 07CE35-73 is less than 5X the blank absolute value and is estimated "J-".

For Mn, an ICB, CCB and method blank contain total and dissolved Mn above the lab RL but less than SAS RL. The total Mn results for 07CE35-05 and -07 and dissolved Mn results for 07CE35-06 and -42 are between the LOD/RL and the SAS required RL and are estimated "J+" due to possible contamination.

Other comments: Samples 07CE35-22/-25, -23/-24, -35/-37, -36/-38, -54/-56, -55/-57 were identified as field duplicates. Duplicates were evaluated according to the same criteria as laboratory duplicates. All showed good correlation except 07CE35-54/-56 (both elements); no sample results were qualified for field duplicate failure.

Samples 07CE35-05 and -06 were identified as equipment blanks. The dissolved Mn result for 07CE35-42 is affected by field contamination and qualified as above.

Sample 07CE35-07 was identified as field blank. Total Mn was detected in the field blank but it does not affect the sample results.

Case: 07CE37
Site: Oconomowoc Electroplating

SDG: 61033-MET
Laboratory: CT laboratory

(Total Metal)		(Dissolved Metal)				
Lab ID	***EPA ID***	***Lab ID***	***EPA ID***	***Sample location***	***Col. date***	***Rec. date***
481492	07CE37-05	481493	07CE37-06	OEP-EB	6/25/2007	6/26/2007
481494	07CE37-07			OEP-FB	6/25/2007	6/26/2007
481496	07CE37-01	481497	07CE37-02	OPE-MW-103D	6/25/2007	6/26/2007
481498	07CE37-03	481499	07CE37-04	OPE-MW-103S	6/25/2007	6/26/2007
481770	07CE37-10	481776	07CE37-13	OEP-MW-01D	6/26/2007	6/27/2007
481771	07CE37-11	481781	07CE37-14	OEP-MW-01S	6/26/2007	6/27/2007
481782	07CE37-22	481783	07CE37-23	OEP-MW101B	6/26/2007	6/27/2007
481785	07CE37-25	481784	07CE37-24	OEP-MW101B-FR	6/26/2007	6/27/2007
481786	07CE37-12	481787	07CE37-15	OEP-MW-04S	6/26/2007	6/27/2007
481788	07CE37-27	481789	07CE37-28	OEP-MW-03D	6/26/2007	6/27/2007
481790	07CE37-29	481791	07CE37-30	OEP-MW-04D	6/26/2007	6/27/2007
482141	07CE37-39	482142	07CE37-40	OEP-MW-102D	6/27/2007	6/28/2007
482144	07CE37-33	482145	07CE37-34	OEP-MW-05D	6/27/2007	6/28/2007
482146	07CE37-35	482147	07CE37-36	OEP-MW-15D	6/27/2007	6/28/2007
482151	07CE37-37	482152	07CE37-38	OEP-MW-15D-FR	6/27/2007	6/28/2007
482153	07CE37-41	482154	07CE37-42	OEP-MW-15S	6/27/2007	6/28/2007
482155	07CE37-43	482156	07CE37-44	OEP-MW-15B	6/27/2007	6/28/2007
482658	07CE37-50	482678	07CE37-51	OEP-MW-16S	6/28/2007	6/29/2007
482679	07CE37-52	482680	07CE37-53	OEP-MW13D	6/28/2007	6/29/2007
482683	07CE37-54	482684	07CE37-55	OEP-MW-13S	6/28/2007	6/29/2007
482685	07CE37-56	482686	07CE37-57	OEP-MW-13S-FR	6/28/2007	6/29/2007
482690	07CE37-65	482693	07CE37-66	OEP-MW-105D	6/28/2007	6/29/2007
482695	07CE37-63	482696	07CE37-64	OEP-MW-105B	6/28/2007	6/29/2007
482697	07CE37-61	482698	07CE37-62	OEP-MW-105S	6/28/2007	6/29/2007
482962	07CE37-72	482963	07CE37-73	OEP-MW-12S	6/29/2007	6/30/2007
482967	07CE37-68	482968	07CE37-69	OEP-MW-12B	6/29/2007	6/30/2007
482969	07CE37-70	482970	07CE37-71	OEP-MW-12D	6/29/2007	6/30/2007

Reviewed by: Steffanie Tobin – TechLaw/ESAT
Date: August 27, 2007

Case: 07CE37
Site: Oconomowoc Electroplating

SDG: 61033-MET
Laboratory: CT laboratory

			Sample Concentration (ug/L) without qualification							
Lab ID	*EPA ID*	*Sample location*	*Total Fe*		*Total MN*		*Dis. Fe*		*Dis. Mn*	
			DF		DF		DF		DF	
481496	07CE37-01	OPE-MW-103D	1	39 U	1	270	1		1	
481497	07CE37-02	OPE-MW-103D (F)	1		1		1	10 U	1	260
481498	07CE37-03	OPE-MW-103S	1	39 U	1	440	1		1	
481499	07CE37-04	OPE-MW-103S (F)	1		1		1	12	1	420
481492	07CE37-05	OEP-EB	1	39 U	1	1.0	1		1	
481493	07CE37-06	OEP-EB (F)	1		1		1	10 U	1	1.1
481494	07CE37-07	OEP-FB	1	39 U	1	0.61	1		1	
481770	07CE37-10	OEP-MW-01D	1	3200	1	76	1		1	
481776	07CE37-13	OEP-MW-01D (F)	1		1		1	2600	1	70
481771	07CE37-11	OEP-MW-01S	1	220	1	85	1		1	
481781	07CE37-14	OEP-MW-01S (F)	1		1		1	10 U	1	71
481786	07CE37-12	OEP-MW-04S	1	180	1	160	1		1	
481787	07CE37-15	OEP-MW-04S (F)	1		1		1	100	1	140
481782	07CE37-22	OEP-MW101B	1	65	1	88	1		1	
481783	07CE37-23	OEP-MW101B (F)	1		1		1	14	1	71
481785	07CE37-25	OEP-MW101B-FR	1	57	1	86	1		1	
481784	07CE37-24	OEP-MW101B (F)-FR	1		1		1	15	1	70
481788	07CE37-27	OEP-MW-03D	1	1500	1	22	1		1	
481789	07CE37-28	OEP-MW-03D (F)	1		1		1	1300	1	18
481790	07CE37-29	OEP-MW-04D	1	3600	1	200	1		1	
481791	07CE37-30	OEP-MW-04D (F)	1		1		1	620	1	110
482144	07CE37-33	OEP-MW-05D	1	2300	1	71	1		1	
482145	07CE37-34	OEP-MW-05D (F)	1		1		1	1800	1	61
482146	07CE37-35	OEP-MW-15D	1	39 U	1	330	1		1	
482147	07CE37-36	OEP-MW-15D (F)	1		1		1	10 U	1	310
482151	07CE37-37	OEP-MW-15D-FR	1	39 U	1	330	1		1	
482152	07CE37-38	OEP-MW-15D (F)-FR	1		1		1	10 U	1	300
482141	07CE37-39	OEP-MW-102D	1	2100	1	55	1		1	
482142	07CE37-40	OEP-MW-102D (F)	1		1		1	1800	1	49
482153	07CE37-41	OEP-MW-15S	1	39 U	1	6.3	1		1	
482154	07CE37-42	OEP-MW-15S (F)	1		1		1	10 U	1	1.3
482155	07CE37-43	OEP-MW-15B	1	990	1	920	1		1	
482156	07CE37-44	OEP-MW-15B (F)	1		1		1	21	1	780
482658	07CE37-50	OEP-MW-16S	1	9500	1	110	1		1	
482678	07CE37-51	OEP-MW-16S (F)	1		1		1	7700	1	79
482679	07CE37-52	OEP-MW13D	1	2300	1	40	1		1	
482680	07CE37-53	OEP-MW13D (F)	1		1		1	670	1	34
482683	07CE37-54	OEP-MW-13S	1	570	1	31	1		1	
482684	07CE37-55	OEP-MW-13S (F)	1		1		1	10 U	1	11
482685	07CE37-56	OEP-MW-13S-FR	1	59	1	15	1		1	
482686	07CE37-57	OEP-MW-13S (F)-FR	1		1		1	10 U	1	10
482697	07CE37-61	OEP-MW-105S	1	2300	1	230	1		1	
482698	07CE37-62	OEP-MW-105S (F)	1		1		1	1200	1	190
482695	07CE37-63	OEP-MW-105B	1	750	1	1100	1		1	
482696	07CE37-64	OEP-MW-105B (F)	1		1		1	700	1	1000
482690	07CE37-65	OEP-MW-105D	1	1400	1	64	1		1	
482693	07CE37-66	OEP-MW-105D (F)	1		1		1	1400	1	60
482967	07CE37-68	OEP-MW-12B	1	100	1	23	1		1	
482968	07CE37-69	OEP-MW-12B (F)	1		1		1	10 U	1	20
482969	07CE37-70	OEP-MW-12D	1	1100	1	37	1		1	
482970	07CE37-71	OEP-MW-12D (F)	1		1		1	1000	1	37
482962	07CE37-72	OEP-MW-12S	1	250	1	140	1		1	
482963	07CE37-73	OEP-MW-12S (F)	1		1		1	27	1	130

Reviewed by: Steffanie Tobin – TechLaw/ESAT
Date: August 27, 2007

Case: 07CE37
Site: Oconomowoc Electroplating

SDG: 61033-MET
Laboratory: CT laboratory

Data Qualifier Sheet

Qualifiers	Data Qualifier Definitions
U	The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
J	The result is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample.
J+	The result is an estimated quantity, but the result may be biased high.
J-	The result is an estimated quantity, but the result may be biased low.
R	The data are unusable. The sample results are rejected due to serious deficiencies in meeting Quality Control (QC) criteria. The analyte may or may not be present in the sample.
UJ	The analyte was analyzed for, but not detected. The reported quantitation limit is approximate and may be inaccurate or imprecise.

Reviewed by: Steffanie Tobin – TechLaw/ESAT
Date: August 27, 2007

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: July 19, 2007

FROM: Stephen L. Ostrodka, Chief (SRT-4J)
Superfund Field Services Section

TO: Data User: Ch2m Hill

We have reviewed the data for the following case:

SITE Name: Oconomowoc Electroplating Company (WI)

SAS Project: 07CE37 SDG Number: 61033-VOC

Number and Type of Samples: 50 Waters (50 VOCs / 27 MEE)

Sample Numbers: 07CE37; -01, -03, -05, -07 thru -12, -16 thru -22, -25 thru -27, -29, -31 thru -33, -35, -37, -39, -41, -43, -45 thru -50, -52, -54, -56, -58 thru -61, -63, -65, -67, -68, -70, -72, -80, -83, -84

Laboratory: CT Laboratories Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-4J

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Fifty (50) preserved water samples listed in the following table were collected June 25 - 29, 2007. CT Laboratories of Baraboo, Wisconsin received the samples June 26 – July 2, 2007 intact, properly cooled and in good condition. Fifty (50) samples were analyzed July 5 – 8, 2007 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2011. Twenty-seven (27) samples were analyzed June 27 and July 10, 2007 by RSK 175 for Methane, Ethane and Ethene as identified in the SAS contract for estimated dates of collection January 2007 through March 2011.

EPA ID	CTI Lab ID	Sample location	Date sampled	MEE Analyses	VOC Analyses
07CE37-01	481496	OEP-MW-103D	06/25/07	6/27/07	7/5/07
07CE37-03	481498	OEP-MW-103S	06/25/07	6/27/07	7/5/07
07CE37-05	481492	OEP-EB	06/25/07	6/27/07	7/5/07
07CE37-07	481494	OEP-FB	06/25/07	6/27/07	7/5/07
07CE37-08	481495	OEP-MW-RT01	06/25/07		7/5/07
07CE37-09	481500	OEP-MW-RT02	06/25/07		7/5/07
07CE37-10	481770	OEP-MW-01D	06/26/07	6/27/07	7/5/07
07CE37-11	481771	OEP-MW-01S	06/26/07	6/27/07	7/5/07
07CE37-12	481786	OEP-MW-04S	06/26/07	6/27/07	7/5/07
07CE37-16	481762	OEP-PW-04	06/26/07		7/5/07
07CE37-17	481763	OEP-PW-08	06/26/07		7/5/07
07CE37-18	481764	OEP-PW-09	06/26/07		7/5/07
07CE37-19	481765	OEP-PW-10	06/26/07		7/5/07
07CE37-20	481766	OEP-PW-11	06/26/07		7/5/07
07CE37-21	481767	OEP-PW-11DUP	06/26/07		7/5/07
07CE37-22	481782	OEP-MW101B	06/26/07	6/27/07	7/5/07
07CE37-25	481785	OEP-MW101BFR	06/26/07	6/27/07	7/5/07
07CE37-26	481768	OEP-DW-01	06/26/07		7/5/07
07CE37-27	481788	OEP-MW-03D	06/26/07	6/27/07	7/5/07
07CE37-29	481790	OEP-MW-04D	06/26/07	6/27/07	7/7/07
07CE37-31	481792	OEP-MW-RT03	06/26/07		7/8/07
07CE37-32	481769	OEP-MW-RT04	06/26/07		7/8/07
07CE37-33	482144	OEP-MW-05D	06/27/07	7/10/07	7/7/07
07CE37-35	482146	OEP-MW-15D	06/27/07	7/10/07	7/7/07
07CE37-37	482151	OEP-MW-15DFR	06/27/07	7/10/07	7/7/07
07CE37-39	482141	OEP-MW-102D	06/27/07	7/10/07	7/7/07
07CE37-41	482153	OEP-MW-15S	06/27/07	7/10/07	7/7/07
07CE37-43	482155	OEP-MW-15B	06/27/07	7/10/07	7/7/07

07CE37-45	482148	OEP-MW-106D	06/27/07		7/7/07
07CE37-46	482149	OEP-MW-106S	06/27/07		7/5/07
07CE37-47	482159	OEP-MW-RT05	06/27/07		7/8/07
07CE37-48	482150	OEP-MW-RT06	06/27/07		7/8/07
07CE37-49	482143	OEP-MW-RT07	06/27/07		7/8/07
07CE37-50	482658	OEP-MW-16S	06/28/07	7/10/07	7/7/07
07CE37-52	482679	OEP-MW-13D	06/28/07	7/10/07	7/7/07
07CE37-54	482683	OEP-MW-13S	06/28/07	7/10/07	7/7/07
07CE37-56	482685	OEP-MW-13SFR	06/28/07	7/10/07	7/7/07
07CE37-58	482682	OEP-MW-RT08	06/28/07		7/8/07
07CE37-59	482694	OEP-MW-RT09	06/28/07		7/8/07
07CE37-60	482688	OEP-MW-RT10	06/28/07		7/8/07
07CE37-61	482697	OEP-MW-105S	06/28/07	7/10/07	7/8/07
07CE37-63	482695	OEP-MW-105B	06/28/07	7/10/07	7/7/07
07CE37-65	482690	OEP-MW-105D	06/28/07	7/10/07	7/7/07
07CE37-67	482700	OEP-MW-RT11	06/28/07		7/8/07
07CE37-68	482967	OEP-MW-12B	06/29/07	7/10/07	7/7/07
07CE37-70	482969	OEP-MW-12D	06/29/07	7/10/07	7/7/07
07CE37-72	482962	OEP-MW-12S	06/29/07	7/10/07	7/7/07
07CE37-80	482964	OEP-MW-RT12	06/29/07		7/8/07
07CE37-83	482965	OEP-MW-107D	06/29/07		7/7/07
07CE37-84	482966	OEP-MW-107S	06/29/07		7/7/07

The laboratory reported the results of 46 volatile analytes. Only the following 36 volatile analytes were requested in the SAS contract and only these analytes will be discussed in the following validation report.

Acetone	Benzene	Bromodichloromethane
Bromoform	Bromomethane	2-Butanone (MEK)
Carbon disulfide	Carbon tetrachloride	Chlorobenzene
Chloroethane	Chloroform	Chloromethane
Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane
1,1-Dichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene
1,2-Dichloropropane	Cis-1,3-Dichloropropene	Trans-1,3-Dichloropropene
Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone (MIBK)
Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane
Tetrachloroethene	Toluene	1,1,1-Trichloroethane
1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
[Xylenes, total]	M & p-Xylene	o-Xylene
Isopropylbenzene	Methyl tert-butyl ether	

The VOC method blanks are MB-483900, MB-484373 and MB-484519 for the SW-846 Method 8260B analyses. The MEE method blanks are MB-481806 and MB-485122 for the Mod RSK 175 analyses.

Samples 07CE37-39, 07CE37-46 and 07CE37-61 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses. Samples 07CE37-05, 07CE37-39 and 07CE37-61 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses. Sample 07CE37-05 is an Equipment Blank and therefore was inappropriate for MS/MSD analyses.

The VOC laboratory control samples are LCS-483899, LCS-484372 and LCS-484516. The VOC laboratory control sample duplicates are LCSD-484363, LCSD-484505 and LCSD-485512. The MEE laboratory control samples are LCS-481807 and LCS-485123. The MEE laboratory control sample duplicates are LCSD-481808 and LCSD-485124.

Twelve (12) samples; 07CE37-08, 07CE37-09, 07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-67 and 07CE37-80 are identified as Trip Blanks.

Sample 07CE37-05 is identified as an Equipment Blank.

Sample 07CE37-07 is identified as a Field Blank.

Sample 07CE37-21 is a field replicate of 07CE37-20. Sample 07CE37-25 is a field replicate of 07CE37-22. Sample 07CE37-37 is a field replicate of 07CE37-35. Sample 07CE37-56 is a field replicate of 07CE37-54.

The VOA and MEE analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

1. HOLDING TIME

Fifty (50) preserved water samples listed in the following table were collected June 25 - 29, 2007. CT Laboratories of Baraboo, Wisconsin received the samples June 26 – July 2, 2007 intact, properly cooled and in good condition. Fifty (50) samples were analyzed July 5 – 8, 2007 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2011. Twenty-seven (27) samples were analyzed June 27 and July 10, 2007 by RSK 175 for Methane, Ethane and Ethene as identified in the SAS contract for estimated dates of collection January 2007 through March 2011.

The VOA and MEE analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

No raw data for the initial calibration curves were submitted for either the VOC or MEE analyses. Validation was conducted from the Volatile Organic Instrument Performance Checks (Form 5A) for the missing calibration analyses.

VOC: The GC/MS tuning for SW-846 Method 8260B complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

MEE: All GC/FID calibration complied with the amount and area for the MEE (Methane-Ethane-Ethene) standards. All samples were analyzed within the twelve (12) hour periods for instrument performance checks; therefore, the results are acceptable.

3. CALIBRATION

VOC: From the GC/MS1 Sequence log it appears that a 7-point calibration curve (0.2, 0.4, 1.0, 2.0, 4.0, 6.0 and 8.0 µg/L) was performed on July 3, 2007. With no raw data for the initial calibration or Form 6s the reviewer is unable to check the initial calibration curves for outliers.

Continuing Calibrations were conducted at the start of every analytical sequence. All analytes are evaluated for %Ds less than 20%. No minimum RRF values were identified in the SAS contract. The average RRFs for Acetone and 2-Butanone were less than 0.05 but greater than the minimum RRF of 0.01 currently used in SOW SOM01.1. The average RRFs for all surrogates 1,2-Dichloroethane-d_4, Bromofluorobenzene, Dibromofluoromethane and Toluene-d_8 were less than 0.05 and less than the minimum RRF of 0.05 currently used in SOW SOM01.1. All %Ds for these surrogates were greater than 20%. Sample results are not qualified based on the RRF values or %D of the surrogates alone.

With no raw data for the continuing calibration verifications conducted on 07/07/07 @ 09:08 and 07/08/07 @ 07:56 or Form 7s the reviewer is unable to check the continuing calibrations for outliers. The following samples were not qualified for this criteria;

07CE37-31,	07CE37-32,	07CE37-33,	07CE37-37,	07CE37-47,
07CE37-48,	07CE37-49,	07CE37-52,	07CE37-54,	07CE37-56,
07CE37-58,	07CE37-59,	07CE37-60,	07CE37-61,	07CE37-63,
07CE37-67,	07CE37-68,	07CE37-70,	07CE37-80,	07CE37-83,
07CE37-84,		07CE37-39MS,		07CE37-39MSD,
07CE37-61MS,		07CE37-61MSD,		LCSD-484505,
LCSD-485512,		MB-484519		

The following samples are associated with a continuing calibration where one or more analytes has a %D greater than 20%. Detected compounds should be qualified "J".

Acetone
LCS-484372

Chloromethane
LCSD-483899, MB-483900

Methylene chloride
07CE37-39, 07CE37-46MS, 07CE37-46MSD, 07CE37-50, 07CE37-70, LCSD-484363, LCS-484372, LCSD-483899, MB-483900

Bromodichloromethane
07CE37-35, 07CE37-39, 07CE37-46MS, 07CE37-46MSD, 07CE37-50, 07CE37-65, 07CE37-72, LCSD-484363, LCS-484372

4-Methyl-2-pentanone, Bromoform
07CE37-46MS, 07CE37-46MSD, LCSD-484363, LCS-484372

2-Hexanone
07CE37-46MS, 07CE37-46MSD, LCSD-484363

Methyl tert-Butyl Ether
07CE37-29, 07CE37-37, 07CE37-39, 07CE37-70, LCS-484372

The following samples are associated with a continuing calibration where one or more analytes has a %D greater than 20%. Non-detected quantitation limits should be qualified "UJ".

Acetone
07CE37-29, 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-50, 07CE37-65, 07CE37-70, 07CE37-72

Chloromethane
07CE37-01, 07CE37-03, 07CE37-05, 07CE37-07, 07CE37-08, 07CE37-09, 07CE37-16, 07CE37-17, 07CE37-18, 07CE37-19, 07CE37-20, 07CE37-21

Methylene chloride
07CE37-01, 07CE37-03, 07CE37-05, 07CE37-07, 07CE37-08, 07CE37-09, 07CE37-10, 07CE37-11, 07CE37-12, 07CE37-16, 07CE37-17, 07CE37-18, 07CE37-19, 07CE37-20, 07CE37-21, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-29, 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-46, 07CE37-65, 07CE37-72, MB-484373

Bromodichloromethane
07CE37-10, 07CE37-11, 07CE37-12, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-29, 07CE37-33, 07CE37-37, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-46, 07CE37-70, MB-484373

Bromoform
07CE37-10, 07CE37-11, 07CE37-12, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-29, 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-46, 07CE37-50, 07CE37-65, 07CE37-70, 07CE37-72, MB-484373

4-Methyl-2-pentanone
07CE37-10, 07CE37-11, 07CE37-12, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-29, 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-46, 07CE37-50, 07CE37-65, 07CE37-70, 07CE37-72, MB-484373

2-Hexanone
07CE37-10, 07CE37-11, 07CE37-12, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-46

Methyl tert-Butyl Ether
07CE37-33, 07CE37-35, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-50, 07CE37-65, 07CE37-72, MB-484373

MEE: From The Sequence Summary Report it appears that an Initial 7-pt calibration curve (2, 5, 10, 20, 50, 100 and 200 ppmV) of the Volatile standards was performed on May 9, 2005 and evaluated for a Goodness of Fit (correlation coefficient) ≥ 0.995. Since this is the same Initial Calibration submitted with the 07CE18 sampling event the data

from that analysis will be used for the validation process. All %RSDs for Ethane and Methane were less than 15%. The %RSD for Ethane was greater than 15%.

The following samples are associated with an initial calibration where the %RSD exceeded 15%. The detection for Ethane in the following samples should be qualified as estimates, "J".

Ethane
07CE37-61, 07CE37-61MS, 07CE37-61MSD, 07CE37-63, 07CE37-70, LCS-481807, LCS-485123, LCSD-481808, LCSD-485124,

The following samples are associated with an initial calibration where the %RSD exceeded 15%. Non-detected quantitation limits for Ethane in the following samples should be qualified "UJ".

Ethane
07CE37-01, 07CE37-03, 07CE37-05, 07CE37-05MS, 07CE37-05MSD, 07CE37-07, 07CE37-10, 07CE37-11, 07CE37-12, 07CE37-22, 07CE37-25, 07CE37-27, 07CE37-29, 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-39MS, 07CE37-39MSD, 07CE37-41, 07CE37-43, 07CE37-50, 07CE37-52, 07CE37-54, 07CE37-56, 07CE37-65, 07CE37-68, 07CE37-72, MB-481806, MB-485122

No raw data for the continuing calibrations was submitted, therefore the reviewer was unable to review the data for this criteria. According to the Sequence Summary Reports, all samples were analyzed within 12 hrs of the CCVs analyzed on 06/27/2007 @ 12:34:18, 06/27/2007 @ 13:48:51, 06/27/2007 @ 14:06:34, 07/10/2007 @ 09:40:10, 07/10/2007 @ 10:52:59 and 07/10/2007 @ 11:55:56.

4. BLANKS

VOC: The VOC method blanks are MB-483900, MB-484373 and MB-484519 for the SW-846 Method 8260B analyses. Method MB-484373 contained no target analytes. Method blank MB-483900 contained Chloromethane at 0.129 µg/L and Methylene chloride at 0.198 µg/L. Neither analyte was detected in any of the samples associated with this method blank.

Method blank MB-484519 contained Methylene chloride at 0.997 µg/L. Methylene chloride is a common laboratory contaminant. The concentrations of Methylene chloride were less than ten times (10X) the associated method blank (MB-484519) concentration in the following samples. The analyte was qualified "U" as resulting from blank contamination. The sample concentrations were greater than the laboratory's reporting limit and are regarded as the modified reporting limit for that analyte in that sample. The Volatile Method Blank Summaries list the samples

associated with each method blank. Methylene chloride is qualified "UJ" in sample 07CE37-61 because the RPD in the MS/MSD samples exceeded the criteria.

Methylene chloride
07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-61, 07CE37-67, 07CE37-80

Twelve (12) samples; 07CE37-08, 07CE37-09, 07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-67 and 07CE37-80 are identified as Trip Blanks. No contaminants are reported for any of these samples.

Sample 07CE37-07 is the field blank. Sample 07CE37-07 contained Chloroform at 0.17 µg/L and Toluene at 0.095 µg/L. These analytes are not common laboratory contaminants.

Samples that reported analyte concentrations less than five times (5X) the associated field blank concentration should be qualified "U" as resulting from blank contamination. The sample concentrations were greater than the laboratory's reporting limit and are regarded as the modified reporting limit for that analyte in that sample.

Chloroform
07CE37-05, 07CE37-18, 07CE37-39, 07CE37-50, 07CE37-65

Toluene
07CE37-18

MEE: The MEE method blanks are MB-481806 and MB-485122 for the Mod RSK 175 analyses.

Neither Method Blank had any contaminants; therefore, the results are acceptable. The Volatile Method Blank Summaries list the samples associated with each method blank.

Sample 07CE37-07 is the Field Blank. No contamination was reported for the field blank.

Sample 07CE37-05 is the Equipment Blank. No contamination was reported for the equipment blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

VOC: All SW-846 Method 8260B volatile surrogate compounds (1,2-Dichloroethane-d_4, Bromofluorobenzene, Dibromofluoromethane, Toluene-d_8) were within the QC limits

(75-135%) for all VOC samples, except samples 07CE37-10, 07CE37-46, 07CE37-46MS and 07CE37-46MSD.

The %recovery of Toluene-d_8 was less than 75% for samples 07CE37-10, 07CE37-46, 07CE37-46MS and 07CE37-46MSD. All detected analytes in the samples should be qualified as estimated, "J" and the quantitation limits should be qualified "UJ". Non-detects for Styrene and m,p-Xylene in sample 07CE37-46 are qualified "R" due to poor MS/MSD recoveries.

MEE: Not applicable to this analysis.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

VOC: Samples 07CE37-39, 07CE37-46 and 07CE37-61 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses.

The %recoveries for all compounds, except Carbon Disulfide, Bromoform and Styrene, were within the QC limits (60 – 130%) for samples 07CE37-39MS and 07CE37-39MSD. All RPDs were less than 30%. The %recoveries for Carbon Disulfide, Bromoform and Styrene were below the lower limit but greater than 20% in both samples 07CE37-39MS and 07CE37-39MSD. The analytes were not detected in the unspiked sample. The quantitation limits for Carbon Disulfide, Bromoform and Styrene in the unspiked sample, 07CE37-39, should be qualified "UJ".

The %recoveries for all compounds, except Carbon Disulfide, Ethylbenzene, Styrene, m & p-Xylene, Isopropylbenzene and o-Xylene were within the QC limits (60 – 130%) for samples 07CE37-46MS and 07CE37-46MSD. All RPDs were less than 30%. The %recoveries for Carbon Disulfide and o-Xylene were below the lower limit but greater than 20% in both samples 07CE37-46MS and 07CE37-46MSD. The %recovery of Styrene was 0% in both samples 07CE37-46MS and 07CE37-46MSD. The %recovery of m & p-Xylene was below the lower limit but greater than 20% in sample 07CE37-46MS. The %recoveries of Ethylbenzene and Isopropylbenzene were below the lower limit but greater than 20% in sample 07CE37-46MSD. The %recovery of m & p-Xylene was less than 20% in sample 07CE37-46MSD. The analytes were not detected in the unspiked sample. The quantitation limits for Carbon Disulfide, Ethylbenzene, Isopropylbenzene and o-Xylene in the unspiked sample, 07CE37-46, should be qualified "UJ". The quantitation limits for Styrene and m & p-Xylene in the unspiked sample, 07CE37-46, should be qualified "R" because the %recoveries were less than 20%.

The %recoveries for all compounds, except Chloromethane, Bromomethane, Vinyl chloride, Methylene chloride, Dibromochloromethane, Bromoform and cis-1,2-Dichloroethene were within the QC limits (60 – 130%) for samples 07CE37-61MS and 07CE37-61MSD. The %recoveries for Bromomethane and cis-1,2-Dichloroethene were above the upper limit in both samples 07CE37-61MS and 07CE37-61MSD. The

%recoveries for Chloromethane and Vinyl chloride were above the upper limit in sample 07CE37-61MS. The %recoveries for Dibromochloromethane and Bromoform were below the lower limit but greater than 20% in sample 07CE37-61MS. The %recovery for Methylene chloride was below the lower limit but greater than 20% in sample 07CE37-61MSD. All RPDs were less than 30%. The detection of Vinyl chloride and cis-1,2-Dichloroethene in the unspiked sample, 07CE37-61, should be qualified as estimated, "J". The quantitation limits for Chloromethane and Bromomethane are not qualified for this criterion. The quantitation limits for Methylene chloride, Dibromochloromethane and Bromoform in the unspiked sample, 07CE18-61, should be qualified "UJ".

MEE: Samples 07CE37-05, 07CE37-39 and 07CE37-61 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses. Sample 07CE37-05 is an Equipment Blank and therefore inappropriate for MS/MSD analyses.

The percent recoveries and RPDs were within the QC criteria for samples 07CE37-05MS, 07CE37-05MSD, 07CE37-39MS and 07CE37-39MSD.

All RPDs between 07CE37-61MS and 07CE37-61MSD were less than 30%. The percent recoveries for Methane was greater than 130% in both samples 07CE37-61MS and 07CE37-61MSD. The detection for Methane in the unspiked sample, 07CE37-61, should be qualified as estimated, "J".

6B. LABORATORY CONTROL SAMPLES

VOC: The VOC laboratory control samples are LCS-483899, LCS-484372 and LCS-484516. The VOC laboratory control sample duplicates are LCSD-484363, LCSD-484505 and LCSD-485512.

LCS-483899 and LCSD-484363 were analyzed July 25, 2007. The percent recoveries for all compounds were within the QC limits (60 – 130%) for both LCS-483899 and LCSD-484363.

The relative percent difference (RPD) for Bromoform was greater than the QC limit of 30%. The detection of Bromoform in the following samples should be qualified "J".

Bromoform
07CE37-46MS, 07CE37-46MSD

The relative percent difference (RPD) for Bromoform was greater than the QC limit of 30%. The quantitation limits for Bromoform in the following samples should be qualified "UJ".

Bromoform
07CE37-01, 07CE37-03, 07CE37-05, 07CE37-07, 07CE37-08, 07CE37-09, 07CE37-10, 07CE37-11, 07CE37-12, 07CE37-16, 07CE37-17, 07CE37-18, 07CE37-19, 07CE37-20, 07CE37-21, 07CE37-22, 07CE37-25, 07CE37-26, 07CE37-27, 07CE37-46, MB-483900

LCS-484372 and LCSD-484505 were analyzed July 7, 2007. The percent recoveries for all compounds were within the QC limits (60 – 130%) for LCS-484372 and LCSD-484505.

The relative percent difference (RPD) for cis-1,2-Dichloroethene was greater than the QC limit of 30%. The detections for cis-1,2-Dichloroethene in the following samples should be qualified as estimated, "J".

cis-1,2-Dichloroethene
07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-39MS, 07CE37-39MSD, 07CE37-50, 07CE37-52, 07CE37-56, 07CE37-63, 07CE37-65, 07CE37-70, 07CE37-72

The relative percent difference (RPD) for cis-1,2-Dichloroethene was greater than the QC limit of 30%. The quantitation limits should be qualified "UJ".

cis-1,2-Dichloroethene
07CE37-29, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-54, 07CE37-68, 07CE37-83, 07CE37-84, MB-484373

LCS-484516 and LCSD-485512 were analyzed July 8, 2007. The percent recoveries for all compounds, except Chloromethane, Bromomethane, Vinyl chloride and Methylene chloride, were within the QC limits (60 – 130%) for LCS-484516 and LCSD-485512. The %recoveries for Bromomethane and Methylene chloride were above the upper limit of 130% in both samples LCS-484516 and LCSD-485512. The %recoveries for Chloromethane and Vinyl chloride were above the upper limit of 130% in LCSD-485512. The relative percent difference (RPD) for cis-1,2-Dichloroethene was greater than the QC limit of 30%.

The detection of the following analytes in the following samples should be qualified as estimated, "J".

Methylene chloride
07CE37-61MS, 07CE37-61MSD

Vinyl chloride, cis-1,2-Dichloroethene
07CE37-61, 07CE37-61MS, 07CE37-61MSD

The quantitation limits for the following analytes are not qualified because of high %recoveries. Methylene chloride is qualified "UJ" in sample 07CE37-61 because the RPD in the MS/MSD samples exceeded the criteria.

Chloromethane, Bromomethane
07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-61, 07CE37-61MS, 07CE37-61MSD, 07CE37-67, 07CE37-80, MB-484519

Methylene chloride
07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-61, 07CE37-67, 07CE37-80, MB-484519

Vinyl chloride
07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-67, 07CE37-80, MB-484519

The quantitation limits for cis-1,2-Dichloroethene should be qualified "UJ" because the RPD for the LCS samples were outside the SAS criteria.

cis-1,2-Dichloroethene
07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-67, 07CE37-80, MB-484519

MEE: The MEE laboratory control samples are LCS-485123 and LCS-481807. The MEE laboratory control sample duplicates are LCSD-485124 and LCSD-481808. The percent recoveries for all compounds were within the QC limits (60 – 130%) and all RPDs were less than 30%. No samples required qualification for this criterion.

7. FIELD BLANK AND FIELD DUPLICATE

Twelve (12) samples; 07CE37-08, 07CE37-09, 07CE37-31, 07CE37-32, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-67 and 07CE37-80 are identified as Trip Blanks. No VOC target analytes are reported for any of the trip blanks.

Sample 07CE37-05 is identified as an Equipment Blank. No VOC target analytes are reported for this sample.

Sample 07CE37-07 is identified as a Field Blank. Sample 07CE37-07 reported Chloroform @ 0.17 µg/L and Toluene @ 0.095 µg/L

Sample 07CE37-21 is a field replicate of 07CE37-20. Sample 07CE37-25 is a field replicate of 07CE37-22. Sample 07CE37-37 is a field replicate of 07CE37-35. Sample 07CE37-56 is a field replicate of 07CE37-54.

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Sample results and RPDs are summarized in the following table.

Analyte	**07CE37-20**	**07CE37-21**	RPDs
	Df = 1.0	Df = 1.0	
Cis-1,2-Dichloroethene	0.60	0.61	1.7 %
Methyl tert-butyl ether	0.81	0.88	8.3 %
Trans-1,2-Dichloroethene	0.074	0.068	8.5 %

	07CE37-22	**07CE37-25**	RPDs
	Df = 1.0	Df = 1.0	
Trichloroethene	0.055	0.069	22.6 %
Cis-1,2-Dichloroethene	0.19	0.25	27.3 %
Methyl tert-butyl ether	0.24	0.26	8 %
Methane	47	55	15.7 %

	07CE37-35	**07CE37-37**	RPDs
	Df = 5.0	Df= 1.0/10.0	
1,1-Dichloroethene		0.14	200 %
1,1-Dichloroethane		0.079	200 %
Bromodichloromethane	0.20		200 %
Benzene		0.068	200 %
Trichloroethene	20	26	26.1 %
Chlorobenzene	2.2	3.6	48.3 %
Cis-1,2-Dichloroethene	1.2	2.1	54.6 %
Methyl tert-butyl ether		0.16	200 %
Trans-1,2-Dichloroethene		0.25	200 %
Methane	2.3	1.8	24.4 %

	07CE37-54	**07CE37-56**	RPDs
	Df = 1.0	Df = 1.0	
1,1-Dichloroethane	0.14	0.12	15.4 %
1,1,1-Trichloroethane	0.45	0.43	4.6 %
Trichloroethene	1.6	1.6	0%
Tetrachloroethene	0.067	0.074	9.9 %
Cis-1,2-Dichloroethene	0.45	0.43	4.6 %
Trans-1,2-Dichloroethene	0.078	0.084	7.4 %
Methane	0	0.55	200 %

8. INTERNAL STANDARDS

The three internal standard's (Fluorobenzene, Chlorobenzene-d_5, 1,4-Dichlorobenzene-d_4) retention times and area counts for the VOC samples were within the QC limits; therefore, the results are acceptable.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOC and MEE compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and dilutions were run. The reporting limits for the VOC compounds were less than or equal to the reporting limits specified in the SAS contract for all analytes; except 1,1,2,2-Tetrachloroethane, cis-1,3-Dichloropropene and trans-1,3-Dichloropropene. The requested reporting limit for cis-1,3-Dichloropropene was 0.016 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for trans-1,3-Dichloropropene was 0.015 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for 1,1,2,2-Tetrachloroethane was 0.018 µg/L and the actual reporting limit was 0.019 µg/L. Xylenes (total) was reported as m,p-Xylene and o-Xylene.

The reporting limit for Ethane, Ethene and Methane were less than or equal to 10 µg/L as specified in the SAS contract.

The following VOC samples reported analyte concentrations below the SAS reporting limits but above the laboratory's detection limits. The concentrations should be qualified as estimated, "J".

07CE37-03
trans-1,2-Dichloroethene

07CE37-50
Methylene chloride

07CE37-68
1,1-Dichloroethane

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance. GC/FID baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The data package was missing pages 681 through 723. According to the Laboratories' Table of Contents, these pages should contain VOC CCV Documents, RSK CCV Documents and VOC QC Documents. Amongst these pages should be the raw data for the 07/07/07 @ 09:08 and 07/08/07 @ 07:56 VOC Continuing Calibration Verifications. Also missing from the package are the raw data for the following QC samples, LCSW483899 and MBW483900. According to the Laboratories' Table of Contents, no copies of the Initial Calibration Curves were submitted with the data package.

The section identified as the 'Chain of Custody, PM Confirmation and Sample Conditions Forms Documents' (p 1642 – end/1738) is missing the following pages; 1686, 1687 1690, 1692, 1693, 1708, 1709, 1711, 1712, 1714, 1716, 1717, 1731 and 1732 which probably contain the missing Chain of Custody forms. Collection dates and sample types were obtained from the Laboratories' 'PM Login Confirmation' forms for the following 27 samples; 07CE37-33, 07CE37-35, 07CE37-37, 07CE37-39, 07CE37-41, 07CE37-43, 07CE37-45, 07CE37-46, 07CE37-47, 07CE37-48, 07CE37-49, 07CE37-50, 07CE37-52, 07CE37-54, 07CE37-56, 07CE37-58, 07CE37-59, 07CE37-60, 07CE37-61, 07CE37-63, 07CE37-67, 07CE37-68, 07CE37-70, 07CE37-72, 07CE37-80, 07CE37-83 and 07CE37-84. Copies of the PM Login Confirmation forms are included with the hardcopy validation package.

The final shipment of samples arrived at the Laboratory on July 2, 2007. The Laboratory Case Narrative was prepared on July 16, 2007 and forwarded by Ch2mHill on July 18, 2007 which is well within 21 calendar days of sample receipt.

Photocopies of the airbills were included with this package. The original sample tags, packing list and airbills should have been sent to CH2M HILL.

Copies of the most recent MDL studies were not included with this data package but MDL (LOD – Level of Detection) values are present on the Laboratory Form Is.

VOC SAS Table II. QC Requirements lists the frequency of audits for method blanks as 'at least one per group of 10 or fewer samples'. The laboratory conducted the method blank audits at a frequency of one per 20 samples.

The following VOC samples had analyte concentrations that exceeded the instruments calibration range. The samples were re-analyzed at various dilutions and only the diluted results were reported for the affected samples:

1,1,1-Trichloroethane
07CE37-03

Trichloroethene
07CE37-01, 07CE37-03, 07CE37-33, 07CE37-37

1,1-Dichloroethane
07CE37-70

The following MEE samples had analyte concentrations that exceeded the instruments calibration range. The samples were re-analyzed at various dilutions and only the diluted results were reported for the affected samples:

Methane
07CE37-01, 07CE37-03, 07CE37-10, 07CE37-22, 07CE37-25, 07CE37-29, 07CE37-33, 07CE37-43, 07CE37-50, 07CE37-61, 07CE37-63, 07CE37-65, 07CE37-68, 07CE37-70, 07CE37-72

The laboratory accidentally inserted a Form 1A for sample 06CD36-44 instead of sample 07CE37-54. The raw data submitted was for the correct analysis therefore the data was still validated. Copies of the raw data (Pages 483 through 490) are included with the hardcopy validation package.

Some of the MEE raw data for sample 07CE37-35 was mis-labeled as sample ID 482136 instead of sample ID 482146. Copies of pages 614 – 615 are included with the hardcopy validation package.

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Summary of Sample Results (only SAS requested analytes):

Analytes	07CE37-01	07CE37-03	07CE37-05	07CE37-07	07CE37-08
Dilution factors =	100.0/200.0	20.0 / 50.0	1.0	1.0	1.0
Chloromethane	5.0 UJ	1.0 UJ	0.050 UJ	0.050 UJ	0.050 UJ
Bromomethane	7.0 U	1.4 U	0.070 U	0.070 U	0.070 U
Vinyl chloride	1.3 U	0.26 U	0.013 U	0.013 U	0.013 U
Chloroethane	7.0 U	1.4 U	0.070 U	0.070 U	0.070 U
Methylene chloride	18 UJ	3.6 UJ	0.18 UJ	0.18 UJ	0.18 UJ
Acetone	150 U	30 U	1.5 U	1.5 U	1.5 U
Carbon disulfide	9.0 U	1.8 U	0.090 U	0.090 U	0.090 U
1,1-Dichloroethene	8.2	4.3	0.050 U	0.050 U	0.050 U
1,1-Dichloroethane	11	8.5	0.060 U	0.060 U	0.060 U
Chloroform	7.1	0.44 U	0.15 U	0.17	0.022 U
1,2-Dichloroethane	3.0 U	0.60 U	0.030 U	0.030 U	0.030 U
2-Butanone	60 U	12 U	0.60 U	0.60 U	0.60 U
1,1,1-Trichloroethane	120	180	0.050 U	0.050 U	0.050 U
Carbon tetrachloride	2.2 U	0.44 U	0.022 U	0.022 U	0.022 U
Bromodichloromethane	5.8	0.60 U	0.030 U	0.030 U	0.030 U
1,2-Dichloropropane	5.0 U	1.0 U	0.050 U	0.050 U	0.050 U
Cis-1,3-Dichloropropene	1.7 U	0.34 U	0.017 U	0.017 U	0.017 U
Trichloroethene	820	300	0.050 U	0.050 U	0.050 U
Dibromochloromethane	2.6 U	0.52 U	0.026 U	0.026 U	0.026 U
1,1,2-Trichloroethane	6.0 U	1.2 U	0.060 U	0.060 U	0.060 U
Benzene	5.0 U	1.0 U	0.050 U	0.050 U	0.050 U
Trans-1,3-Dichloropropene	1.7 U	0.34 U	0.017 U	0.017 U	0.017 U
Bromoform	4.0 UJ	0.80 UJ	0.040 UJ	0.040 UJ	0.040 UJ
4-Methyl-2-pentanone	80 U	16 U	0.80 U	0.80 U	0.80 U
2-Hexanone	160 U	32 U	1.6 U	1.6 U	1.6 U
Tetrachloroethene	5.0 U	1.8	0.050 U	0.050 U	0.050 U
1,1,2,2-Tetrachloroethane	1.9 U	0.38 U	0.019 U	0.019 U	0.019 U
Toluene	6.0 U	1.2 U	0.060 U	0.095	0.060 U
Chlorobenzene	4.0 U	3.9	0.040 U	0.040 U	0.040 U
Ethylbenzene	2.4 U	0.48 U	0.024 U	0.024 U	0.024 U
Styrene	2.2 U	0.44 U	0.022 U	0.022 U	0.022 U
M & p-Xylene	8.0 U	1.6 U	0.080 U	0.080 U	0.080 U
Cis-1,2-Dichloroethene	89	25	0.050 U	0.050 U	0.050 U
Isopropylbenzene	4.0 U	0.80 U	0.040 U	0.040 U	0.040 U
Methyl tert-butyl ether	8.0 U	1.6 U	0.080 U	0.080 U	0.080 U
o-Xylene	2.3 U	0.46 U	0.023 U	0.023 U	0.023 U
Trans-1,2-Dichloroethene	6.0 U	1.2 J	0.060 U	0.060 U	0.060 U

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: August 22, 2007

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-09		07CE37-10		07CE37-11		07CE37-12		07CE37-16	
Dilution factors =	1.0		1.0		1.0		1.0		1.0	
Chloromethane	0.050	UJ	0.050	UJ	0.050	U	0.050	U	0.050	UJ
Bromomethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
Vinyl chloride	0.013	U	0.11	J	0.013	U	0.013	U	0.013	U
Chloroethane	0.070	U	0.070	UJ	0.070	U	0.070	U	0.070	U
Methylene chloride	0.18	UJ	0.18	UJ	0.18	UJ	0.18	UJ	0.18	UJ
Acetone	1.5	U	1.5	UJ	1.5	U	1.5	U	1.5	U
Carbon disulfide	0.090	U	0.090	UJ	0.090	U	0.090	U	0.090	U
1,1-Dichloroethene	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
1,1-Dichloroethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Chloroform	0.022	U	0.022	UJ	0.15	U	0.022	U	0.022	U
1,2-Dichloroethane	0.030	U	0.030	UJ	0.030	U	0.030	U	0.030	U
2-Butanone	0.60	U	0.60	UJ	0.60	U	0.60	U	0.60	U
1,1,1-Trichloroethane	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
Carbon tetrachloride	0.022	U	0.022	UJ	0.022	U	0.022	U	0.022	U
Bromodichloromethane	0.030	U	0.030	UJ	0.030	UJ	0.030	UJ	0.030	U
1,2-Dichloropropane	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
Cis-1,3-Dichloropropene	0.017	U	0.017	UJ	0.017	U	0.017	U	0.017	U
Trichloroethene	0.050	U	0.050	UJ	0.11		0.050	U	0.055	
Dibromochloromethane	0.026	U	0.026	UJ	0.026	U	0.026	U	0.026	U
1,1,2-Trichloroethane	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Benzene	0.050	U	0.062	J	0.050	U	0.050	U	0.050	U
Trans-1,3-Dichloropropene	0.017	U	0.017	UJ	0.017	U	0.017	U	0.017	U
Bromoform	0.040	UJ	0.040	UJ	0.040	UJ	0.040	UJ	0.040	UJ
4-Methyl-2-pentanone	0.80	U	0.80	UJ	0.80	UJ	0.80	UJ	0.80	U
2-Hexanone	1.6	U	1.6	UJ	1.6	UJ	1.6	UJ	1.6	U
Tetrachloroethene	0.050	U	0.050	UJ	0.050	U	0.050	U	0.050	U
1,1,2,2-Tetrachloroethane	0.019	U	0.019	UJ	0.019	U	0.019	U	0.019	U
Toluene	0.060	U	0.060	UJ	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.040	U	0.040	UJ	0.040	U	0.040	U	0.040	U
Ethylbenzene	0.024	U	0.024	UJ	0.024	U	0.024	U	0.024	U
Styrene	0.022	U	0.022	UJ	0.022	U	0.022	U	0.022	U
M & p-Xylene	0.080	U	0.080	UJ	0.080	U	0.080	U	0.080	U
Cis-1,2-Dichloroethene	0.050	U	0.050	UJ	0.084		0.050	U	1.3	
Isopropylbenzene	0.040	U	0.083	J	0.040	U	0.040	U	0.040	U
Methyl tert-butyl ether	0.080	U	0.080	UJ	0.080	U	0.080	U	0.71	
o-Xylene	0.023	U	0.023	UJ	0.023	U	0.023	U	0.023	U
Trans-1,2-Dichloroethene	0.060	U	0.060	UJ	0.060	U	0.060	U	0.12	

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-17	07CE37-18	07CE37-19	07CE37-20	07CE37-21
Dilution factors =	1.0	1.0	1.0	1.0	1.0
Chloromethane	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ	0.050 UJ
Bromomethane	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U
Vinyl chloride	0.035	0.050	0.013 U	0.013 U	0.013 U
Chloroethane	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U
Methylene chloride	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
Acetone	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Carbon disulfide	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U
1,1-Dichloroethene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
1,1-Dichloroethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U
Chloroform	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U
1,2-Dichloroethane	0.030 U	0.062	0.030 U	0.030 U	0.030 U
2-Butanone	0.60 U	0.60 U	0.60 U	0.60 U	0.60 U
1,1,1-Trichloroethane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Carbon tetrachloride	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
Bromodichloromethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
1,2-Dichloropropane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Cis-1,3-Dichloropropene	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Trichloroethene	0.17	0.089	0.050 U	0.050 U	0.050 U
Dibromochloromethane	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
1,1,2-Trichloroethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U
Benzene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Trans-1,3-Dichloropropene	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Bromoform	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ	0.040 UJ
4-Methyl-2-pentanone	0.80 U	0.80 U	0.80 U	0.80 U	0.80 U
2-Hexanone	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Tetrachloroethene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
1,1,2,2-Tetrachloroethane	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Toluene	0.060 U	0.13 U	0.060 U	0.060 U	0.060 U
Chlorobenzene	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ethylbenzene	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Styrene	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
M & p-Xylene	0.080 U	0.080 U	0.080 U	0.080 U	0.080 U
Cis-1,2-Dichloroethene	1.7	5.6	0.050 U	0.60	0.61
Isopropylbenzene	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Methyl tert-butyl ether	0.67	0.83	0.24	0.81	0.88
o-Xylene	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U
Trans-1,2-Dichloroethene	0.14	0.59	0.060 U	0.074	0.068

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-22		07CE37-25		07CE37-26		07CE37-27		07CE37-29	
Dilution factors =	1.0		1.0		1.0		1.0		1.0	
Chloromethane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Bromomethane	0.070	U	0.070	U	0.070	U	0.070	U	0.070	U
Vinyl chloride	0.013	U	0.013	U	0.013	U	0.013	U	0.035	
Chloroethane	0.070	U	0.070	U	0.070	U	0.070	U	0.070	U
Methylene chloride	0.18	UJ	0.18	UJ	0.18	UJ	0.18	UJ	0.18	UJ
Acetone	1.5	U	1.5	U	1.5	U	1.5	U	1.5	UJ
Carbon disulfide	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U
1,1-Dichloroethene	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
1,1-Dichloroethane	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Chloroform	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
1,2-Dichloroethane	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2-Butanone	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U
1,1,1-Trichloroethane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Carbon tetrachloride	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
Bromodichloromethane	0.030	UJ	0.030	UJ	0.030	UJ	0.030	UJ	0.030	UJ
1,2-Dichloropropane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Cis-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U
Trichloroethene	0.055		0.069		0.050	U	0.091		0.050	U
Dibromochloromethane	0.026	U	0.026	U	0.026	U	0.026	U	0.026	U
1,1,2-Trichloroethane	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Benzene	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Trans-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U
Bromoform	0.040	UJ	0.040	UJ	0.040	UJ	0.040	UJ	0.040	UJ
4-Methyl-2-pentanone	0.80	UJ	0.80	UJ	0.80	UJ	0.80	UJ	0.80	UJ
2-Hexanone	1.6	UJ	1.6	UJ	1.6	UJ	1.6	UJ	1.6	U
Tetrachloroethene	0.050	U	0.050	U	0.050	U	0.092		0.050	U
1,1,2,2-Tetrachloroethane	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Toluene	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Ethylbenzene	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
Styrene	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
M & p-Xylene	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
Cis-1,2-Dichloroethene	0.19		0.25		0.050	U	0.088		0.050	UJ
Isopropylbenzene	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Methyl tert-butyl ether	0.24		0.26		0.080	U	0.23		2.0	J
o-Xylene	0.023	U	0.023	U	0.023	U	0.023	U	0.023	U
Trans-1,2-Dichloroethene	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-31		07CE37-32		07CE37-33		07CE37-35		07CE37-37	
Dilution factors =	1.0		1.0		20.0/50.0		5.0		1.0/10.0	
Chloromethane	0.050	U	0.050	U	1.0	U	0.25	U	0.050	U
Bromomethane	0.070	U	0.070	U	1.4	U	0.35	U	0.070	U
Vinyl chloride	0.013	U	0.013	U	2.6		0.065	U	0.013	U
Chloroethane	0.070	U	0.070	U	1.4	U	0.35	U	0.070	U
Methylene chloride	1.8	U	1.7	U	3.6	UJ	0.90	UJ	0.18	UJ
Acetone	1.5	U	1.5	U	30	UJ	7.5	UJ	1.5	UJ
Carbon disulfide	0.090	U	0.090	U	1.8	U	0.45	U	0.090	U
1,1-Dichloroethene	0.050	U	0.050	U	2.3		0.25	U	0.14	
1,1-Dichloroethane	0.060	U	0.060	U	12		0.30	U	0.079	
Chloroform	0.022	U	0.022	U	0.44	U	0.11	U	0.022	U
1,2-Dichloroethane	0.030	U	0.030	U	0.60	U	0.15	U	0.030	U
2-Butanone	0.60	U	0.60	U	12	U	3.0	U	0.60	U
1,1,1-Trichloroethane	0.050	U	0.050	U	1.0	U	0.25	U	0.050	U
Carbon tetrachloride	0.022	U	0.022	U	0.44	U	0.11	U	0.022	U
Bromodichloromethane	0.030	U	0.030	U	0.60	UJ	0.20	J	0.030	UJ
1,2-Dichloropropane	0.050	U	0.050	U	1.0	U	0.25	U	0.050	U
Cis-1,3-Dichloropropene	0.017	U	0.017	U	0.34	U	0.085	U	0.017	U
Trichloroethene	0.050	U	0.050	U	140		20		26	
Dibromochloromethane	0.026	U	0.026	U	0.52	U	0.13	U	0.026	U
1,1,2-Trichloroethane	0.060	U	0.060	U	1.2	U	0.30	U	0.060	U
Benzene	0.050	U	0.050	U	1.0	U	0.25	U	0.068	
Trans-1,3-Dichloropropene	0.017	U	0.017	U	0.34	U	0.085	U	0.017	U
Bromoform	0.040	U	0.040	U	0.80	UJ	0.20	UJ	0.040	UJ
4-Methyl-2-pentanone	0.80	U	0.80	U	16	UJ	4.0	UJ	0.80	UJ
2-Hexanone	1.6	U	1.6	U	32	U	8.0	U	1.6	U
Tetrachloroethene	0.050	U	0.050	U	1.0	U	0.25	U	0.050	U
1,1,2,2-Tetrachloroethane	0.019	U	0.019	U	0.38	U	0.095	U	0.019	U
Toluene	0.060	U	0.060	U	1.2	U	0.30	U	0.060	U
Chlorobenzene	0.040	U	0.040	U	0.80	U	2.2		3.6	
Ethylbenzene	0.024	U	0.024	U	0.48	U	0.12	U	0.024	U
Styrene	0.022	U	0.022	U	0.44	U	0.11	U	0.022	U
M & p-Xylene	0.080	U	0.080	U	1.6	U	0.40	U	0.080	U
Cis-1,2-Dichloroethene	0.050	UJ	0.050	UJ	120	J	1.2	J	2.1	J
Isopropylbenzene	0.040	U	0.040	U	0.89	U	0.20	U	0.040	U
Methyl tert-butyl ether	0.080	U	0.080	U	1.6	UJ	0.40	UJ	0.16	J
o-Xylene	0.023	U	0.023	U	0.46	U	0.12	U	0.023	U
Trans-1,2-Dichloroethene	0.060	U	0.060	U	8.7		0.30	U	0.25	

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-39		07CE37-41		07CE37-43		07CE37-45		07CE37-46	
Dilution factors =	5.0		1.0		1.0		1.0		1.0	
Chloromethane	0.25	U	0.050	U	0.050	U	0.050	U	0.050	UJ
Bromomethane	0.35	U	0.070	U	0.070	U	0.070	U	0.070	UJ
Vinyl chloride	0.14		0.013	U	0.013	U	0.013	U	0.013	UJ
Chloroethane	0.35	U	0.070	U	0.070	U	0.070	U	0.070	UJ
Methylene chloride	1.6	J	0.18	UJ	0.18	UJ	0.18	UJ	0.18	UJ
Acetone	7.5	UJ	1.5	UJ	1.5	UJ	1.5	UJ	1.5	UJ
Carbon disulfide	0.45	UJ	0.090	U	0.71		0.090	U	0.090	UJ
1,1-Dichloroethene	0.25	U	0.050	U	0.050	U	0.050	U	0.050	UJ
1,1-Dichloroethane	0.30	U	0.060	U	0.060	U	0.060	U	0.060	UJ
Chloroform	0.47	U	0.022	U	0.022	U	0.022	U	0.022	UJ
1,2-Dichloroethane	0.36		0.030	U	0.030	U	0.030	U	0.030	UJ
2-Butanone	3.0	U	0.60	U	0.60	U	0.60	U	0.60	UJ
1,1,1-Trichloroethane	0.41		0.050	U	0.050	U	0.050	U	0.050	UJ
Carbon tetrachloride	0.11	U	0.022	U	0.022	U	0.022	U	0.022	UJ
Bromodichloromethane	0.34	J	0.030	UJ	0.030	UJ	0.030	UJ	0.030	UJ
1,2-Dichloropropane	0.25	U	0.050	U	0.050	U	0.050	U	0.050	UJ
Cis-1,3-Dichloropropene	0.085	U	0.017	U	0.017	U	0.017	U	0.017	UJ
Trichloroethene	1.5		0.050	U	0.060		0.050	U	0.050	UJ
Dibromochloromethane	0.13	U	0.026	U	0.026	U	0.026	U	0.026	UJ
1,1,2-Trichloroethane	0.30	U	0.060	U	0.060	U	0.060	U	0.060	UJ
Benzene	0.25	U	0.050	U	0.050	U	0.050	U	0.050	UJ
Trans-1,3-Dichloropropene	0.085	U	0.017	U	0.017	U	0.017	U	0.017	UJ
Bromoform	0.20	UJ	0.040	UJ	0.040	UJ	0.040	UJ	0.040	UJ
4-Methyl-2-pentanone	4.0	UJ	0.80	UJ	0.80	UJ	0.80	UJ	0.80	UJ
2-Hexanone	8.0	U	1.6	U	1.6	U	1.6	U	1.6	UJ
Tetrachloroethene	0.25	U	0.050	U	0.050	U	0.050	U	0.050	UJ
1,1,2,2-Tetrachloroethane	0.095	U	0.019	U	0.019	U	0.019	U	0.019	UJ
Toluene	0.30	U	0.060	U	0.060	U	0.060	U	0.060	UJ
Chlorobenzene	0.20	U	0.040	U	0.040	U	0.040	U	0.040	UJ
Ethylbenzene	0.12	U	0.024	U	0.024	U	0.024	U	0.024	UJ
Styrene	0.11	UJ	0.022	U	0.022	U	0.022	U	0.022	R
M & p-Xylene	0.40	U	0.080	U	0.080	U	0.080	U	0.080	R
Cis-1,2-Dichloroethene	23	J	0.050	UJ	0.050	UJ	0.050	UJ	0.050	UJ
Isopropylbenzene	0.20	U	0.040	U	0.040	U	0.040	U	0.040	UJ
Methyl tert-butyl ether	1.2	J	0.080	UJ	0.080	UJ	0.080	UJ	0.080	UJ
o-Xylene	0.12	U	0.023	U	0.023	U	0.023	U	0.023	UJ
Trans-1,2-Dichloroethene	1.4		0.060	U	0.060	U	0.060	U	0.060	UJ

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-47		07CE37-48		07CE37-49		07CE37-50		07CE37-52	
Dilution factors =	1.0		1.0		1.0		200.0		1.0	
Chloromethane	0.050	U	0.050	U	0.050	U	10	U	0.050	U
Bromomethane	0.070	U	0.070	U	0.070	U	14	U	0.070	U
Vinyl chloride	0.013	U	0.013	U	0.013	U	48		0.013	U
Chloroethane	0.070	U	0.070	U	0.070	U	14	U	0.070	U
Methylene chloride	1.7	U	1.7	U	1.6	U	36	J	0.18	U
Acetone	1.5	U	1.5	U	1.5	U	300	UJ	1.5	U
Carbon disulfide	0.090	U	0.090	U	0.090	U	18	U	0.090	U
1,1-Dichloroethene	0.050	U	0.050	U	0.050	U	10	U	0.050	U
1,1-Dichloroethane	0.060	U	0.060	U	0.060	U	12	U	0.060	U
Chloroform	0.022	U	0.022	U	0.022	U	16	U	0.022	U
1,2-Dichloroethane	0.030	U	0.030	U	0.030	U	6.0	U	0.030	U
2-Butanone	0.60	U	0.60	U	0.60	U	120	U	0.60	U
1,1,1-Trichloroethane	0.050	U	0.050	U	0.050	U	10	U	0.050	U
Carbon tetrachloride	0.022	U	0.022	U	0.022	U	4.4	U	0.022	U
Bromodichloromethane	0.030	U	0.030	U	0.030	U	12	J	0.030	U
1,2-Dichloropropane	0.050	U	0.050	U	0.050	U	10	U	0.050	U
Cis-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	3.4	U	0.017	U
Trichloroethene	0.050	U	0.050	U	0.050	U	10	U	0.050	U
Dibromochloromethane	0.026	U	0.026	U	0.026	U	5.2	U	0.026	U
1,1,2-Trichloroethane	0.060	U	0.060	U	0.060	U	12	U	0.060	U
Benzene	0.050	U	0.050	U	0.050	U	10	U	0.050	U
Trans-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	3.4	U	0.017	U
Bromoform	0.040	U	0.040	U	0.040	U	8.0	UJ	0.040	U
4-Methyl-2-pentanone	0.80	U	0.80	U	0.80	U	160	UJ	0.80	U
2-Hexanone	1.6	U	1.6	U	1.6	U	320	U	1.6	U
Tetrachloroethene	0.050	U	0.050	U	0.050	U	10	U	0.050	U
1,1,2,2-Tetrachloroethane	0.019	U	0.019	U	0.019	U	3.8	U	0.019	U
Toluene	0.060	U	0.060	U	0.060	U	12	U	0.060	U
Chlorobenzene	0.040	U	0.040	U	0.040	U	8.0	U	0.040	U
Ethylbenzene	0.024	U	0.024	U	0.024	U	4.8	U	0.024	U
Styrene	0.022	U	0.022	U	0.022	U	4.4	U	0.022	U
M & p-Xylene	0.080	U	0.080	U	0.080	U	16	U	0.080	U
Cis-1,2-Dichloroethene	0.050	UJ	0.050	UJ	0.050	UJ	1300	J	0.81	J
Isopropylbenzene	0.040	U	0.040	U	0.040	U	8.0	U	0.040	U
Methyl tert-butyl ether	0.080	U	0.080	U	0.080	U	16	UJ	0.45	
o-Xylene	0.023	U	0.023	U	0.023	U	4.6	U	0.023	U
Trans-1,2-Dichloroethene	0.060	U	0.060	U	0.060	U	27		0.079	

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-54		07CE37-56		07CE37-58		07CE37-59		07CE37-60	
Dilution factors =	1.0		1.0		1.0		1.0		1.0	
Chloromethane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Bromomethane	0.070	U	0.070	U	0.070	U	0.070	U	0.070	U
Vinyl chloride	0.013	U	0.013	U	0.013	U	0.013	U	0.013	U
Chloroethane	0.070	U	0.070	U	0.070	U	0.070	U	0.070	U
Methylene chloride	0.18	U	0.18	U	2.3	U	1.9	U	1.3	U
Acetone	1.5	U	1.5	U	1.5	U	1.5	U	1.5	U
Carbon disulfide	0.090	U	0.090	U	0.090	U	0.090	U	0.090	U
1,1-Dichloroethene	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
1,1-Dichloroethane	0.14		0.12		0.060	U	0.060	U	0.060	U
Chloroform	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
1,2-Dichloroethane	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
2-Butanone	0.60	U	0.60	U	0.60	U	0.60	U	0.60	U
1,1,1-Trichloroethane	0.45		0.43		0.050	U	0.050	U	0.050	U
Carbon tetrachloride	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
Bromodichloromethane	0.030	U	0.030	U	0.030	U	0.030	U	0.030	U
1,2-Dichloropropane	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Cis-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U
Trichloroethene	1.6		1.6		0.050	U	0.050	U	0.050	U
Dibromochloromethane	0.026	U	0.026	U	0.026	U	0.026	U	0.026	U
1,1,2-Trichloroethane	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Benzene	0.050	U	0.050	U	0.050	U	0.050	U	0.050	U
Trans-1,3-Dichloropropene	0.017	U	0.017	U	0.017	U	0.017	U	0.017	U
Bromoform	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
4-Methyl-2-pentanone	0.80	U	0.80	U	0.80	U	0.80	U	0.80	U
2-Hexanone	1.6	U	1.6	U	1.6	U	1.6	U	1.6	U
Tetrachloroethene	0.067		0.074		0.050	U	0.050	U	0.050	U
1,1,2,2-Tetrachloroethane	0.019	U	0.019	U	0.019	U	0.019	U	0.019	U
Toluene	0.060	U	0.060	U	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Ethylbenzene	0.024	U	0.024	U	0.024	U	0.024	U	0.024	U
Styrene	0.022	U	0.022	U	0.022	U	0.022	U	0.022	U
M & p-Xylene	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
Cis-1,2-Dichloroethene	0.050	UJ	0.43	J	0.050	UJ	0.050	UJ	0.050	UJ
Isopropylbenzene	0.040	U	0.040	U	0.040	U	0.040	U	0.040	U
Methyl tert-butyl ether	0.080	U	0.080	U	0.080	U	0.080	U	0.080	U
o-Xylene	0.023	U	0.023	U	0.023	U	0.023	U	0.023	U
Trans-1,2-Dichloroethene	0.060	U	0.084		0.060	U	0.060	U	0.060	U

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-61		07CE37-63		07CE37-65		07CE37-67		07CE37-68	
Dilution factors =	100.0		1.0		5.0		1.0		1.0	
Chloromethane	5.0	U	0.050	U	0.35		0.050	U	0.050	U
Bromomethane	7.0	U	0.070	U	0.35	U	0.070	U	0.070	U
Vinyl chloride	11	J	0.013	U	0.74		0.013	U	0.013	U
Chloroethane	7.0	U	0.070	U	0.35	U	0.070	U	0.070	U
Methylene chloride	280	UJ	0.18	U	0.90	UJ	1.8	U	0.18	U
Acetone	220		1.5	U	7.5	UJ	1.5	U	1.5	U
Carbon disulfide	9.0	U	0.090	U	0.45	U	0.090	U	0.090	U
1,1-Dichloroethene	23		0.050	U	1.1		0.050	U	0.050	U
1,1-Dichloroethane	63		0.060	U	6.2		0.060	U	0.060	J
Chloroform	2.2	U	0.022	U	0.37	U	0.022	U	0.022	U
1,2-Dichloroethane	3.0	U	0.030	U	0.15	U	0.030	U	0.030	U
2-Butanone	60	U	0.60	U	3.0	U	0.60	U	0.60	U
1,1,1-Trichloroethane	5.0	U	0.050	U	0.25	U	0.050	U	0.050	U
Carbon tetrachloride	2.2	U	0.022	U	0.11	U	0.022	U	0.022	U
Bromodichloromethane	3.0	U	0.030	U	0.28	J	0.030	U	0.030	U
1,2-Dichloropropane	5.0	U	0.050	U	0.25	U	0.050	U	0.050	U
Cis-1,3-Dichloropropene	1.7	U	0.017	U	0.085	U	0.017	U	0.017	U
Trichloroethene	560		0.050	U	31		0.050	U	0.050	U
Dibromochloromethane	2.6	UJ	0.026	U	0.13	U	0.026	U	0.026	U
1,1,2-Trichloroethane	6.0	U	0.060	U	0.30	U	0.060	U	0.060	U
Benzene	5.0	U	0.050	U	0.25	U	0.050	U	0.050	U
Trans-1,3-Dichloropropene	1.7	U	0.017	U	0.085	U	0.017	U	0.017	U
Bromoform	4.0	UJ	0.040	U	0.20	UJ	0.040	U	0.040	U
4-Methyl-2-pentanone	80	U	0.80	U	4.0	UJ	0.80	U	0.80	U
2-Hexanone	160	U	1.6	U	8.0	U	1.6	U	1.6	U
Tetrachloroethene	5.0	U	0.050	U	0.25	U	0.050	U	0.050	U
1,1,2,2-Tetrachloroethane	1.9	U	0.019	U	0.095	U	0.019	U	0.019	U
Toluene	6.0	U	0.060	U	0.30	U	0.060	U	0.060	U
Chlorobenzene	4.0	U	0.040	U	0.20	U	0.040	U	0.040	U
Ethylbenzene	2.4	U	0.024	U	0.12	U	0.024	U	0.024	U
Styrene	2.2	U	0.022	U	0.11	U	0.022	U	0.022	U
M & p-Xylene	8.0	U	0.080	U	0.40	U	0.080	U	0.080	U
Cis-1,2-Dichloroethene	180	J	0.10	J	35	J	0.050	UJ	0.050	UJ
Isopropylbenzene	4.0	U	0.040	U	0.20	U	0.040	U	0.040	U
Methyl tert-butyl ether	8.0	U	0.080	U	0.40	UJ	0.080	U	0.080	U
o-Xylene	2.3	U	0.023	U	0.12	U	0.023	U	0.023	U
Trans-1,2-Dichloroethene	6.1		0.060	U	1.1		0.060	U	0.060	U

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Analytes	07CE37-70		07CE37-72		07CE37-80		07CE37-83		07CE37-84	
Dilution factors =	2.0/5.0		20.0		1.0		1.0		1.0	
Chloromethane	0.19		1.0	U	0.050	U	0.23		0.26	
Bromomethane	0.14	U	1.4	U	0.070	U	0.070	U	0.070	U
Vinyl chloride	1.6		0.96		0.013	U	0.013	U	0.013	U
Chloroethane	0.14	U	1.4	U	0.070	U	0.070	U	0.070	U
Methylene chloride	2.2	J	3.6	UJ	2.1	U	0.18	U	0.18	U
Acetone	3.0	UJ	30	UJ	1.5	U	1.5	U	1.5	U
Carbon disulfide	0.18	U	1.8	U	0.090	U	0.090	U	0.090	U
1,1-Dichloroethene	0.41		12		0.050	U	0.050	U	0.050	U
1,1-Dichloroethane	17		45		0.060	U	0.060	U	0.060	U
Chloroform	0.044	U	0.44	U	0.022	U	0.022	U	0.022	U
1,2-Dichloroethane	0.11		0.60	U	0.030	U	0.030	U	0.030	U
2-Butanone	1.2	U	12	U	0.60	U	0.60	U	0.60	U
1,1,1-Trichloroethane	3.7		77		0.050	U	0.050	U	0.050	U
Carbon tetrachloride	0.044	U	0.44	U	0.022	U	0.022	U	0.022	U
Bromodichloromethane	0.060	UJ	0.87	J	0.030	U	0.030	U	0.030	U
1,2-Dichloropropane	0.10	U	1.0	U	0.050	U	0.050	U	0.050	U
Cis-1,3-Dichloropropene	0.034	U	0.34	U	0.017	U	0.017	U	0.017	U
Trichloroethene	0.91		98		0.050	U	0.050	U	0.050	U
Dibromochloromethane	0.052	U	0.52	U	0.026	U	0.026	U	0.026	U
1,1,2-Trichloroethane	0.12	U	1.2	U	0.060	U	0.060	U	0.060	U
Benzene	0.14		1.0	U	0.050	U	0.050	U	0.050	U
Trans-1,3-Dichloropropene	0.034	U	0.34	U	0.017	U	0.017	U	0.017	U
Bromoform	0.080	UJ	0.80	UJ	0.040	U	0.040	U	0.040	U
4-Methyl-2-pentanone	1.6	UJ	16	UJ	0.80	U	0.80	U	0.80	U
2-Hexanone	3.2	U	32	U	1.6	U	1.6	U	1.6	U
Tetrachloroethene	0.10	U	1.0	U	0.050	U	0.050	U	0.050	U
1,1,2,2-Tetrachloroethane	0.038	U	0.38	U	0.019	U	0.019	U	0.019	U
Toluene	0.12	U	1.2	U	0.060	U	0.060	U	0.060	U
Chlorobenzene	0.080	U	0.80	U	0.040	U	0.040	U	0.040	U
Ethylbenzene	0.048	U	0.48	U	0.024	U	0.024	U	0.024	U
Styrene	0.044	U	0.44	U	0.022	U	0.022	U	0.022	U
M & p-Xylene	0.16	U	1.6	U	0.080	U	0.080	U	0.080	U
Cis-1,2-Dichloroethene	7.7	J	32	J	0.050	UJ	0.050	UJ	0.050	UJ
Isopropylbenzene	0.080	U	0.80	U	0.040	U	0.040	U	0.040	U
Methyl tert-butyl ether	0.30	J	1.6	UJ	0.080	U	0.080	U	0.080	U
o-Xylene	0.046	U	0.46	U	0.023	U	0.023	U	0.023	U
Trans-1,2-Dichloroethene	1.4		21		0.060	U	0.060	U	0.060	U

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

SAS RLs	Analytes
	Dilution factors=
0.2	Chloromethane
0.2	Bromomethane
0.018	Vinyl chloride
0.2	Chloroethane
0.2	Methylene chloride
2.0	Acetone
0.4	Carbon disulfide
0.2	1,1-Dichloroethene
0.2	1,1-Dichloroethane
0.2	Chloroform
0.2	1,2-Dichloroethane
2.0	2-Butanone
1.0	1,1,1-Trichloroethane
0.2	Carbon tetrachloride
0.05	Bromodichloromethane
0.2	1,2-Dichloropropane
0.016	Cis-1,3-Dichloropropene
0.2	Trichloroethene
0.2	Dibromochloromethane
0.2	1,1,2-Trichloroethane
0.2	Benzene
0.015	Trans-1,3-Dichloropropene
0.2	Bromoform
2.0	4-Methyl-2-pentanone
2.0	2-Hexanone
0.2	Tetrachloroethene
0.018	1,1,2,2-Tetrachloroethane
1.0	Toluene
0.2	Chlorobenzene
0.05	Ethylbenzene
0.2	Styrene
0.2	M & p-Xylene
0.2	Cis-1,2-Dichloroethene
0.2	Isopropylbenzene
0.2	Methyl tert-butyl ether
0.2	o-Xylene
0.2	Trans-1,2-Dichloroethene

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

	07CE37-01		07CE37-03		07CE37-05		07CE37-07		07CE37-10	
	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U
Methane	20.0	120	10.0	76	1.0	0.25 U	1.0	0.25 U	100.0	1000

	07CE37-11		07CE37-12		07CE37-22		07CE37-25		07CE37-27	
	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U
Methane	1.0	11	1.0	2.5	5.0	47	5.0	55	1.0	7.9

	07CE37-29		07CE37-33		07CE37-35		07CE37-37		07CE37-39	
	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U
Methane	4.0	21	4.0	31	1.0	2.3	1.0	1.8	1.0	6.2

	07CE37-41		07CE37-43		07CE37-50		07CE37-52		07CE37-54	
	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U
Methane	1.0	0.25 U	100.0	640	4.0	20	1.0	15	1.0	0.25 U

	07CE37-56		07CE37-61		07CE37-63		07CE37-65		07CE37-68	
	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.40 UJ	1.0	1.3 J	1.0	0.46 J	1.0	0.40 UJ	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U	1.0	0.50 U
Methane	1.0	0.55	50.0	230 J	100	880	10.0	89	4.0	50

	07CE37-70		07CE37-72	
	Df=	µg/L	Df=	µg/L
Ethane	1.0	0.46 J	1.0	0.40 UJ
Ethene	1.0	0.50 U	1.0	0.50 U
Methane	4.0	18	4.0	40

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: August 22, 2007

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61033-VOC
Laboratory: CT Laboratories

Data Qualifier Sheet

For the purpose of defining the flagging nomenclature utilized in this document, the following code letters and associated definitions are provided:

VALUE – if the result is a value greater than or equal to the Contract Required Quantitation Limit (CRQL).

U	Indicates that the compound was analyzed for, but not detected. The sample quantitation limit corrected for dilution and percent moisture is reported.
J	Indicates an estimated value. This flag is used either when estimating a concentration for a tentatively identified compound or when the data indicates the presence of a compound but the result is less than the sample quantitation limit, but greater than zero. The flag is also used to indicate a reported result having an associated QC problem.
N	Indicates presumptive evidence of a compound. This flag is only used for a tentatively identified compound (TIC), where the identification is based on a mass spectral library search.
R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: August 22, 2007

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: August 1, 2007

FROM: Stephen L. Ostrodka, Chief (SRT-4J)
Superfund Field Services Section

TO: Data User: Ch2m Hill

We have reviewed the data for the following case:

SITE Name: Oconomowoc Electroplating Company (WI)

SAS Project: 07CE37 SDG Number: 61248-VOC

Number and Type of Samples: 7 Waters (7 VOCs)

Sample Numbers: 07CE37-74 thru 07CE37-79, 07CE37-81

Laboratory: CT Laboratories Hrs for Review:

Following are our findings:

CC: Howard Pham
Region 5 TPO
Mail Code: SRT-4J

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61248-VOC
Laboratory: CT Laboratories

Below is a summary of the out-of-control audits and the possible effects on the data for this case:

Seven (7) preserved water samples listed in the following table were collected July 6, 2007. CT Laboratories of Baraboo, Wisconsin received the samples July 7, 2007 intact, properly cooled and in good condition. The samples were analyzed July 13, 2007 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2009.

EPA ID	CTI Lab ID	Sample location	Date sampled	VOC Analyses
07CE37-74	484599	OEP-PW-01	07/06/07	7/13/07
07CE37-75	484600	OEP-PW-01-FR	07/06/07	7/13/07
07CE37-76	484601	OEP-PW-02	07/06/07	7/13/07
07CE37-77	484602	OEP-PW-03	07/06/07	7/13/07
07CE37-78	484603	OEP-PW-05	07/06/07	7/13/07
07CE37-79	484604	OEP-PW-07	07/06/07	7/13/07
07CE37-81	484605	OEP-MW-RT13	07/06/07	7/13/07

The laboratory reported the results of 46 volatile analytes. Only the following 36 volatile analytes were requested in the SAS contract and only these analytes will be discussed in the following validation report.

Acetone	Benzene	Bromodichloromethane
Bromoform	Bromomethane	2-Butanone (MEK)
Carbon disulfide	Carbon tetrachloride	Chlorobenzene
Chloroethane	Chloroform	Chloromethane
Dibromochloromethane	1,1-Dichloroethane	1,2-Dichloroethane
1,1-Dichloroethene	Cis-1,2-Dichloroethene	Trans-1,2-Dichloroethene
1,2-Dichloropropane	Cis-1,3-Dichloropropene	Trans-1,3-Dichloropropene
Ethylbenzene	2-Hexanone	4-Methyl-2-pentanone (MIBK)
Methylene chloride	Styrene	1,1,2,2-Tetrachloroethane
Tetrachloroethene	Toluene	1,1,1-Trichloroethane
1,1,2-Trichloroethane	Trichloroethene	Vinyl chloride
[Xylenes, total]	M & p-Xylene	o-Xylene
Isopropylbenzene	Methyl tert-butyl ether	

The VOC method blank is MB-486353 for the SW-846 Method 8260B analyses.

Samples 07CE37-74 is the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses.

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: September 17, 2007

The VOC laboratory control sample is LCS-486352 and the VOC laboratory control sample duplicate is LCSD-486404.

Sample 07CE37-81 is a Trip Blank.

Sample 07CE37-75 is a field replicate of 07CE37-74.

The VOA analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61248-VOC
Laboratory: CT Laboratories

1. HOLDING TIME

Seven (7) preserved water samples listed in the following table were collected July 6, 2007. CT Laboratories of Baraboo, Wisconsin received the samples July 7, 2007 intact, properly cooled and in good condition. The samples were analyzed July 13, 2007 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2009.

The VOA analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

The GC/MS tuning for SW-846 Method 8260B complied with the mass list and ion abundance criteria for BFB, and all samples were analyzed within the twelve (12) hour periods for instrument performance checks.

3. CALIBRATION

From the GC/MS1 Sequence log it appears that a 7-point calibration curve (0.2, 0.4, 1.0, 2.0, 4.0, 6.0 and 8.0 µg/L) was performed on July 13, 2007.

Continuing Calibrations were conducted at the start of every analytical sequence. All analytes are evaluated for %Ds less than 20%. No minimum RRF values were identified in the SAS contract. The average RRFs for Acetone and 2-Butanone were less than 0.05 but greater than the minimum RRF of 0.01 currently used in SOW SOM01.1. All %Ds for these surrogates were greater than 20%. Sample results are not qualified based on the RRF values or %D of the surrogates alone.

The following samples are associated with a continuing calibration where one or more analytes has a %D greater than 20%. Detected compounds should be qualified "J".

Methylene chloride
07CE37-74MS, 07CE37-74MSD, 07CE37-81, LCS-486352, LCSD-486404

2-Butanone
07CE37-74MS, 07CE37-74MSD, LCS-486352, LCSD-486404

cis-1,2-Dichloroethene
07CE37-74MS, 07CE37-74MSD, 07CE37-77, 07CE37-78, 07CE37-79, LCS-486352, LCSD-486404

The following samples are associated with a continuing calibration where one or more analytes has a %D greater than 20%. Non-detected quantitation limits should be qualified "UJ".

Methylene chloride
07CE37-74, 07CE37-75, 07CE37-76, 07CE37-77, 07CE37-78, 07CE37-79, MB-486352

2-Butanone
07CE37-74, 07CE37-75, 07CE37-76, 07CE37-77, 07CE37-78, 07CE37-79, 07CE37-81, MB-486352

cis-1,2-Dichloroethene
07CE37-74, 07CE37-75, 07CE37-76, 07CE37-81, MB-486352

4. BLANKS

The VOC method blank is MB-486353 for the SW-846 Method 8260B analyses. Method MB-486353 contained no target analytes; therefore, the sample results do not require qualification for this criterion. The Volatile Method Blank Summary lists the samples associated with the method blank.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

All SW-846 Method 8260B volatile surrogate compounds (1,2-Dichloroethane-d_4, Bromofluorobenzene, Dibromofluoromethane, Toluene-d_8) were within the QC limits (75-135%) for all VOC samples.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

Sample 07CE37-74 is the parent sample used for the VOC Matrix Spike / Matrix Spike Duplicate analyses.

The %recoveries for all compounds, except Styrene, m & p-Xylene and o-Xylene were within the QC limits (60 – 130%) for samples 07CE37-74MS and 07CE37-74MSD. All RPDs, except Styrene, were less than 30%. The %recoveries for m,p-Xylene were below the lower limit but greater than 20% in both samples 07CE37-74MS and 07CE37-74MSD. The %recoveries of Styrene were less than 20% in both samples 07CE37-74MS and 07CE37-74MSD. The %recovery of o-Xylene was below the lower limit but greater than 20% in sample 07CE37-74MS. The quantitation limits for m,p-Xylene and o-Xylene in the unspiked sample, 07CE37-74, should be qualified "UJ". The quantitation limits for Styrene in the unspiked sample, 07CE37-74, should be qualified "R" because the %recoveries were less than 20%.

6B. LABORATORY CONTROL SAMPLES

The VOC laboratory control sample is LCS-486352 and the VOC laboratory control sample duplicate is LCSD-486404.

LCS-486352 and LCSD-486404 were analyzed July 13, 2007. The percent recoveries for all compounds were within the QC limits (60 – 130%) for both LCS-483899 and LCSD-484363.

The relative percent difference (RPD) for cis-1,2-Dichloroethene was greater than the QC limit of 30%. The detection of cis-1,2-Dichloroethene in the following samples should be qualified "J".

cis-1,2-Dichloroethene
07CE37-74MS, 07CE37-74MSD, 07CE37-77, 07CE37-78, 07CE37-79

The relative percent difference (RPD) for cis-1,2-Dichloroethene was greater than the QC limit of 30%. The quantitation limits for cis-1,2-Dichloroethene in the following samples should be qualified "UJ".

cis-1,2-Dichloroethene
07CE37-74, 07CE37-75, 07CE37-76, 07CE37-81, MB-486352

7. FIELD BLANK AND FIELD DUPLICATE

Sample 07CE37-81 is the trip blank. Sample 07CE37-81 contained Methylene chloride at 0.35 µg/L.

Sample 07CE37-75 is a field replicate of 07CE37-74. Sample results and RPDs are summarized in the following table.

Analyte	**07CE37-74**	**07CE37-75**	RPDs
	Df = 1.0, µg/L	Df = 1.0, µg/L	
Chloromethane	0.19	0.17	11 %
1,2-Dichloroethane	0.24	0.21	13 %

8. INTERNAL STANDARDS

The three internal standard's (Fluorobenzene, Chlorobenzene-d_5, 1,4-Dichlorobenzene-d_4) retention times and area counts for the VOC samples were within the QC limits; therefore, the results are acceptable.

9. COMPOUND IDENTIFICATION

After reviewing the mass spectra and chromatograms it appears that all VOC compounds were properly identified.

10. COMPOUND QUANTITATION AND REPORTED DETECTION LIMITS

All samples were waters and no dilutions were run. The reporting limits for the VOC compounds were less than or equal to the reporting limits specified in the SAS contract for all analytes; except 1,1,2,2-Tetrachloroethane, cis-1,3-Dichloropropene and trans-1,3-Dichloropropene. The requested reporting limit for cis-1,3-Dichloropropene was 0.016 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for trans-1,3-Dichloropropene was 0.015 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for 1,1,2,2-Tetrachloroethane was 0.018 µg/L and the actual reporting limit was 0.019 µg/L. Xylenes (total) was reported as m,p-Xylene and o-Xylene.

The following VOC samples reported analyte concentrations below the SAS reporting limits but above the laboratory's detection limits. The concentrations should be qualified as estimated, "J".

07CE37-77
1,2-Dichloroethane, trans-1,2-Dichloroethene

07CE37-78
Chloromethane, 1,2-Dichloroethane, Trichloroethene, trans-1,2-Dichloroethene

07CE37-79
1,2-Dichloroethane

07CE37-81
Methylene chloride

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The final shipment of samples arrived at the Laboratory on July 7, 2007. The Laboratory Case Narrative was prepared on July 24, 2007 and forwarded by Ch2mHill on July 25, 2007 which is well within 21 calendar days of sample receipt.

Photocopies of the airbills were included with this package. The original sample tags, packing list and airbills should have been sent to CH2M HILL.

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: September 17, 2007

Copies of the most recent MDL studies were not included with this data package but MDL (LOD – Level of Detection) values are present on the Laboratory Form Is.

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61248-VOC
Laboratory: CT Laboratories

Summary of Sample Results (only SAS requested analytes):

Analytes	**07CE37-74**	**07CE37-75**	**07CE37-76**	**07CE37-77**	**07CE37-78**
Dilution factors =	1.0, µg/L	1.0, µg/L	1.0, µg/L	1.0, µg/L	1.0, µg/L
Chloromethane	0.19	0.17	0.19	0.24	0.14 J
Bromomethane	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U
Vinyl chloride	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U
Chloroethane	0.070 U	0.070 U	0.070 U	0.070 U	0.070 U
Methylene chloride	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
Acetone	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Carbon disulfide	0.090 U	0.090 U	0.090 U	0.090 U	0.090 U
1,1-Dichloroethene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
1,1-Dichloroethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U
Chloroform	0.022 U	0.022 U	0.15 U	0.022 U	0.022 U
1,2-Dichloroethane	0.24	0.21	0.030 U	0.058 J	0.066 J
2-Butanone	0.60 UJ	0.60 UJ	0.60 UJ	0.60 UJ	0.60 UJ
1,1,1-Trichloroethane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Carbon tetrachloride	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
Bromodichloromethane	0.030 U	0.030 U	0.030 U	0.030 U	0.030 U
1,2-Dichloropropane	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Cis-1,3-Dichloropropene	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Trichloroethene	0.050 U	0.050 U	0.050 U	0.65	0.13 J
Dibromochloromethane	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
1,1,2-Trichloroethane	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U
Benzene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
Trans-1,3-Dichloropropene	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Bromoform	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
4-Methyl-2-pentanone	0.080 U	0.080 U	0.80 U	0.80 U	0.80 U
2-Hexanone	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
Tetrachloroethene	0.050 U	0.050 U	0.050 U	0.050 U	0.050 U
1,1,2,2-Tetrachloroethane	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
Toluene	0.060 U	0.060 U	0.060 U	0.060 U	0.060 U
Chlorobenzene	0.040 U	0.040 U	0.040 U	0.040 U	0.040 U
Ethylbenzene	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Styrene	0.022 R	0.022 U	0.022 U	0.022 U	0.022 U
M & p-Xylene	0.080 UJ	0.080 U	0.50	0.080 U	0.080 U
Cis-1,2-Dichloroethene	0.050 UJ	0.050 UJ	0.050 UJ	0.91 J	1.4 J
Isopropylbenzene	0.040 U	0.040 U	0.15	0.040 U	0.040 U
Methyl tert-butyl ether	0.080 U	0.080 U	0.080 U	0.79	1.0
o-Xylene	0.023 UJ	0.023 U	0.69	0.023 U	0.023 U
Trans-1,2-Dichloroethene	0.060 U	0.060 U	0.060 U	0.11 J	0.13 J

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: September 17, 2007

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61248-VOC
Laboratory: CT Laboratories

Analytes	**07CE37-79**		**07CE37-81**		SAS RLs
Dilution factors =	1.0, µg/L		1.0, µg/L		µg/L
Chloromethane	0.27		0.050	U	0.2
Bromomethane	0.070	U	0.070	U	0.2
Vinyl chloride	0.013	U	0.013	U	0.018
Chloroethane	0.070	U	0.070	U	0.2
Methylene chloride	0.18	UJ	0.35	J	0.2
Acetone	1.5	U	1.5	U	2.0
Carbon disulfide	0.090	U	0.090	U	0.4
1,1-Dichloroethene	0.050	U	0.050	U	0.2
1,1-Dichloroethane	0.060	U	0.060	U	0.2
Chloroform	0.022	U	0.022	U	0.2
1,2-Dichloroethane	0.043	J	0.030	U	0.2
2-Butanone	0.60	UJ	0.60	UJ	2.0
1,1,1-Trichloroethane	0.050	U	0.050	U	1.0
Carbon tetrachloride	0.022	U	0.022	U	0.2
Bromodichloromethane	0.030	U	0.030	U	0.05
1,2-Dichloropropane	0.050	U	0.050	U	0.2
Cis-1,3-Dichloropropene	0.017	U	0.017	U	0.016
Trichloroethene	0.050	U	0.050	U	0.2
Dibromochloromethane	0.026	U	0.026	U	0.2
1,1,2-Trichloroethane	0.060	U	0.060	U	0.2
Benzene	0.050	U	0.050	U	0.2
Trans-1,3-Dichloropropene	0.017	U	0.017	U	0.015
Bromoform	0.040	U	0.040	U	0.2
4-Methyl-2-pentanone	0.80	U	0.80	U	2.0
2-Hexanone	1.6	U	1.6	U	2.0
Tetrachloroethene	0.050	U	0.050	U	0.2
1,1,2,2-Tetrachloroethane	0.019	U	0.019	U	0.018
Toluene	0.060	U	0.060	U	1.0
Chlorobenzene	0.040	U	0.040	U	0.2
Ethylbenzene	0.024	U	0.024	U	0.05
Styrene	0.022	U	0.022	U	0.2
M & p-Xylene	0.080	U	0.080	U	0.2
Cis-1,2-Dichloroethene	2.9	J	0.050	UJ	0.2
Isopropylbenzene	0.040	U	0.040	U	0.2
Methyl tert-butyl ether	0.73		0.080	U	0.2
o-Xylene	0.023	U	0.023	U	0.2
Trans-1,2-Dichloroethene	0.20		0.060	U	0.2

SAS Project: 07CE37
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 61248-VOC
Laboratory: CT Laboratories

Data Qualifier Sheet

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R	Indicates the data are unusable. (The compound may or may not be present.)
P	Indicates a pesticide/Aroclor target analyte when there is greater than 25% difference for the detect concentrations between the two GC columns. The lower of the two results is reported.
C	Indicates pesticide results that have been confirmed by GC/MS.
B	Indicates the analyte is detected in the associated method blank as well as the sample.
E	Indicates compounds whose concentrations exceeded the calibration range of the instrument.
D	Indicates an identified compound in an analysis has been diluted. This flag alert the data user to any difference between the concentrations rported in the two analyses.
A	Indicates TICs that are suspected to be aldol condensation products.
G	Indicates the TCLP Matrix Spike Recovery was greater than the upper limit of the analytical method.
L	Indicates the TCLP Matrix Spike Recovery was less than the lower limit of the analytical method.
T	Indicates the analyte is found in the associated TCLP extraction blank as well as in the sample.

X, Y, Z are reserved for laboratory defined flags.

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: September 17, 2007

State of Wisconsin
DEPARTMENT OF NATURAL RESOURCES
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March 1, 2011

Mr. Richard C. Karl, Director
Superfund Division
U.S. EPA – Region 5
77 W. Jackson Street
Chicago, IL 60604

SUBJECT: Concurrence on the Amendment to the 1990 Record of Decision
Oconomowoc Electroplating Company, Inc., EPA ID# WID006100275

Dear Mr. Karl:

This letter is provided by the Wisconsin Department of Natural Resources (WDNR) to document the State's concurrence with the Amendment to the 1990 Record of Decision (AROD) for Oconomowoc Electroplating Company, Inc., Superfund Site (OECI). This AROD changes the 1990 remedy for Operable Unit-3, which comprises the contaminated groundwater at the site, from extraction and treatment to source-area removal or *in-situ* treatment and subsequent monitored natural attenuation (MNA). We believe this modified selected remedy is consistent with the requirements of Wisconsin statutes and administrative rules. The AROD will include:

- Horizontal and vertical delineation of the extent of the source area (or areas) via membrane interface probe system with direct-push technology confirmation sampling.
- After delineation, removal of the source (or sources) either *via* excavation or *in situ* source treatment using zero-valent iron. EPA will issue an Explanation of Significant Difference (ESD) to document the rationale for its selection of excavation or *in-situ* chemical treatment.
- Continued MNA of volatile organic compounds (VOCs) and other natural attenuation parameters at 10 shallow monitoring wells, 9 deep monitoring wells, 7 bedrock monitoring wells and 11 private residential wells.
- Annual surface water sampling for VOCs.

Should you have any questions regarding this matter please contact Mark Gordon at 608-266-7278.

Sincerely,

Mark Giesfeldt, P.E., Director
Bureau for Remediation and Redevelopment

c: Kathleen Strausbaugh – LS/8
Linda Hanefeld – SCR/Fitchburg
Aristeo Pelayo – RR/5
William Ryan – U.S. EPA Region 5