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July 20, 2009

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 2008 Fourth 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 2008 Fourth 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 2008 fourth 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

c: Pat Vogtman, PO/USEPA, Region 5 (w/o enclosure)
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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

2008 FOURTH QUARTER GROUNDWATER REPORT

Oconomowoc Electroplating Company, Inc. Site

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

July 2009

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

2008 Fourth Quarter Groundwater Report – OECI Site
Work Assignment No. 003-LRLR-05M8 / Contract No. EP-S5-06-01

PREPARED FOR: William Ryan/USEPA Region 5
Work Assignment Manager (SR-6J)

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DATE: July 15, 2009

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 during the week of October 10, 2008, at 26 monitoring wells, 10 private wells, and 1 onsite potable well. In addition, three surface water samples were collected and water level measurements were obtained from the site monitoring wells. This report presents the results of the October 2008 fourth quarter sampling event, including 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, through which Davy Creek flows. 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 (VC). Within the past 2 years, methyl tertiary-butyl ether (MTBE) and various xylene isomers have been detected in several site wells, however, 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 (Figure 3). Private wells located near 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 presented in the 2009 *Annual Groundwater Report and Evaluation of Monitored Natural Attenuation* (CH2M HILL, 2009).

Field Activities

The purpose of each groundwater sampling event is to monitor groundwater contaminant concentrations and natural attenuation parameters in order to assess the ongoing 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 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 32 site monitoring wells was measured during the week of October 10, 2008. All wells, with the exception of MW-14D, had depth to water measured on October 10, 2008. Depth to groundwater could not be measured in monitoring well MW-5 because of a damaged surface completion. Because of its proximity to monitoring wells MW-103S and MW-105S, no plan is currently under consideration for replacing this well. Monitoring well MW-14D is considered destroyed, and CH2M HILL has recommended replacing the well.

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 not collected because of their present condition (posts supporting staff gages appear to sit at less than 90 degrees from horizontal). Staff gage SG-1 appears to have been washed away and no longer is present. While historical data collected from the staff gages were used to assist with site characterization, future information from these staff gage locations is not anticipated to enhance the characterization; therefore, staff gages SG-1, SG-2, and SG-3 will not be replaced/repaired 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 from 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 west and 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-15, MW-104, MW-105, and MW-107, and upward at well nests MW-12, MW-13, MW-102, MW-103, and MW-106.

Deep Unconsolidated Aquifer

Groundwater elevations from 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 is toward Davy Creek to the southwest. Vertical gradients between the unconsolidated aquifer and bedrock were downward at well nests MW-1, MW-4, MW-12, MW-15, and MW-105, and upward at well nest MW-101.

Bedrock Aquifer

Groundwater elevations from 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 area of 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 analyses 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. 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 each sampling location, all non-dedicated sampling equipment was decontaminated following FOP No. 6—*Field Sampling Equipment Decontamination* (CH2M HILL, 2006).

With the exception of field parameter collection, private well locations were sampled as part of the fourth quarter October 2008 compliance monitoring in accordance with FOP No. 10—*Private Residential Well Groundwater Sampling Procedures* (CH2M HILL, 2006). Because of the variable nature of access points for private well sampling and the various treatment sequences of these wells, field parameters cannot be used as indicators of proper purging prior to sample collection. Private well taps were opened for 10 to 15 minutes prior to sampling. Whenever the configuration of the water system allowed, the sample was collected from a spigot before water-conditioning equipment was used.

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 the distribution and concentrations of CVOC "parent" compounds—1,1,1-TCA; tetrachloroethene (PCE); and TCE. Figures 8, 10, and 12 depict the distribution and concentrations of common degradation products or "daughter" compounds for these parent compounds—cis-1,2-DCE and VC.

Unconsolidated Monitoring Wells

PAL and/or 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-13S, MW-103S, and MW-105S (Figures 7 and 8). Groundwater collected at MW-16S was found to have exceedances for daughter compounds, but no detections of parent compounds. PAL and ES exceedances of COCs in groundwater from the deep unconsolidated aquifer are slightly more widespread (Figures 9 and 10). PAL or ES exceedances are present for both parent and daughter compounds at MW-102D (PAL only), west of the site, and at MW-5D, MW-12D, MW-103D, and MW-105D, immediately downgradient from the site. A single ES exceedance for TCE is present at MW-15D, west of the site, and a downgradient PAL exceedance for VC at MW-13D. A number of the exceedances in the shallow and deep unconsolidated aquifer result from elevated laboratory detection limits caused by sample dilution.

Groundwater collected from sentinel well nests MW-106S/D and MW-107S/D contained no VOC detections during the October 2008 sampling event, with the exception of an unconfirmed (not detected in consecutive sampling events) low-level detection of acetone chloride at sentinel wells MW-107S and MW-107D. Acetone is a known laboratory contaminant and is not believed to be attributable to historical site activities at this time.

Bedrock Monitoring and Private Wells

The bedrock aquifer includes bedrock monitoring wells and private wells screened at various depths. Bedrock monitoring wells at the site are screened in the upper 5 to 10 feet of the bedrock. Private wells are screened within a wider range of depths, because they are typically drilled to a depth where they first intersect a significant water-bearing fracture or joint.

Groundwater collected at bedrock monitoring wells MW-1D, MW-3D, MW-4D, and MW-105B contained VC concentrations that exceed the PAL. MW-1D is located east of the former facility, MW-3D and MW-4D are located on the northwestern boundary of the former facility, and MW-105B is located south of the former facility. In all other bedrock monitoring wells, no COCs were identified that exceed the PAL or the ES. Figures 11 and 12 show the distribution and magnitude of the detections of site COCs in bedrock.

Groundwater from 10 private wells and 1 onsite potable well was collected and sampled for regulatory compliance parameters (VOCs). One private well, PW-06, is no longer available for sampling because the property owner has disconnected PW-06 from electrical service,

and the well itself cannot be readily opened. Table 4 contains a summary of the results from the samples collected at these wells. Trichloroethene was detected at concentrations exceeding the PAL (0.5 micrograms per liter [µg/L]) at private well PW-03, which is located northwest of the former facility, and was detected below the PAL at three other private wells (PW-05, PW-08, and PW-09). No other parent compounds were detected in bedrock groundwater collected from private wells. Vinyl chloride was detected at concentrations exceeding the PAL (0.020 µg/L) at six private wells (PW-04, PW-05, PW-07, PW-08, PW-09, and PW-11) with groundwater concentrations of 0.03 (J-qualified), 0.029 (J-qualified), 0.059, 0.07 (J-qualified), 0.073 (J-qualified), and 0.039 (J-qualified) µg/L, respectively. No other COCs were identified that exceed the PAL or ES in the private wells; however 1,1-DCE, 1,2-dichloroethane (1,2-DCA), cis-1,2-DCE, MTBE, toluene, trans-1,2-DCE, and/or TCE also were detected at low levels in groundwater collected from one or more private wells at concentrations below the PAL. Over past several sampling rounds, MTBE and various xylene isomers have been detected in several site wells. However, these detections do not appear to be related to the site because they have been previously detected in several upgradient wells and none of these compounds were part of historical site activities.

Natural Attenuation Parameters

The concentrations of analytical natural attenuation and field parameters collected indicate that natural attenuation continues to occur most favorably in the shallow and deep unconsolidated wells located beneath or just upgradient of the wetland. This is evidenced by favorable oxidation-reduction potential conditions and elevated concentrations of sulfate, chloride, dissolved gases, and total/dissolved iron and manganese. 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 first quarter 2009 sampling round.

Surface Water Results

Surface water from three locations along Davy Creek (SG-01, SG-02, and SG-03; samples SW-01, SW-02, and SW-03, respectively) was collected and analyzed for natural attenuation (including ammonia and orthophosphate) and regulatory compliance parameters (VOCs). Table 5 contains a summary of the results from the samples collected at these locations. Several site-related COCs were detected in the surface water collected at SG-02 during the October 2008 sampling event.

Surface water collected at SG-02 contained VOC detections of 1,1-DCA, 1,1-DCE, 1,1,1-TCA, acetone, carbon disulfide, chlorobenzene, cis-1,2-DCE, ethylbenzene, m,p-xylene, toluene, trans-1,2-DCE, TCE, and VC. Detections of 1,1,1-TCA, cis-1,2-DCE, trans-1,2-DCE, TCE, and VC found in surface water collected at location SG-02 are confirmed from the April 2008 and July 2008 sampling events.

The presence of upward vertical gradients in the area of Davy Creek and the wetland, coupled with the concentration of COCs (particularly daughter compounds) in the shallow aquifer, makes the potential for the discharge of site COCs to the surface water near SG-02 appear possible. However, additional sources of surface water to Davy Creek, including direct surface runoff and stormwater sewer discharge, may account for some or all of the VOCs observed in surface water collected at SG-02.

Surface water collected at SG-03 and SG-01 in October 2008 did not contain any VOCs. Monitoring at all three surface water locations will continue and results and trends will be evaluated when additional quarterly data have been collected.

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 to create chain-of-custody forms. The USEPA copies of the chain-of-custody forms 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 November 4, 2008, the laboratory provided CH2M HILL with 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 November 5, 2008. 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 the October 2008 data is included in Appendix A.

Summary and Recommendations

The 2008 fourth quarter sampling event was conducted at the OECI site during the week of October 10, 2008. Twenty-six monitoring wells, ten private wells, one onsite potable well, and surface water from three locations were sampled during this event. Groundwater elevations determined from water level measurements collected at site monitoring wells 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 upper 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. Although the overall favorability of natural attenuation has decreased, conditions exist to support that natural attenuation continues to occur. 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-13D, MW-16S, MW-105S, and MW-105D), or cross-gradient to the west (MW-15D and MW-102D). In the bedrock aquifer, groundwater at three monitoring wells and six private well locations contain VC concentrations that exceed the PAL (upgradient wells MW-1D and MW-4D, and private wells PW-04, PW-05, PW-07, PW-08, PW09, and PW-11). In the bedrock aquifer, no other COCs were identified that exceed the PAL (no COCs exceed the ES). However, 1,2-DCA, cis-1,2-DCE, MTBE, trans-1,2-DCE, and TCE were detected in one or more private wells at concentrations below the PAL. Over the past several sampling rounds, MTBE and various xylene isomers have been detected in several site wells. However, these detections do not

appear to be related to the site because they have been found previously in several upgradient wells and these compounds were not part of historical site activities.

Surface water from three locations along Davy Creek (SG-01, SG-02, and SG-03) was collected during the October 2008 sampling event. Detections of 1,1-DCA, 1,1-DCE, 1,1,1-TCA (confirmed), acetone, carbon disulfide, chlorobenzene, cis-1,2-DCE (confirmed), ethylbenzene, m,p-xylene, toluene, trans-1,2-DCE (confirmed), TCE (confirmed), and VC (confirmed) were found in surface water collected at location SG-02. The presence of upward vertical gradients in the area of Davy Creek and the wetland, coupled with the concentration of COCs (particularly daughter compounds) in the shallow aquifer, make the potential for the discharge of site COCs to the surface water near SG-02 appear possible. However, additional sources of surface water to Davy Creek may account for some or all of the VOCs observed in surface water. Surface water collected at upstream location SG-01 and downstream location SG-03 did not have any VOC detections during the October 2008 sampling event. Monitoring at all three surface water locations will continue, and results and trends will be evaluated when additional quarterly data have been collected.

Monitoring well MW-14D is considered destroyed, and CH2M HILL has recommended replacing the well. CH2M HILL recommends the continuation of site monitoring under the current sampling plan for natural attenuation as well as regulatory compliance parameters at the selected monitoring wells, private wells, and surface water sampling points. The next quarterly monitoring event is scheduled for January 2009.

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. 2009. *Annual Groundwater Report and Evaluation of Monitored Natural Attenuation.* WA No. 003-LRLR-05MS, Contract No. EP-SS-06-01. January.

Tables

TABLE 1
Groundwater Elevations -- October 2008
2008 4th Quarter Groundwater Report
OECI Site

Well ID	Top of Casing (TOC) Elevation (ft amsl)	Groundwater Depth (measured from TOC)	Groundwater Elevation October 2008 (ft amsl)	Hydrostratigraphic Unit Screened
MW-1S	853.42	6.79	846.63	Shallow Unconsolidated
MW-3S	853.39	Dry	---	Shallow Unconsolidated
MW-4S	854.58	8.74	845.84	Shallow Unconsolidated
MW-5	849.07	Broken	---	Shallow Unconsolidated
MW-9S	851.57	5.65	845.92	Shallow Unconsolidated
MW-12S	849.17	4.33	844.84	Shallow Unconsolidated
MW-13S	850.91	5.90	845.01	Shallow Unconsolidated
MW-15S	854.68	9.63	845.05	Shallow Unconsolidated
MW-16S[1]	847.90	2.91	844.99	Shallow Unconsolidated
MW-101S	851.24	5.62	845.62	Shallow Unconsolidated
MW-102S	853.65	8.75	844.90	Shallow Unconsolidated
MW-103S	851.84	6.37	845.47	Shallow Unconsolidated
MW-104S	850.56	5.02	845.54	Shallow Unconsolidated
MW-105S	849.01	3.86	845.15	Shallow Unconsolidated
MW-106S	848.92	4.49	844.43	Shallow Unconsolidated
MW-107S	848.66	3.32	845.34	Shallow Unconsolidated
MW-5D	848.80	3.49	845.31	Deep Unconsolidated
MW-12D	848.31	3.18	845.13	Deep Unconsolidated
MW-13D	850.02	4.95	845.07	Deep Unconsolidated
MW-14D	850.58	Buried-inaccessible	--	Deep Unconsolidated
MW-15D	855.30	10.35	844.95	Deep Unconsolidated
MW-102D	853.70	8.71	844.99	Deep Unconsolidated
MW-103D	851.97	6.43	845.54	Deep Unconsolidated
MW-104D	850.57	5.14	845.43	Deep Unconsolidated
MW-105D	848.90	3.77	845.13	Deep Unconsolidated
MW-106D	849.01	3.93	845.08	Deep Unconsolidated
MW-107D	848.64	3.59	845.05	Deep Unconsolidated
MW-1D	853.14	7.28	845.86	Upper Bedrock
MW-2D	852.36	6.25	846.11	Upper Bedrock
MW-3D	853.51	8.41	845.10	Upper Bedrock
MW-4D	854.63	9.22	845.41	Upper Bedrock
MW-12B	849.40	4.31	845.09	Upper Bedrock
MW-15B	854.35	17.81	836.54	Upper Bedrock
MW-101B	851.08	5.98	845.10	Upper Bedrock
MW-105B	848.90	4.07	844.83	Upper Bedrock

ft amsl = feet above mean sea level

[1]MW-16S depth to groundwater collected 10/10/2008; all other groundwater depths collected 10/06/2008.

TABLE 2
Vertical Gradient Summary - October 2008
2008 4th Quarter Groundwater Report
OECI Site

Well Nest	Screen Midpoint Shallow	Screen Midpoint Deep	Screen Midpoint Bedrock	GW Elev. Shallow - Oct 2008	GW Elev. Deep - Oct 2008	Unconsolidated (Shallow to Deep) Vertical Gradient (ft/ft)	GW Elev. Unconsolidated - Oct 2008[1]	GW Elev. Bedrock - Oct 2008	Unconsolidated to Bedrock Vertical Gradient (ft/ft)
1	842.62		806.04				846.63	845.86	0.021
3	844.59		810.51				--	845.10	--
4	844.78		809.73				845.84	845.41	0.012
5	841.07	825.30		--	845.31	NA			
12	841.17	827.81	810.90	844.84	845.13	-0.022	845.13	845.09	0.002
13	842.91	823.52		845.01	845.07	-0.003			
15	843.18	818.30	799.35	845.05	844.95	0.004	844.95	836.54	0.444
101	843.24		804.58	--	845.62	NA	845.62	845.10	-0.001
102	842.65	807.20		844.90	844.99	-0.003			
103	842.84	830.47		845.47	845.54	-0.006			
104	840.56	825.07		845.54	845.43	0.007			
105	841.01	824.40	807.40	845.15	845.13	0.001	845.13	844.83	0.018
106	838.92	797.51		844.43	845.08	-0.016			
107	835.62	818.24		845.34	845.05	0.017			

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
[1]Deep unconsolidated groundwater elevation used where available when calculating unconsolidated to bedrock vertical gradient .

TABLE 3

Monitoring Well Field and Analytical Results—October 2008

2008 4th Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-1S 09CE01-22	MW-1D 09CE01-23	MW-3D 09CE01-03	MW-4S 09CE01-20	MW-4D 09CE01-21	MW-5D 09CE01-05	MW-12S 09CE01-44	MW-12B 09CE01-42	MW-12D 09CE01-43	MW-13S 09CE01-35	MW-13D 09CE01-36
Field Parameters														
Dissolved Oxygen (DO)	mg/L			1.97	1.35	0.71	--	0.06	0.92	--	0.91	--	0.07	0.07
Oxidation Reduction Potential (ORP)	millivolts			159.3	-103.7	-22.7	86.3	-51	-64.6	65.3	-85.1	-41.2	106.2	-32.8
pH	pH units			6.82	7.35	7.03	6.72	7.43	7.04	7.16	7.34	7.13	7.06	7.19
Specific Conductivity	mmhos/cm			0.8	0.642	1.015	1.344	1.09	1.908	1.387	1.08	1.409	1.668	1.238
Temperature	deg c			16.42	13.98	12.41	15.17	14.32	12.24	12.44	12.32	11.29	13.92	11.89
Depth to water	feet			6.79	7.28	8.41	8.74	9.22	3.49	4.33	4.31	3.18	5.9	4.95
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	320	360	350	580	320	420	410	350	400	390	370
Chloride (as Cl)	mg/L	125	250	60	6.8	100	71	120	**310**	**170**	120	**170**	**260**	**140**
Ethane	µg/L	N/A	N/A	0.4 R	0.4 U	0.4 U	0.4 U	0.4 U	0.46 J	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Ethene	µg/L	N/A	N/A	0.5 R	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	72	**2,500**	**630**	72	**160**	**2,300**	13 J	**400**	**890**	59	**730**
Iron, dissolved	µg/L	150	300	5 U	**2,400**	**690**	51	94	**2,200**	110	**300**	**890**	5 U	**690**
Manganese, total	µg/L	25	50	**330**	**30**	**25**	**120**	**140**	**73**	**120**	23	**32**	**35**	**37**
Manganese, dissolved	µg/L	25	50	**320 J**	**30 J**	**32**	**120 J**	**130**	**71**	**120**	22	**31**	**31**	**36 J**
Methane	µg/L	N/A	N/A	4 U	2,500	110	1.6 U	18	49	22	120	27	49 U	18
Nitrogen, nitrate (as N)	mg/L	2	10	0.28	0.05 U	0.12 J	0.35	0.25	0.088 J	0.18	0.05 U	0.05 U	0.16 J	0.05 U
Sulfate (as SO4)	mg/L	125	250	42	1 U	51	57	61	55	49 J	39 J	78 J	69	76
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	2.3 J	0.5 UJ	1.8 J	6.4 J	1.5 J	2.1 J	3.5 J	1.5 J	3.4 J	1.9 J	2.5 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.063 J	0.05 UJ	0.05 U	0.05 U	0.05 U	2.5 U	**100**	0.05 U	3.1 J	0.52 J	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 UJ	0.019 UJ	**0.95 U**	**0.38 U**	0.019 U	**0.095 U**	0.019 UJ	0.019 UJ
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	**3 U**	**1.2 U**	0.06 U	0.3 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.38	0.06 UJ	0.06 U	0.06 U	0.06 U	12	49	0.06 U	19	0.2	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.061 J	0.05 U	0.05 U	0.05 U	**2.5 U**	**19**	0.05 U	0.46 J	0.076 J	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	3.5 U	1.4 U	0.07 U	0.35 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	3 U	1.2 U	0.06 U	0.3 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**	**2.5 U**	**1 U**	**0.05 U**	**0.25 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	**2.5 U**	**1 U**	0.05 U	0.25 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	2.5 U	1 U	0.05 U	0.25 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	0.06 J	**1.5 U**	**0.6 U**	0.03 U	0.15 U	0.12 J	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	**2.5 U**	**1 U**	0.05 U	0.25 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	1.4 U	0.54 U	0.027 U	0.14 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	2 U	0.8 U	0.04 U	0.2 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 UJ	0.6 UJ	0.6 U	0.6 U	0.6 U	30 U	12 UJ	0.6 UJ	3 UJ	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 UJ	1.6 UJ	1.6 U	1.6 U	1.6 U	80 U	32 UJ	1.6 UJ	8 UJ	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	0.8 U	40 U	16 UJ	0.8 UJ	4 UJ	0.8 U	0.8 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 UJ	1.5 UJ	1.5 U	1.5 U	75 UJ	30 UJ	1.5 UJ	7.5 UJ	1.5 U	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**2.5 U**	**1 U**	0.05 U	**1.3**	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	1.4 U	0.56 U	0.028 U	0.14 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 UJ	0.03 U	0.03 U	0.03 U	**2.7 J**	**1.2 J**	0.03 U	**0.28 J**	0.03 U	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 UJ	0.04 U	0.04 U	0.04 U	**2 U**	**0.8 U**	0.04 U	0.2 U	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	**3.5 U**	**1.4 U**	0.07 U	0.35 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 UJ	0.096 J	0.09 U	0.09 U	4.5 U	1.8 U	0.11 J	0.45 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	**1.1 U**	0.44 U	0.022 U	0.11 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	2 U	0.8 U	0.04 U	0.2 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	3.5 U	1.4 U	0.07 U	0.35 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.023 U	0.022 UJ	0.022 U	0.022 U	0.022 U	**2.6 U**	**1.3 U**	0.022 U	0.27 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.25 U	**0.48 U**	**0.72 U**	0.14 U	**0.3 U**	**2.5 U**	**1.7 U**	**2.3 U**	**0.55 U**	**0.65 U**	**2.4 U**
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 UJ	0.23	0.05 U	0.053 J	**130**	**40**	0.05 U	**7.7**	2.5	1.1
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	**0.85 U**	**0.34 U**	0.017 U	**0.085 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	2.5 J	1.2 J	0.026 U	0.29 J	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	1.5 U	0.6 U	0.03 U	0.15 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.052 J	0.024 U	0.024 U	0.024 U	1.2 U	0.48 U	0.024 U	0.12 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.072 J	0.04 U	0.04 U	0.04 U	2 U	0.8 U	0.04 U	0.2 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	4 U	1.6 U	0.08 U	0.4 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 UJ	0.29	0.08 U	3.5	4 U	1.6 U	0.08 U	0.4 U	0.3	0.66
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 U	**9 UJ**	**28 J**	0.18 U	**9.3 J**	0.18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 UJ	0.023 U	0.023 U	0.023 U	1.2 U	0.46 U	0.023 U	0.12 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 UJ	0.022 UJ	0.022 U	0.022 U	0.022 U	1.1 U	0.44 U	0.022 U	0.11 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**2.5 U**	**1 U**	0.05 U	0.25 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	3 U	1.2 U	0.06 U	0.3 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	9.2 J	**26**	0.06 U	1.9	0.27	0.13 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	**0.85 U**	**0.34 U**	0.017 U	**0.085 U**	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	**150**	**110**	0.05 U	**0.86 J**	**3.6**	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	**0.17 J**	**0.041 J**	0.013 U	**0.16**	**3.5**	**1.8**	0.013 U	**1.5**	**0.042 J**	**0.066**

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 Preventive Action Limit (PAL).

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

TABLE 3

Monitoring Well Field and Analytical Results—October 2008

2008 4th Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-15S 09CE01-16	MW-15B 09CE01-15	MW-15D 09CE01-13	MW-16S 09CE01-53	MW-101B 09CE01-10	MW-102D 09CE01-31	MW-103S 09CE01-01	MW-103D 09CE01-04	MW-105S 09CE01-07	MW-105B 09CE01-08	MW-105D 09CE01-09
Field Parameters														
Dissolved Oxygen (DO)	mg/L			6.19	0.44	-0.01	0.29	0.39	1.9	0.66	3.89	0.45	0.68	0.19
Oxidation Reduction Potential (ORP)	millivolts			93.9	-50.1	63.2	-49.8	-35.2	-49.9	127.5	3.2	-25.4	-147.9	-65
pH	pH units			7.24	7.07	7.03	6.76	7.14	7.26	6.64	7.03	6.85	7.11	7.16
Specific Conductivity	mmhos/cm			0.554	0.783	1.177	4.104	1.016	1.272	1.885	1.345	1.601	1.05	1.303
Temperature	deg c			15.16	12.85	13.19	12.1	13.4	12.81	15.03	13.78	12.63	11.79	11.3
Depth to water	feet			9.63	17.81	10.35	2.91	5.98	8.71	6.37	6.43	3.86	4.07	3.77
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	390	270	360	880	440	380	500	410	350	380	420
Chloride (as Cl)	mg/L	125	250	13	13	**170**	**280**	**240**	**160**	**240**	**170**	92	110	**150**
Ethane	µg/L	N/A	N/A	0.4 U	0.4 U	0.4 U	0.85 J	0.4 U	0.4 U	0.4 U	0.4 U	0.92 J	0.4 U	0.4 U
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	3.1 J	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	600	**8 U**	8 U	**6,600**	11 J-	**1,100**	30 J	9.9 J	**1,600**	**1,400**	**1,300**
Iron, dissolved	µg/L	150	300	530	**5 U**	5 U	**6,100**	11 J+	**1,100**	17 J	5 U	**1,200**	**1,300**	**1,300**
Manganese, total	µg/L	25	50	650	**4 U**	**270**	**74**	**75**	**29**	**490**	**260**	**170**	**770**	**57**
Manganese, dissolved	µg/L	25	50	640	**1.2 U**	**250**	**70**	**80 J**	**29**	**490**	**260**	**170**	**750**	**58**
Methane	µg/L	N/A	N/A	870	0.32 U	1.3 U	16	99	5.4 U	31	83	190	1,300	74
Nitrogen, nitrate (as N)	mg/L	2	10	0.05 U	1	**2.4**	0.05 U	0.05 U	0.084 J	0.05 U	0.05 U	0.12 J	0.05 U	0.05 U
Sulfate (as SO4)	mg/L	125	250	38	9.3	47	**1,400**	58	76	110	39	50	6.1	60
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	1.1 J	1.4 J	2.2 J	3.5 J	3.9 J	1.5 J	10	3.3 J	3.7 J	1.1 J	2.9 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.25 U	13 U	0.05 U	0.25 U	**120**	**96 J**	10 U	0.05 U	0.5 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	**0.095 U**	**4.8 U**	0.019 U	**0.095 UJ**	**0.95 U**	0.019 U	**3.8 U**	0.019 U	**0.19 UJ**
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.3 U	**15 U**	0.06 U	0.3 U	**3 U**	0.089 J	**12 U**	0.06 U	**0.6 U**
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.3 U	15 U	0.06 U	0.3 U	10	9.8 J	**180**	0.06 U	6.6
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.25 U	**13 U**	0.05 U	0.25 U	**3.7 J**	**4.9**	**33 J**	0.05 U	**1.7 J**
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.35 U	18 U	0.07 U	0.35 U	3.5 U	0.07 U	14 U	0.07 U	0.7 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.3 U	**15 U**	0.06 U	0.3 U	3 U	0.06 U	12 U	0.06 U	0.6 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 U**	**0.05 U**	**0.25 U**	**13 U**	**0.05 U**	**0.25 U**	**2.5 U**	**0.05 U**	**10 U**	**0.05 U**	**0.5 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**13 U**	0.05 U	0.25 U	**2.5 U**	0.05 U	**10 U**	0.05 U	**0.5 U**
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.25 U	13 U	0.05 U	0.25 U	2.5 U	0.05 U	10 U	0.05 U	0.5 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 U	0.15 U	**7.5 U**	0.03 U	0.15 U	**1.5 U**	0.03 U	**6 U**	0.03 U	0.3 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**13 U**	0.05 U	0.25 U	**2.5 U**	0.05 U	**10 U**	0.05 U	**0.5 U**
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.14 U	6.8 U	0.027 U	0.14 U	1.4 U	0.027 U	5.4 U	0.027 U	0.27 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.2 U	10 U	0.04 U	0.2 U	2 U	0.04 U	8 U	0.04 U	0.4 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	3 U	150 U	0.6 U	3 U	30 U	0.6 U	120 U	0.6 U	6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	8 U	400 U	1.6 U	8 U	80 U	1.6 U	320 U	1.6 U	16 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 U	0.8 U	4 U	200 U	0.8 U	4 U	40 U	0.8 U	160 U	0.8 U	8 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 UJ	7.5 UJ	**380 U**	1.5 UJ	7.5 U	75 UJ	1.5 UJ	**300 UJ**	1.5 UJ	15 U
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**13 U**	0.05 U	0.26 J	**2.5 U**	0.05 U	**10 U**	0.05 U	**0.5 U**
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.14 U	7 U	0.028 U	0.14 U	1.4 U	0.028 U	5.6 U	0.028 U	0.28 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	**0.25 J**	**15 J**	0.03 U	**0.24 U**	**2.7 J**	0.03 U	**6 U**	0.03 U	**0.59 J**
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 U	0.2 U	**10 U**	0.04 U	0.2 U	**2 U**	0.04 U	**8 U**	0.04 U	0.4 U
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.35 U	**18 UJ**	0.07 U	0.35 U	**3.5 U**	0.07 U	**14 U**	0.07 U	0.7 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 U	0.45 U	23 U	0.09 U	0.45 U	4.5 U	0.09 U	18 U	0.09 U	0.9 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.11 U	**5.5 U**	0.022 U	0.11 U	**1.1 U**	0.022 U	**4.4 U**	0.022 U	0.22 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	1.2	10 U	0.04 U	0.2 U	3.7 J	0.04 U	8 U	0.04 U	0.4 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.35 U	18 U	0.07 U	0.35 U	3.5 U	0.07 U	14 U	0.07 U	0.7 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.27 U	**13 U**	0.022 U	0.24 U	**2.4 U**	0.022 U	**4.4 U**	0.022 U	0.56 U
Chloromethane	µg/L	0.3	3	**0.69 U**	**1.1 U**	**0.82 U**	**13 U**	**0.48 U**	**1.8 U**	**2.5 U**	0.086 U	**10 U**	**0.45 U**	**1.2 U**
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 U	1.5	**1,400 J**	0.38	**16**	**31**	**97 J**	**680**	0.071 J	**60**
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	**0.085 U**	**4.3 U**	0.017 U	**0.085 U**	**0.85 U**	0.017 U	**3.4 U**	0.017 U	**0.17 U**
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.2 J	**6.5 U**	0.026 U	0.23 J	2.7 J	0.026 U	5.2 U	0.026 U	0.46 J
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.15 U	7.5 U	0.03 U	0.15 U	1.5 U	0.03 U	6 U	0.03 U	0.3 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.12 U	6 U	0.024 U	0.12 U	1.2 U	0.024 U	4.8 U	0.024 U	0.24 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.2 U	10 U	0.04 U	0.2 U	2 U	0.04 U	8 U	0.04 U	0.4 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.08 U	0.4 U	20 U	0.08 U	0.4 U	4 U	0.08 U	16 U	0.08 U	0.8 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.4 U	**20 U**	0.32	0.78 J	4 U	0.08 U	**16 U**	0.08 U	0.8 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	**1.3 UJ**	**330 UJ**	0.18 UJ	**4.1 UJ**	**9 UJ**	0.18 UJ	**36 UJ**	0.18 UJ	**10 U**
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 U	0.12 U	5.8 U	0.023 U	0.12 U	1.2 U	0.023 U	4.6 U	0.023 U	0.23 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.11 U	5.5 U	0.022 U	0.11 U	1.1 U	0.022 U	4.4 U	0.022 U	0.22 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	**13 U**	0.05 U	0.25 U	**2.8 J**	0.05 U	**10 U**	0.05 U	**0.5 U**
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.3 U	15 U	0.06 U	0.3 U	3 U	0.06 U	12 U	0.06 U	0.6 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.3 U	**29 J**	0.06 U	1.1	3 U	2.2	**62**	0.06 U	1.2 J
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	**0.085 U**	**4.3 U**	0.017 U	**0.085 U**	**0.85 U**	0.017 U	**3.4 U**	0.017 U	**0.17 U**
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	**13**	**13 U**	0.16 J	**1.8**	**270**	**700**	**2,300 J**	0.05 U	**8.1**
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	**0.065 U**	**130**	0.013 U	**0.065 U**	**0.65 U**	**0.3**	**11**	**0.034 J**	**1.5**

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 Preventive Action Limit (PAL).

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

TABLE 3

Monitoring Well Field and Analytical Results—October 2008

2008 4th Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-106S 09CE01-46	MW-106D 09CE01-47	MW-107S 09CE01-55	MW-107D 09CE01-54
Field Parameters							
Dissolved Oxygen (DO)	mg/L			1.37	--	0.44	--
Oxidation Reduction Potential (ORP)	millivolts			-57.9	-40.7	-6.2	4.1
pH	pH units			7.15	7.17	7.39	7.2
Specific Conductivity	mmhos/cm			0.934	1.28	0.81	1.192
Temperature	deg c			11.78	10.71	11.23	9.55
Depth to water	feet			4.49	3.93	3.32	3.59
Natural Attenuation Parameters							
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A				
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 UJ	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 UJ	0.019 U	0.019 UJ	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 UJ	0.06 U	0.06 UJ	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 UJ	0.06 U	0.06 UJ	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 UJ	0.07 U	0.07 UJ	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 UJ	0.06 U	0.06 UJ	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.05 UJ**	**0.05 U**	**0.05 UJ**	**0.05 U**
1,2-Dibromoethane	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 UJ	0.03 U	0.03 UJ	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 UJ	0.027 U	0.027 UJ	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 UJ	0.04 U	0.04 UJ	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 UJ	0.6 UJ	0.6 UJ	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 UJ	1.6 UJ	1.6 UJ	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 UJ	0.8 UJ	0.8 UJ	0.8 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 UJ	4.2 J	5.9
Benzene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 UJ	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 UJ	0.028 U	0.028 UJ	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 UJ	0.03 U	0.03 UJ	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 UJ	0.04 U	0.04 UJ	0.04 U
Bromomethane	µg/L	1	10	0.07 UJ	0.07 U	0.07 UJ	0.07 UJ
Carbon disulfide	µg/L	200	1,000	0.09 UJ	0.09 U	0.09 UJ	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 UJ	0.022 U	0.022 UJ	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 UJ	0.04 U	0.04 UJ	0.04 U
Chloroethane	µg/L	80	400	0.07 UJ	0.07 U	0.07 UJ	0.07 U
Chloroform	µg/L	0.6	6	0.022 UJ	0.022 U	0.022 UJ	0.022 U
Chloromethane	µg/L	0.3	3	**0.49 U**	**0.76 U**	**0.49 U**	**0.4 U**
cis-1,2-Dichloroethene	µg/L	7	70	0.05 UJ	0.05 U	0.05 UJ	0.05 U
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 UJ	0.017 U	0.017 UJ	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 UJ	0.026 U	0.026 UJ	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 UJ	0.03 U	0.03 UJ	0.03 U
Ethylbenzene	µg/L	140	700	0.024 UJ	0.024 U	0.024 UJ	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 UJ	0.04 U	0.04 UJ	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 UJ	0.08 U	0.08 UJ	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 UJ	0.08 U	0.08 UJ	0.08 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 U	0.32 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 UJ	0.023 U	0.023 UJ	0.023 U
Styrene	µg/L	10	100	0.022 UJ	0.022 U	0.022 UJ	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 UJ	0.05 U
Toluene	µg/L	200	1,000	0.06 UJ	0.06 U	0.06 UJ	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 UJ	0.06 U	0.06 UJ	0.06 U
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 UJ	0.017 U	0.017 UJ	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 UJ	0.05 U	0.05 UJ	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 UJ	0.013 U	0.013 UJ	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.

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

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

TABLE 4

Private Well Analytical Results—October 2008

2008 4th Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	PW-01 09CE01-25	PW-02 09CE01-26	PW-03 09CE01-39	PW-04 09CE01-28	PW-05 09CE01-38	PW-07 09CE01-27	PW-08 09CE01-29	PW-09 09CE01-30	PW-10 09CE01-37	PW-11 09CE01-45	DW-01 09CE01-52
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 UJ	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	0.019 UJ	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 UJ	0.06 UJ	0.06 U	0.06 UJ	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 UJ	0.06 UJ	0.06 U	0.06 UJ	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 UJ	0.057 J	0.05 U	0.05 UJ	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 UJ	0.07 UJ	0.07 U	0.07 UJ	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 UJ	0.06 UJ	0.06 U	0.06 UJ	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 UJ**	**0.05 UJ**	**0.05 U**	**0.05 UJ**	**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 UJ	0.05 UJ	0.05 U	0.05 UJ	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 UJ	0.05 UJ	0.05 U	0.05 UJ	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.22	0.03 U	0.03 U	0.03 U	0.057 J	0.03 U	0.03 UJ	0.065 J	0.03 U	0.052 J	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 UJ	0.05 UJ	0.05 U	0.05 UJ	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 UJ	0.027 UJ	0.027 U	0.027 UJ	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 UJ	0.04 UJ	0.04 U	0.04 UJ	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 UJ	0.6 U	0.6 UJ	0.6 UJ
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 UJ	1.6 UJ	1.6 U	1.6 UJ	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 UJ	0.8 UJ	0.8 U	0.8 UJ	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 UJ	1.5 UJ	1.5 U	1.5 UJ	1.5 UJ
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 UJ	0.05 UJ	0.05 U	0.05 UJ	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 UJ	0.028 UJ	0.028 U	0.028 UJ	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 UJ	0.03 UJ	0.03 U	0.03 UJ	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 UJ	0.04 UJ	0.04 U	0.04 UJ	0.04 U
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 UJ	0.07 UJ	0.07 U	0.07 UJ	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 UJ	0.09 UJ	0.09 U	0.09 UJ	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 UJ	0.022 UJ	0.022 U	0.022 UJ	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 UJ	0.04 UJ	0.04 U	0.04 UJ	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 UJ	0.07 UJ	0.07 U	0.07 UJ	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 UJ	0.14 U	0.022 U	0.022 UJ	0.022 U
Chloromethane	µg/L	0.3	3	0.16 U	**0.68 U**	**0.55 U**	**0.85 U**	**1.4 U**	0.27 U	**1.3 UJ**	**0.87 U**	**0.97 U**	**1.2 U**	**1 U**
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 U	0.88	1.5	1.5	2.8	2.2 J	5.6 J	0.05 U	1.1 J	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 UJ	0.017 UJ	0.017 U	0.017 UJ	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 UJ	0.026 UJ	0.026 U	0.026 UJ	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 UJ	0.03 UJ	0.03 U	0.03 UJ	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 UJ	0.024 UJ	0.024 U	0.024 UJ	0.024 U
Isopropylbenzene	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 UJ	0.04 UJ	0.04 U	0.04 UJ	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 UJ	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 UJ	0.08 UJ	0.08 U	0.08 UJ	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.8	1	1.3	0.81	0.84 J	0.98 J	0.35	1.2 J	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 U
o-Xylene	µg/L	N/A	N/A	0.023 UJ	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 UJ	0.023 UJ	0.023 U	0.023 UJ	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 UJ	0.022 UJ	0.022 U	0.022 UJ	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 UJ	0.05 UJ	0.05 U	0.05 UJ	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 UJ	0.085 J	0.06 U	0.06 UJ	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.079 J	0.18 J	0.22	0.3	0.27 J	0.65 J	0.06 U	0.13 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 UJ	0.017 UJ	0.017 U	0.017 UJ	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	**0.65**	0.05 U	0.12 J	0.05 U	0.13 J	0.065 J	0.05 U	0.05 UJ	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	0.013 U	**0.03 J**	**0.029 J**	**0.059**	**0.07 J**	**0.073 J**	0.013 U	**0.039 J**	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.

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

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

TABLE 5

Surface Water Analytical Results—October 2008

2008 4th Quarter Groundwater Report

OECI Site

Constituent	Units	SW-01 09CE01-24	SW-02 09CE01-57	SW-03 09CE01-48
Natural Attenuation Parameters				
Alkalinity, total (as CaCO3)	mg/L	360	410	370
Chloride (as Cl)	mg/L	50	120	48
Ethane	µg/L	0.4 U	0.97 J	0.4 U
Ethene	µg/L	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	730	1,200	320
Iron, dissolved	µg/L	160	390 B	110
Manganese, total	µg/L	150	390	40
Manganese, dissolved	µg/L	140	390	38
Methane	µg/L	21	4,100	7 U
Nitrogen, ammonia (as N)	mg/L	0.08 U	0.87	0.08 U
Nitrogen, nitrate (as N)	mg/L	0.14 J	0.05 U	0.095 J
Phosphorus, total	mg/L	0.14 U	0.49	0.14 U
Sulfate (as SO4)	mg/L	21	17	26 J
Sulfide	mg/L	1 U	3.3	1 U
Total Organic Carbon	mg/L	16	13	14
VOCs				
1,1,1-Trichloroethane	µg/L	0.05 U	0.2	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.019 UJ	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.06 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	0.06 U	2.6	0.06 U
1,1-Dichloroethene	µg/L	0.05 U	0.2	0.05 U
1,2,3-Trichlorobenzene	µg/L	0.07 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/L	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	0.027 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	0.04 U	0.04 U	0.04 U
2-Butanone	µg/L	0.6 U	0.6 U	0.6 UJ
2-Hexanone	µg/L	1.6 U	1.6 U	1.6 UJ
4-Methyl-2-pentanone	µg/L	0.8 U	0.8 U	0.8 UJ
Acetone	µg/L	1.5 U	11	1.5 UJ
Benzene	µg/L	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	0.028 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.03 U	0.03 U	0.03 U
Bromoform	µg/L	0.04 U	0.04 U	0.04 U
Bromomethane	µg/L	0.07 U	0.07 UJ	0.07 U
Carbon disulfide	µg/L	0.09 U	0.29 J	0.09 U
Carbon tetrachloride	µg/L	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	0.04 U	0.093 J	0.04 U
Chloroethane	µg/L	0.07 U	0.07 U	0.07 U
Chloroform	µg/L	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.67 U	0.32 U	0.65 U
cis-1,2-Dichloroethene	µg/L	0.05 U	6.7	0.05 U
cis-1,3-Dichloropropene	µg/L	0.017 U	0.017 U	0.017 U
Dibromochloromethane	µg/L	0.026 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	0.03 U	0.03 U	0.03 U
Ethylbenzene	µg/L	0.024 U	0.028 J	0.024 U
Isopropylbenzene	µg/L	0.04 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	0.08 U	0.15 J	0.08 U
Methyl tert-butyl ether	µg/L	0.08 U	0.08 U	0.08 U
Methylene chloride	µg/L	0.18 U	0.64 UJ	0.18 U
o-Xylene	µg/L	0.023 U	0.023 U	0.023 U
Styrene	µg/L	0.022 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.05 U	0.05 U	0.05 U
Toluene	µg/L	0.06 U	3.8	0.06 U
trans-1,2-Dichloroethene	µg/L	0.06 U	0.33	0.06 U
trans-1,3-Dichloropropene	µg/L	0.017 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.05 U	2	0.05 U
Vinyl chloride	µg/L	0.013 U	5.3	0.013 U

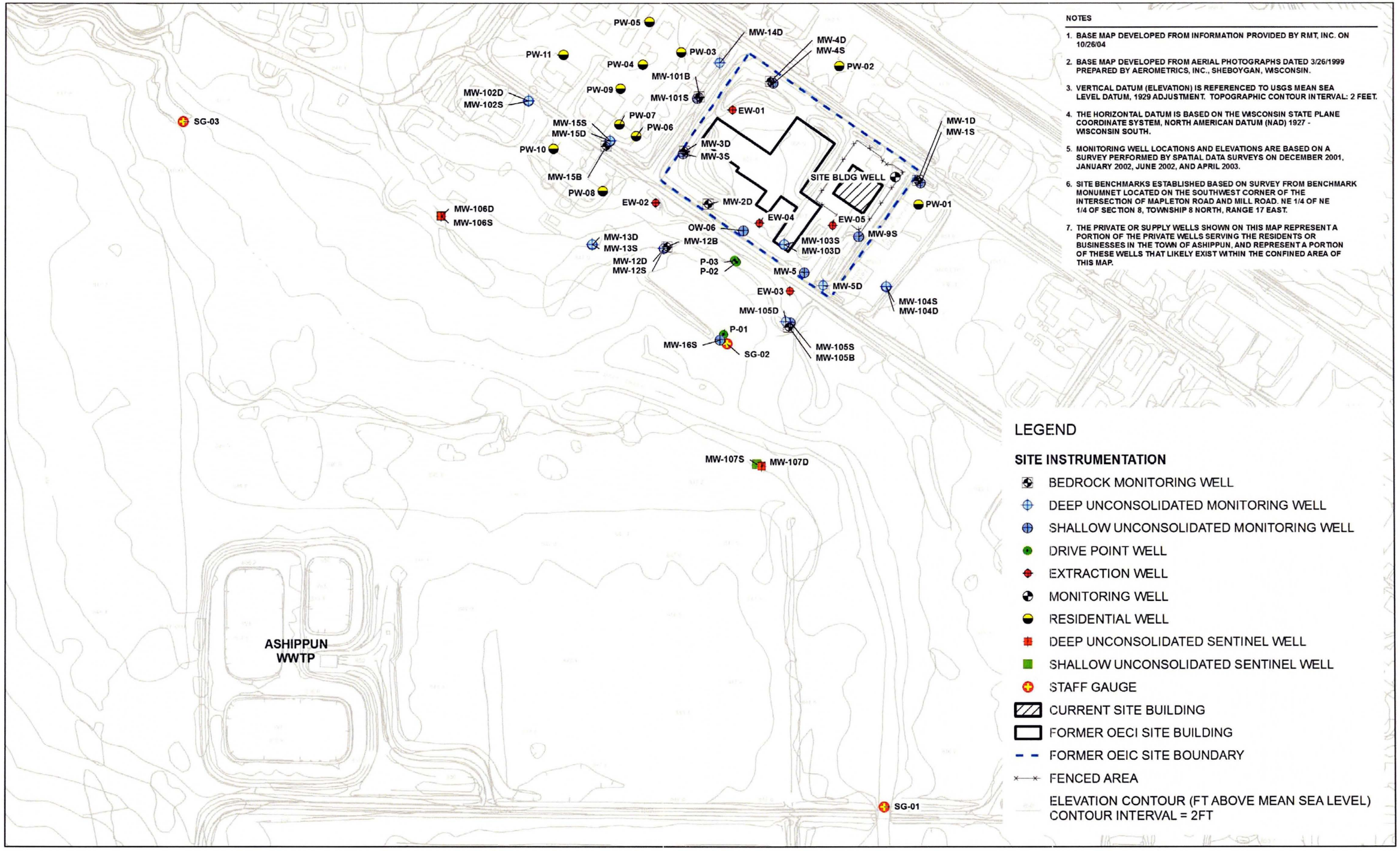
J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

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.

Figures



NOTES

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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.
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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
- MONITORING WELL
- RESIDENTIAL WELL
- DEEP UNCONSOLIDATED SENTINEL WELL
- SHALLOW UNCONSOLIDATED SENTINEL WELL
- STAFF GAUGE
- CURRENT SITE BUILDING
- FORMER OECI SITE BUILDING
- FORMER OEIC SITE BOUNDARY
- FENCED AREA
- ELEVATION CONTOUR (FT ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 2FT

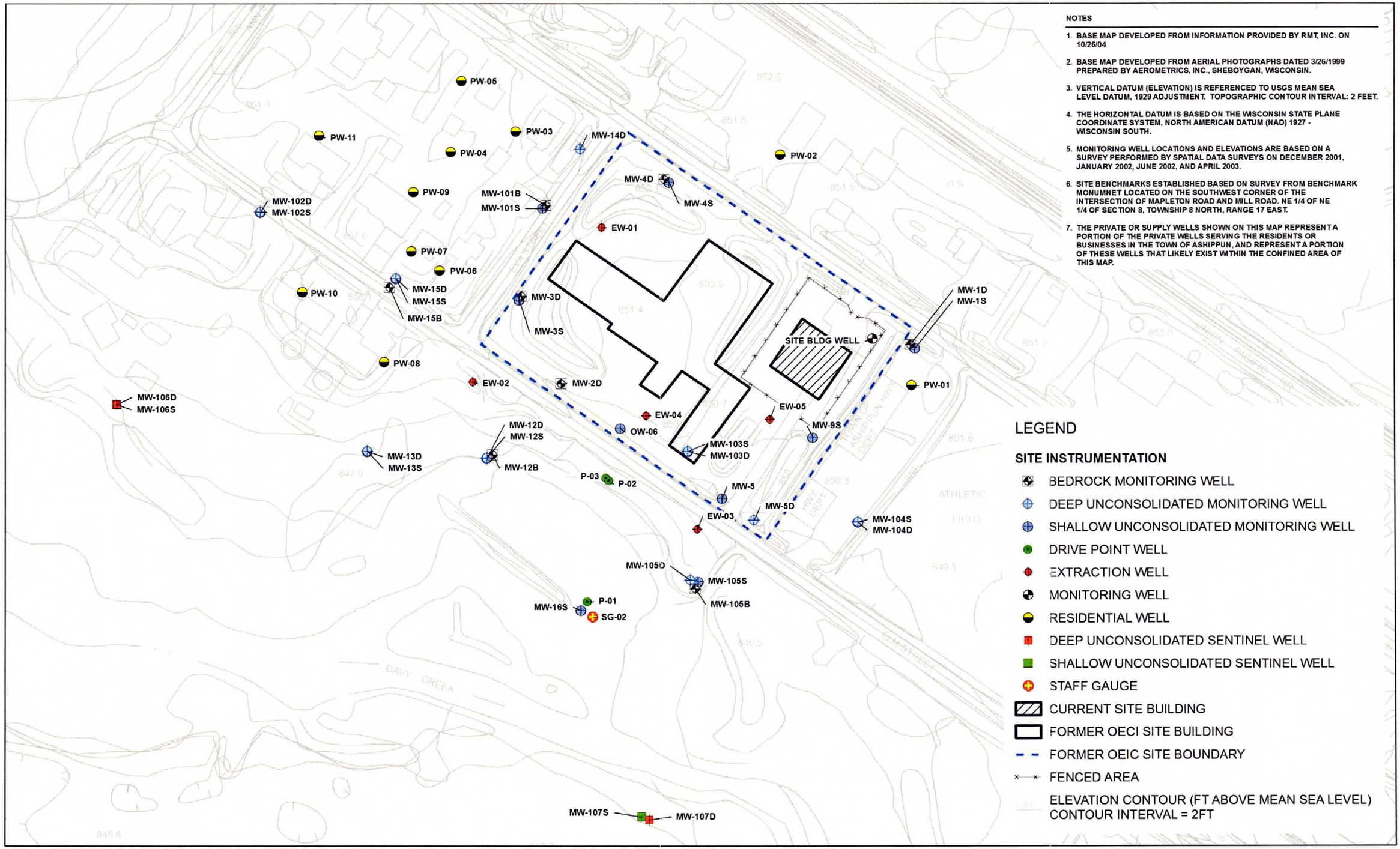
N

0 100 200
Feet

FIGURE 1
Site Monitoring Locations - October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\LAKEFRONT\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_OCT_2008\FIGURE01_SITE_MONITORING_LOCATIONS_OCT_2008.MXD 2/5/2009 12:37:36



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LEGEND

SITE INSTRUMENTATION

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

N

0 60 120
Feet

FIGURE 2
Site Monitoring Well Locations - October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\LAKEFRONT\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_OCT_2008\FIGURE02_SITE_MONITORING_WELL_LOCATIONS_OCT_2008.MXD 2/5/2009 12:39:19

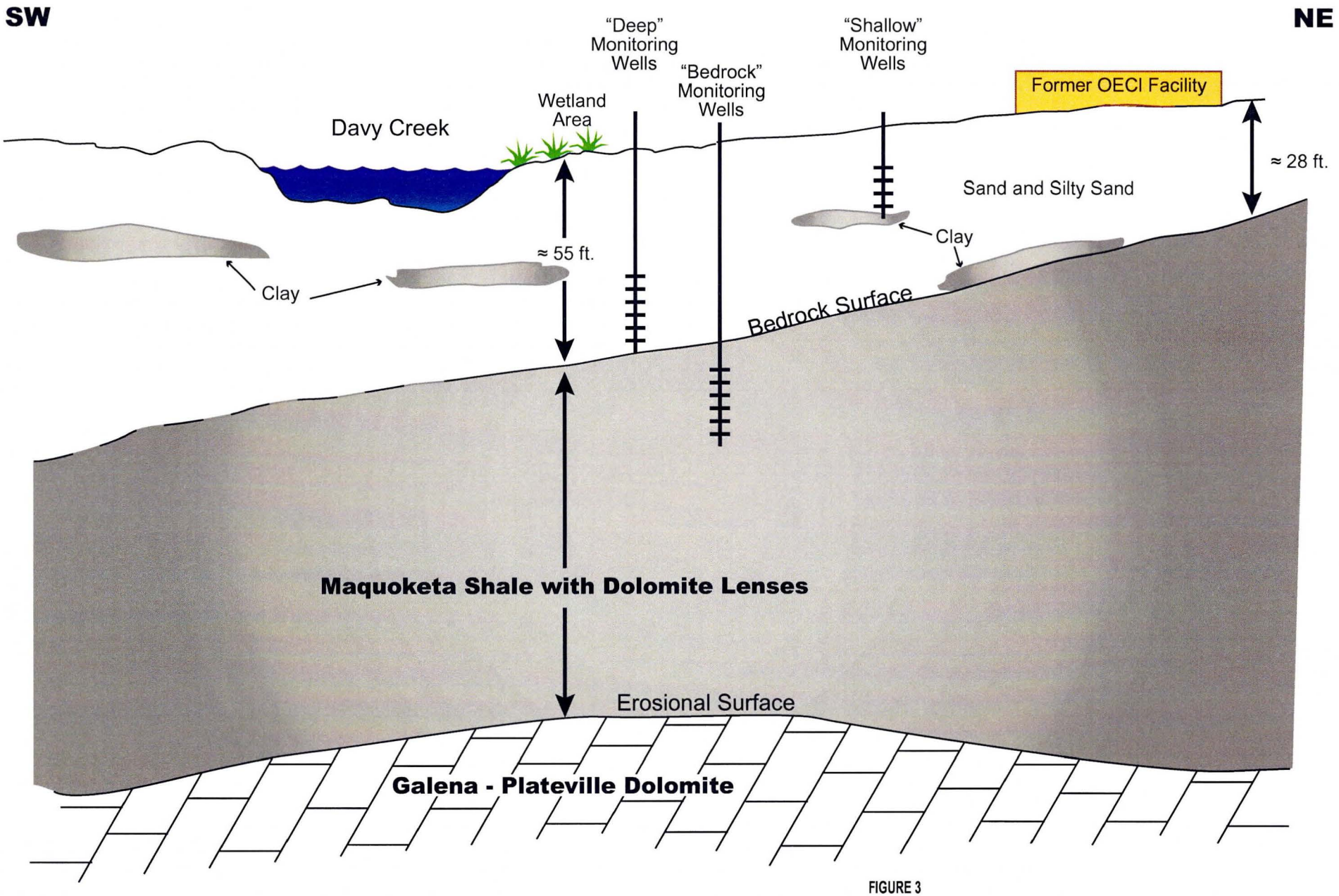

FIGURE 3
Conceptual Depiction of Site Aquifer Units and Well Placement – October 2008
2008 4th Quarter Groundwater Report
OECI Site

- NOT TO SCALE -

NOTES

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MW-101S
845.62

MW-4S
845.84

MW-102S
844.90

MW-15S
845.05

MW-3S
Dry

MW-1S
846.63

MW-106S
844.43

MW-13S
845.01

MW-12S
844.84

MW-103S
845.47

MW-5
Well Broken

MW-104S
845.54

MW-9S
845.92

MW-105S
845.15

MW-16S
844.99

MW-107S
845.34

844.6 844.8 845 845.2 845.4 845.6 845.8 846 846.2 846.4 846.6

ELM STREET

DAVY CREEK

MAPLETON ROAD

MILL STREET

PILE

ATHLETIC FIELD

LEGEND

(Contour Interval = 0.2 Ft)

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

N

0 70 140
Feet

FIGURE 4
Shallow Unconsolidated Groundwater Elevations - October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

\\LAKEFRONT\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_OCT_2008\FIGURE04_SHALLOW_UNCONSOLIDATED_AQUIFER_OCT2008_GW_ELEV.MXD MPETERSH 3/23/2009 14:32:26

NOTES

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

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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.

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MW-14D
Well Inaccessible

MW-102D
844.99

MW-15D
844.95

845

MW-106D
845.08

MW-13D
845.07

MW-12D
845.13

845.4

845.3

845.2

845.1

MW-103D
845.54

845.5

MW-104D
845.43

MW-5D
845.31

MW-105D
845.13

MW-107D
845.05

ELM STREET

DAVY CREEK

ATHLETIC FIELD

LEGEND

(Contour Interval = 0.1 Ft)

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

N

0 60 120
Feet

FIGURE 5
Deep Unconsolidated Groundwater Elevations - October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

\\LAKEFRONT\PROJ\GIS\OEC\MAPFILES\GROUNDWATER_ELEVATION_MAPS_OCT_2008\FIGURE05_DEEP_UNCONSOLIDATED_AQUIFER_OCT2008_GW_ELEV.MXD MPETERSH 3/23/2009 14:46:47

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.

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

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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
845.41

MW-101B
845.10

MW-15B
836.54

MW-3D
845.10

MW-1D
845.86

MW-2D
846.11

MW-12B
845.09

MW-105B
844.83

837 838 839 840 841 842 843 844 845 846

DAVY CREEK

ELM STREET

WOOD STREET

ATHLETIC FIELD

FWY DEPT

TOWN OF ASHIPPUN HWY DEPT

LEGEND

(Contour Interval = 1 Ft)

- Bedrock Well
- Estimated Groundwater Contour (dashed where inferred)
- Approximate Site Boundary
- Fence
- OECI Treatment Plant
- Existing 2' Topographic Contour

N

0 50 100

Feet

FIGURE 6
Bedrock Groundwater Elevations - October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

\\LAKEFRONT\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_OCT_2008\FIGURE06_BEDROCK_CONTOUR_OCT2008_GW_ELEV.MXD MPETERSH 3/13/2009 13:40:07

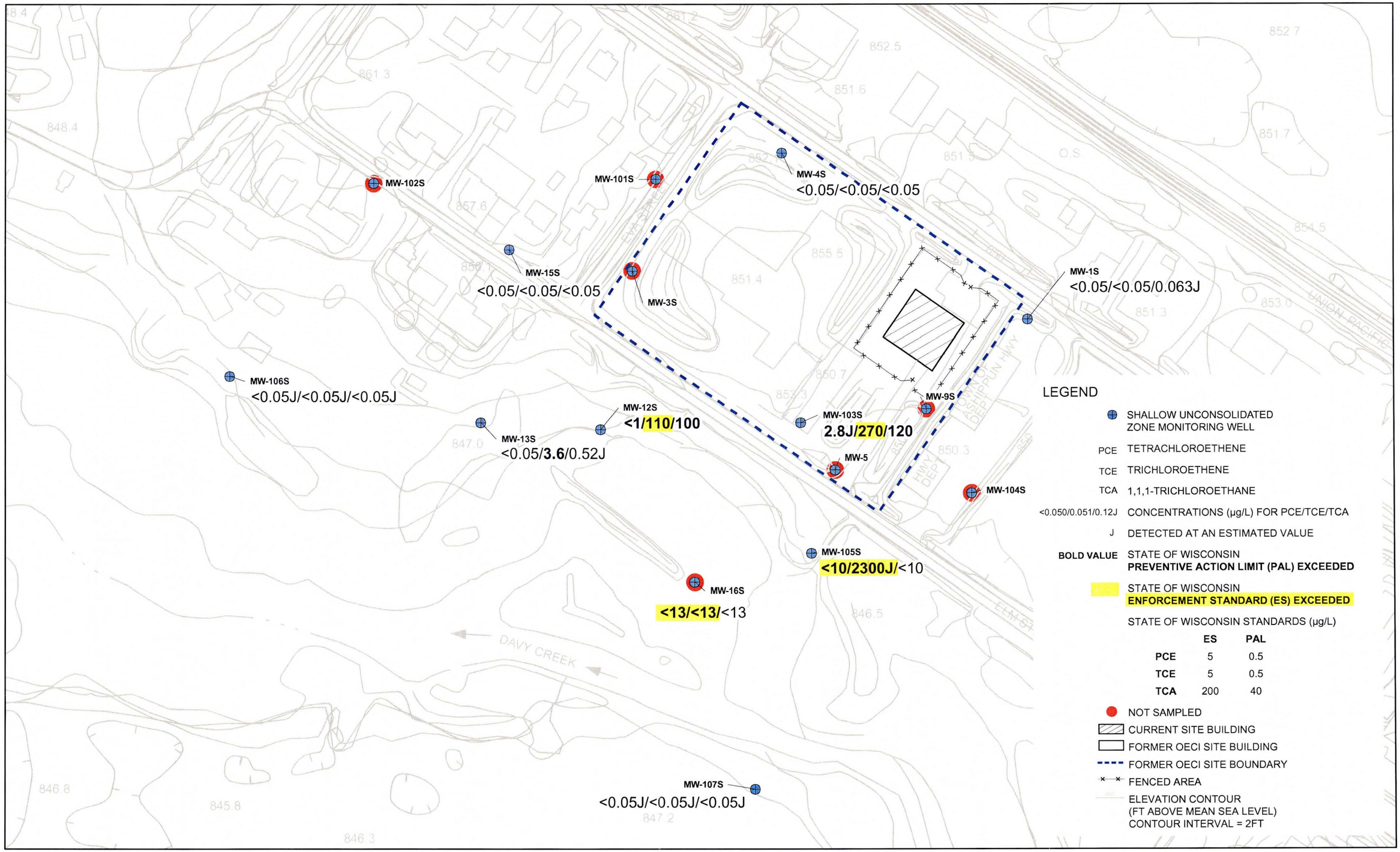

FIGURE 7
Groundwater PCE, TCE and TCA Concentrations in Shallow Unconsolidated Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCE_PCE_TCA_Shallow_4thQR-2008_v05

CH2MHILL

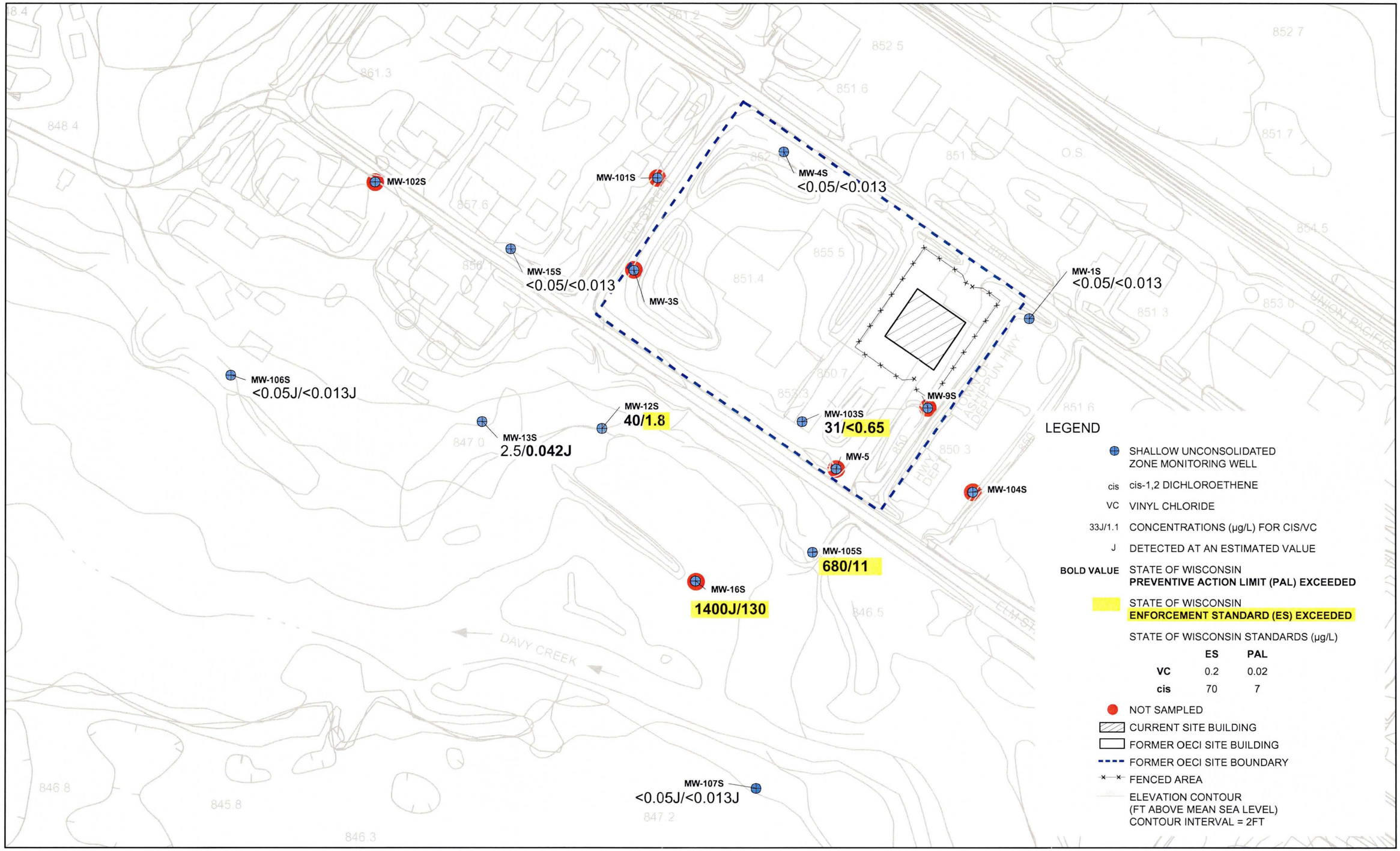

FIGURE 8
Groundwater CIS and VC Concentrations in Shallow Unconsolidated Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_VEcis_Shallow_Fig08_4thQR-2008_v05

CH2MHILL

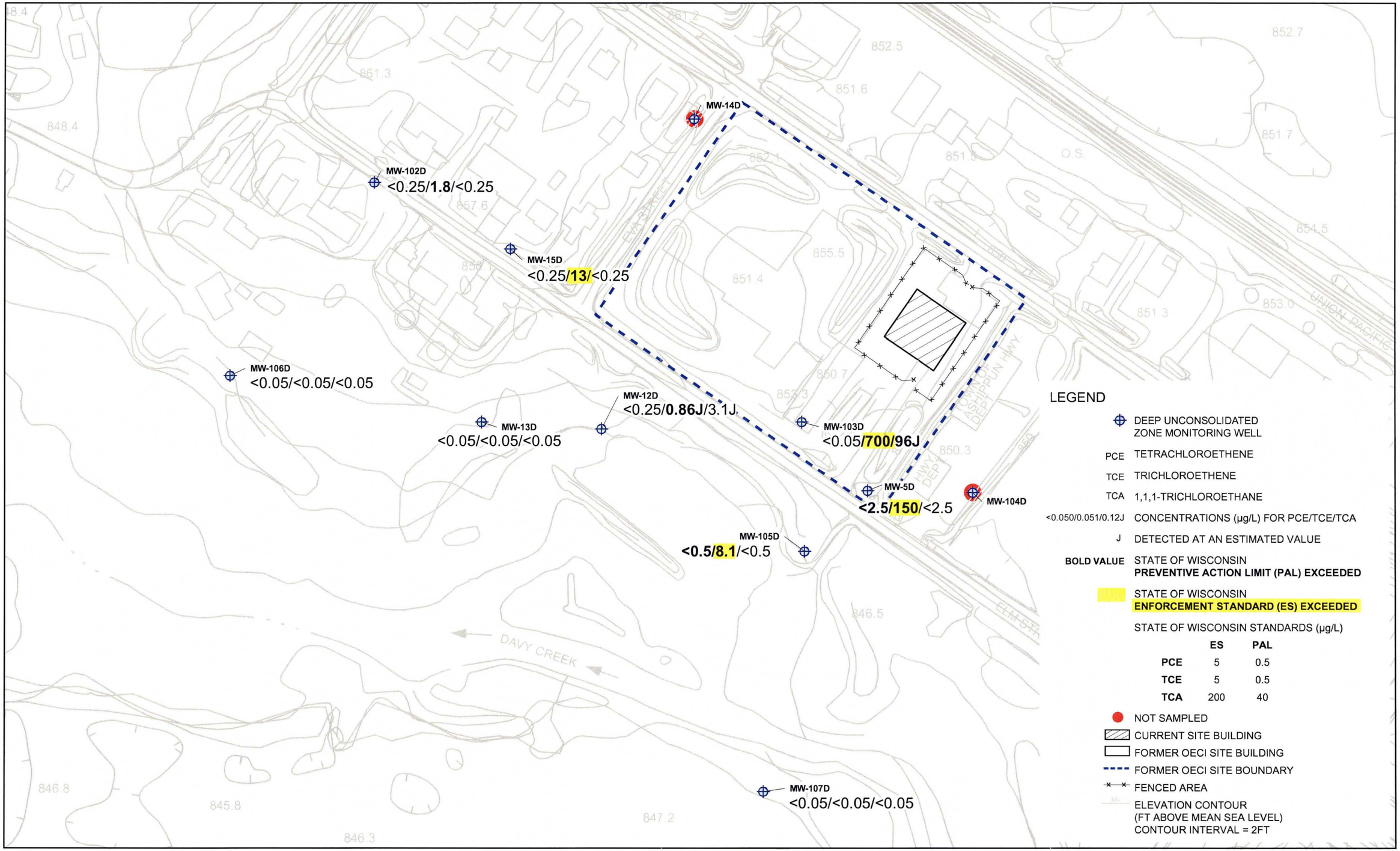

FIGURE 9
Groundwater PCE, TCE and TCA Concentrations in Deep Unconsolidated Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCE_PCE_TCA_Deep_Fig09_4thQR-2008_v07

CH2MHILL

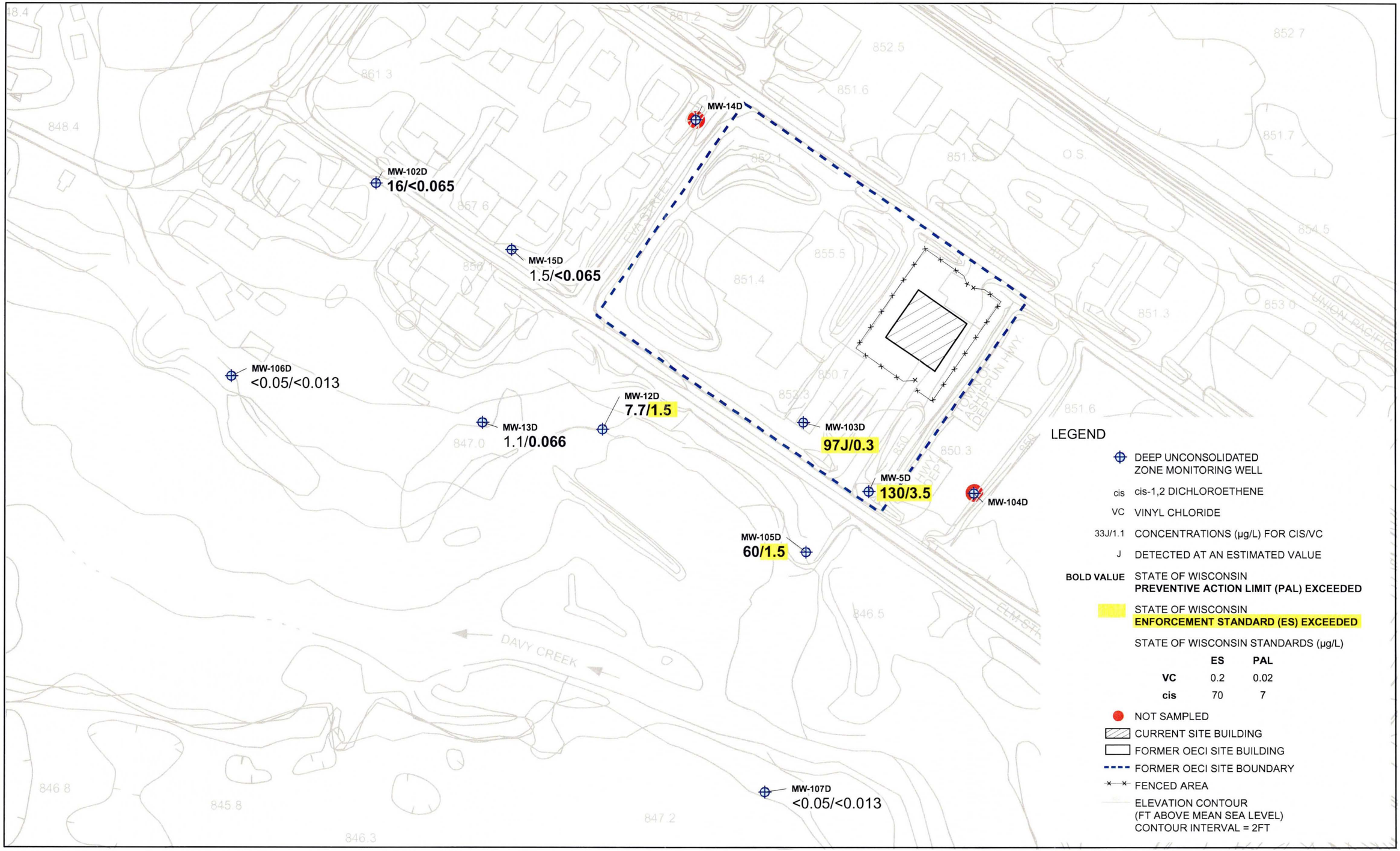

FIGURE 10
Groundwater CIS and VC Concentrations in Deep Unconsolidated Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_VEcis_Deep_Fig10_4thQR-2008_v05

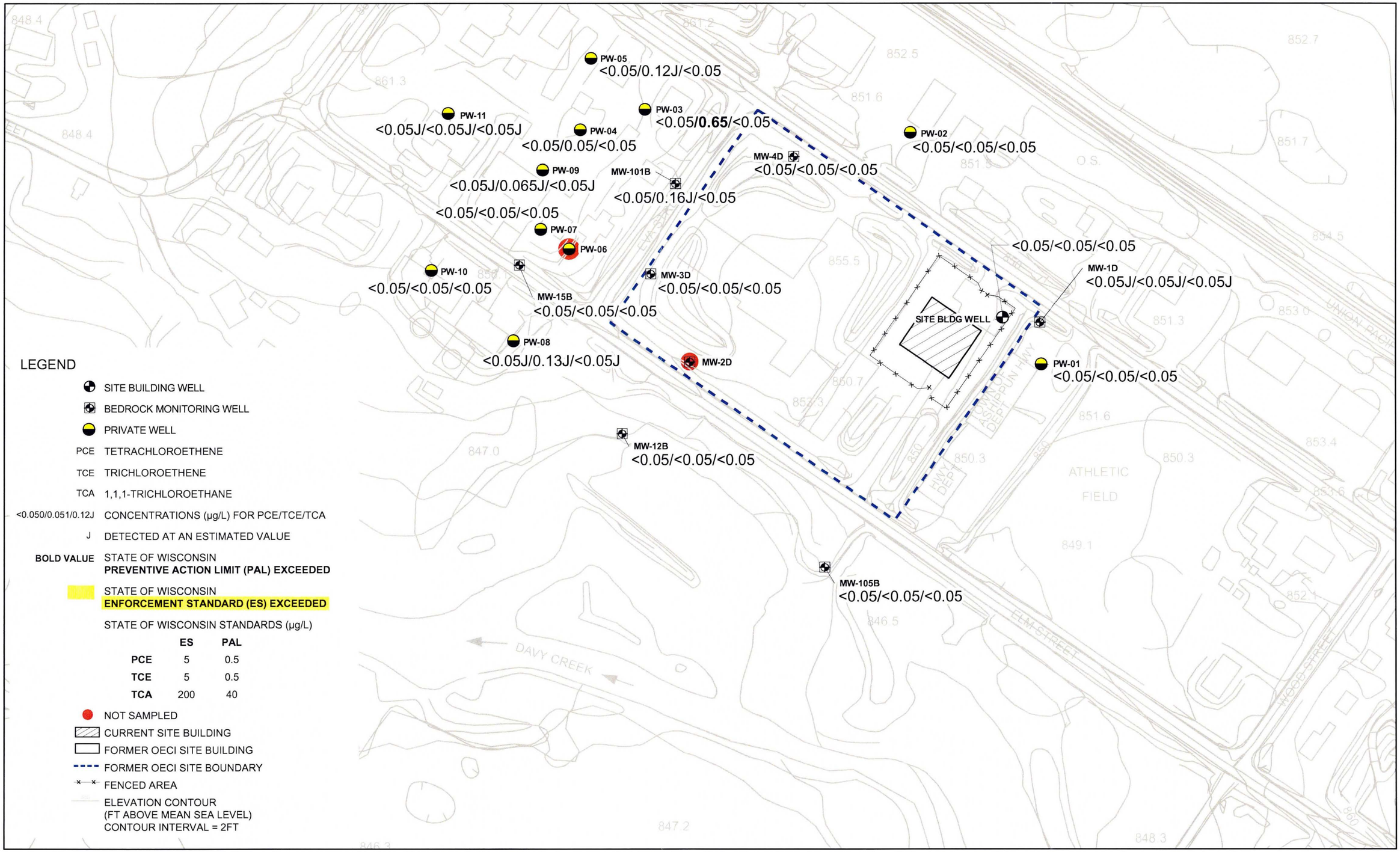

FIGURE 11
Groundwater PCE, TCE and TCA Concentrations in Bedrock Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCA_PCE_TCE_Bedrock_Fig11_4thQR-2008_v04

CH2MHILL

PW-05
1.5/**0.029J**

PW-11
1.1J/**0.039J**

PW-03
0.88/<0.013

PW-04
1.5/**0.03J**

PW-02
<0.05/<0.013

PW-09
5.6J/**0.073J**

MW-101B
0.38/<0.013

MW-4D
0.053J/**0.16**

2.8/**0.059**

PW-07

PW-06

<0.05/<0.013

MW-1D
<0.05/**0.17J**

PW-10
<0.05/<0.013

MW-15B
<0.05/<0.013

MW-3D
0.23/**0.041J**

SITE BLDG WELL

PW-08
2.2J/**0.07J**

MW-2D

PW-01
<0.05/<0.013

MW-12B
<0.05/<0.013

MW-105B
0.071J/**0.034J**

DAVY CREEK

ELM STREET

WEBB STREET

ATHLETIC FIELD

UNION PACIFIC

LEGEND

- SITE BUILDING WELL
- BEDROCK MONITORING WELL
- PRIVATE WELL
- cis cis-1,2 DICHLOROETHENE
- VC VINYL CHLORIDE
- 33J/1.1 CONCENTRATIONS (µg/L) FOR CIS/VC
- J DETECTED AT AN ESTIMATED VALUE
- **BOLD VALUE** STATE OF WISCONSIN **PREVENTIVE ACTION LIMIT (PAL) EXCEEDED**
- STATE OF WISCONSIN **ENFORCEMENT STANDARD (ES) EXCEEDED**

STATE OF WISCONSIN STANDARDS (µg/L)

	ES	PAL
VC	0.2	0.02
cis	70	7

- NOT SAMPLED
- CURRENT SITE BUILDING
- FORMER OECI SITE BUILDING
- FORMER OECI SITE BOUNDARY
- FENCED AREA
- ELEVATION CONTOUR (FT ABOVE MEAN SEA LEVEL) CONTOUR INTERVAL = 2FT

N

0 60 120
Feet

FIGURE 12
Groundwater CIS and VC Concentrations in Bedrock Wells – October 2008
2008 4th Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_VCcis_Bedrock_Fig12_4thQR-2008_v07

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: April 2, 2009

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 the week of October 6, 2008. CH2M HILL performed the sampling, and CT Laboratories, Inc. of Baraboo, Wisconsin, performed the analyses.

Fifty-seven groundwater and surface water samples were collected, including quality control (QC) samples, and were 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. The 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 were also 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 with regard 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 reviewed the validation performed by USEPA for the groundwater samples in sample delivery group (SDG) 69525. Table 1 lists the sample identifications (IDs) and Station Locations that were reviewed (100 percent of all samples collected).

TABLE 1
Sample Summary by Laboratory ID and Station Location
Oconomowoc Electroplating

Sample ID	Location	Sample ID	Location	Sample ID	Location
09CE01-01	OEP-MW-103S	09CE01-20	OEP-MW-04S	09CE01-39	OEP-PW-03
09CE01-02	OEP-MW-103SFR	09CE01-21	OEP-MW-04D	09CE01-40	OEP-PW-03FR
09CE01-03	OEP-MW-3D	09CE01-22	OEP-MW-01S	09CE01-41	OEP-JS-08
09CE01-04	OEP-MW-103D	09CE01-23	OEP-MW-01D	09CE01-42	OEP-MW-12B
09CE01-05	OEP-MW-5D	09CE01-24	OEP-SW-01	09CE01-43	OEP-MW-12D
09CE01-06	OEP-JS-01	09CE01-25	OEP-PW-01	09CE01-44	OEP-MW-12S
09CE01-07	OEP-MW-105S	09CE01-26	OEP-PW-02	09CE01-45	OEP-PW-11
09CE01-08	OEP-MW-105B	09CE01-27	OEP-PW-07	09CE01-46	OEP-MW-106S
09CE01-09	OEP-MW-105D	09CE01-28	OEP-PW-04	09CE01-47	OEP-MW-106D
09CE01-10	OEP-MW-101B	09CE01-29	OEP-PW-08	09CE01-48	OEP-SW-03
09CE01-11	OEP-JS-02	09CE01-30	OEP-PW-09	09CE01-49	OEP-SW-03FR
09CE01-12	OEP-FB-01	09CE01-31	OEP-MW-102D	09CE01-50	OEP-JS-09
09CE01-13	OEP-MW-15D	09CE01-32	OEP-JS-05	09CE01-51	OEP-JS-10

TABLE 1
Sample Summary by Laboratory ID and Station Location
Oconomowoc Electroplating

Sample ID	Location	Sample ID	Location	Sample ID	Location
09CE01-14	OEP-MW-15D FR	09CE01-33	OEP-JS-06	09CE01-52	OEP-DW-01
09CE01-15	OEP-MW-15B	09CE01-34	OEP-JS-07	09CE01-53	OEP-JS-11
09CE01-16	OEP-MW-15S	09CE01-35	OEP-MW-13S	09CE01-54	OEP-MW-107D
09CE01-17	OEP-EB-01	09CE01-36	OEP-MW-13D	09CE01-55	OEP-MW-107S
09CE01-18	OEP-JS-03	09CE01-37	OEP-PW-10	09CE01-56	OEP-MW-16S
09CE01-19	OEP-JS-04	09CE01-38	OEP-PW-05	09CE01-57	OEP-SW-02

The USEPA validation case narratives and worksheets indicate which of these sample results were biased as a result of applicable QC statistics or other NFG requirements. The qualifications are described in Attachment 1. Three results were rejected.

- The percent recovery for styrene was less than 20% in the matrix spike duplicate for sample 09CE01-25. The non-detected sample result for styrene in the unspiked sample, 09CE01-25, was qualified "R" as unusable.
- The percent recoveries for ethane and ethene were less than 20% in the matrix spike duplicate for sample 09CE01-22. The non-detected sample results for ethane and ethene in the unspiked sample, 09CE01-22, were qualified "R" as unusable.

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 usable 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 *2008 Fourth 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

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: November 10, 2008

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: 09CE01 SDG Number: 69525-ORG

Number and Type of Samples: 57 Waters (57 VOCs/ 30 MEE)

Sample Numbers: 09CE01-01 through 09CE01-57

Laboratory: CT Laboratories Hrs for Review:

Following are our findings:

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

SAS Project: 09CE01
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 69525-ORG
Laboratory: CT Laboratories

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

Fifty seven (57) preserved water samples listed in the following table were collected from 10/06/08 through 10/16/08. CT Laboratories of Baraboo, Wisconsin received the samples from 10/07/08 through 10/17/08. A total of eleven (11) samples were received with a cooler temperature outside the optimum shipping range of 2 – 6 ®C. The samples, sample location, sampling dates, receipt temperatures and analytical dates are identified in the following table. All fifty seven (57) samples were analyzed from 10/13/08 through 10/28/08 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 May 2009. Thirty (30) samples were analyzed 10/18/08 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	Receipt Temp	VOC Analyses	MEE Analyses
09CE01-01	613050	OEP-MW-103S	10/06/08	2.8	10/14/08	10/18/08
09CE01-02	613052	OEP-MW-103SFR	10/06/08	2.8	10/14/08	10/18/08
09CE01-03	613054	OEP-MW-3D	10/06/08	2.8	10/13&14/08	10/18/08
09CE01-04	613045	OEP-MW-103D	10/06/08	2.8	10/13&16/08	10/18/08
09CE01-05	613047	OEP-MW-5D	10/06/08	2.8	10/14/08	10/18/08
09CE01-06	613049	OEP-JS-01	10/06/08	2.8	10/14/08	
09CE01-07	613530	OEP-MW-105S	10/07/08	1.8	10/14&15/08	10/18/08
09CE01-07 MS	615288	OEP-MW-105S			10/14/08	
09CE01-07 MSD	615289	OEP-MW-105S			10/14/08	
09CE01-07 MS	618180	OEP-MW-105S				10/18/08
09CE01-07 MSD	618181	OEP-MW-105S				10/18/08
09CE01-08	613511	OEP-MW-105B	10/07/08	2.4	10/14/08	10/18/08
09CE01-09	613513	OEP-MW-105D	10/07/08	2.4	10/15/08	10/18/08
09CE01-10	613533	OEP-MW-101B	10/07/08	1.8	10/14/08	10/18/08
09CE01-11	613535	OEP-JS-02	10/07/08	1.8	10/14/08	
09CE01-12	613516	OEP-FB-01	10/07/08	2.4	10/13/08	10/18/08
09CE01-13	613521	OEP-MW-15D	10/07/08	3.2	10/14/08	10/18/08
09CE01-14	613523	OEP-MW-15DFR	10/07/08	3.2	10/14/08	10/18/08
09CE01-15	613525	OEP-MW-15B	10/07/08	3.2	10/14/08	10/18/08
09CE01-16	613527	OEP-MW-15S	10/07/08	3.2	10/14/08	10/18/08
09CE01-17	613518	OEP-EB-01	10/07/08	2.4	10/13/08	10/18/08
09CE01-18	613520	OEP-JS-03	10/07/08	2.4	10/14/08	
09CE01-19	613529	OEP-JS-04	10/07/08	3.2	10/14/08	
09CE01-20	613798	OEP-MW-04S	10/08/08	1.2	10/15/08	10/18/08
09CE01-21	613800	OEP-MW-04D	10/08/08	1.2	10/15/08	10/18/08
09CE01-22	613758	OEP-MW-01S	10/08/08	2.2	10/16/08	10/18/08
09CE01-22 MS	616219	OEP-MW-01S			10/16/08	

SAS Project: 09CE01
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 69525-ORG
Laboratory: CT Laboratories

EPA ID	CTI Lab ID	Sample location	Date sampled	Receipt Temp	VOC Analyses	MEE Analyses
09CE01-22 MSD	616220	OEP-MW-01S			10/16/08	
09CE01-22 MS	618185	OEP-MW-01S				10/18/08
09CE01-22 MSD	618186	OEP-MW-01S				10/18/08
09CE01-23	613768	OEP-MW-01D	10/08/08	2.2	10/14/08	10/18/08
09CE01-24	613817	OEP-SW-01	10/08/08	1.2	10/15/08	10/18/08
09CE01-25	613783	OEP-PW-01	10/06/08	2.4	10/15/08	
09CE01-25 MS	616072	OEP-PW-01			10/16/08	
09CE01-25 MSD	616073	OEP-PW-01			10/16/08	
09CE01-26	613784	OEP-PW-02	10/06/08	2.4	10/15/08	
09CE01-27	613785	OEP-PW-07	10/06/08	2.4	10/15/08	
09CE01-28	613786	OEP-PW-04	10/08/08	2.4	10/15/08	
09CE01-29	613787	OEP-PW-08	10/08/08	2.4	10/15/08	
09CE01-30	613788	OEP-PW-09	10/08/08	2.4	10/15/08	
09CE01-31	613775	OEP-MW-102D	10/08/08	1.6	10/15/08	10/18/08
09CE01-32	613777	OEP-JS-05	10/08/08	1.6	10/15/08	
09CE01-33	613774	OEP-JS-06	10/08/08	2.2	10/15/08	
09CE01-34	613819	OEP-JS-07	10/08/08	1.2	10/16/08	
09CE01-35	613778	OEP-MW-13S	10/08/08	1.6	10/14/08	10/18/08
09CE01-36	613780	OEP-MW-13D	10/08/08	1.6	10/15/08	10/18/08
09CE01-37	613789	OEP-PW-10	10/08/08	2.4	10/15/08	
09CE01-38	613790	OEP-PW-05	10/08/08	2.4	10/15/08	
09CE01-39	613791	OEP-PW-03	10/08/08	2.4	10/15/08	
09CE01-40	613794	OEP-PW-03FR	10/08/08	2.4	10/15/08	
09CE01-41	613796	OEP-JS-08	10/08/08	2.4	10/15/08	
09CE01-42	614321	OEP-MW-12B	10/09/08	2.8	10/17/08	10/18/08
09CE01-43	614326	OEP-MW-12D	10/09/08	2.8	10/17/08	10/18/08
09CE01-44	614328	OEP-MW-12S	10/09/08	2.8	10/17/08	10/18/08
09CE01-45	614290	OEP-PW-11	10/08/08	2.2	10/16/08	
09CE01-46	614291	OEP-MW-106S	10/09/08	2.2	10/16&17/08	
09CE01-47	614292	OEP-MW-106D	10/09/08	2.2	10/16/08	
09CE01-48	614310	OEP-SW-03	10/09/08	2.8	10/16/08	10/18/08
09CE01-49	614312	OEP-SW-03FR	10/09/08	2.8	10/17/08	10/18/08
09CE01-50	614314	OEP-JS-09	10/09/08	2.8	10/16/08	
09CE01-51	614293	OEP-JS-10	10/09/08	2.2	10/16/08	
09CE01-52	614294	OEP-DW-01	10/09/08	2.2	10/16/08	
09CE01-53	616356	OEP-JS-11	10/16/08	2.0	10/28/08	
09CE01-54	616358	OEP-MW-107D	10/16/08	2.0	10/28/08	
09CE01-55	616359	OEP-MW-107S	10/16/08	2.0	10/28/08	
09CE01-56	616360	OEP-MW-16S	10/16/08	2.0	10/28/08	10/18/08
09CE01-56 MS	621450	OEP-MW-16S			10/28/08	

EPA ID	CTI Lab ID	Sample location	Date sampled	Receipt Temp	VOC Analyses	MEE Analyses
09CE01-56 MSD	621451	OEP-MW-16S			10/28/08	
09CE01-57	616382	OEP-SW-02	10/16/08	2.0	10/28/08	10/18/08

The laboratory reported the results of 46 volatile analytes. Only the following 36 volatile analytes were requested for SW-846 Method 8260 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 method blanks for the SW-846 Method 8260B analyses are MB-614790, MB-615290, MB-616218 and MB-620435. In addition to the method blanks there are four (4) VOC Continuing Calibration Blanks (CCBs); CCB1-10/14/08, CCB2-10/15/08, CCB3-10/16/08 and CCB4-10/17/08. The MEE method blanks are MB-618176, MB-618179, MB-618184 and MB-618187 for the Mod RSK 175 analyses.

Samples 09CE01-07, 09CE01-22, 09CE01-25 and 09CE01-56 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses. Samples 09CE01-07 and 09CE01-22 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses.

The VOC laboratory control samples are LCS-614789, LCS-615734, LCS-616212 and LCS-620381. The VOC laboratory control duplicate samples are LCSD-615287, LCSD-616071, LCSD-616232 and LCSD-620497. The MEE laboratory control samples are LCS-618175 and LCS-618183. The MEE laboratory control sample duplicate are LCSD-618182 and LCSD-618188.

Eleven (11) samples; 09CE01-06, 09CE01-11, 09CE01-18, 09CE01-19, 09CE01-32, 09CE01-33, 09CE01-34, 09CE01-41, 09CE01-50, 09CE01-51 and 09CE01-53 are identified as trip blanks. Sample 09CE01-17 is identified as an equipment blank. Sample 09CE01-12 is

identified as a field blank. Sample 09CE01-02 is a field replicate of 09CE01-01. Sample 09CE01-14 is a field replicate of 09CE01-13. Sample 09CE01-40 is a field replicate of 09CE01-39. Sample 09CE01-49 is a field replicate of 09CE01-48.

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

1. HOLDING TIME

Fifty seven (57) preserved water samples listed in the following table were collected from 10/06/08 through 10/16/08. CT Laboratories of Baraboo, Wisconsin received the samples from 10/07/08 through 10/17/08. A total of eleven (11) samples were received with a cooler temperature outside the optimum shipping range of 2 – 6 ®C. All fifty seven (57) samples were analyzed from 10/13/08 through 10/28/08 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 May 2009. Thirty (30) samples were analyzed 10/18/08 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

VOC: The GC/MS tuning for SW-846 Method 8260B complied with the mass list and ion abundance criteria for BFB. All samples were analyzed within the twelve (12) hour periods for instrument performance checks with the exception of LCS-616232 which was analyzed outside the 12-hours limit. No qualification is required for these QC samples.

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: 7-point calibration curves (0.2/2.0, 0.4/4.0, 1.0/10.0, 2.0/20.0, 4.0/40.0, 6.0/60.0 and 8.0/80.0 µg/L) were performed on 10/13/2008 and 10/27/2008. The average RRF (0.0474) for Acetone in the initial calibration of 10/13/2008 was less than 0.05 but greater than the minimum RRF of 0.01 currently used in SOW SOM01.1. All %RSDs were less than 15% or r^2 (correlation coefficient) > 0.995 with the exception of r^2 for Methylene chloride which was 0.991 for the initial calibration of 10/27/2008. The following samples are associated with initial calibrations where the analyte has r^2 was less than 0.995. Detected compound should be qualified "J".

Methylene chloride
09CE01-53, 09CE01-56MS, 09CE01-56MSD, LCS-620381, LCSD-620497

The following samples are associated with initial calibrations where the analyte has r^2 less than 0.995. Non-detected compound should be qualified "UJ".

Methylene chloride
09CE01-54, 09CE01-55, 09CE01-56, 09CE01-57, MB-620435

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 following samples are associated with continuing calibrations where the analytes have %Ds greater than 20%. Detected compounds should be qualified "J".

2-Butanone, 2-Hexanone, 4-Methyl-2-pentanone
09CE01-22MS, 09CE01-22MSD, LCS-616212, LCSD-616232

Acetone
09CE01-07MS, 09CE01-07MSD, 09CE01-22MS, 09CE01-22MSD, 09CE01-50, LCS-614789, LCS-616212, LCSD-615287, LCSD-616232

Carbon disulfide, Chloroethane
09CE01-25MS, 09CE01-25MSD, LCSD-616071

Methylene chloride
09CE01-07MS, 09CE01-07MSD, 09CE01-11, 09CE01-18, 09CE01-19, 09CE01-53, 09CE01-56MS, 09CE01-56MSD, LCS-620381, LCSD-615287, LCSD-620497

Trans-1,2-Dichloroethene
09CE01-45

The following samples are associated with continuing calibrations where the analytes have %Ds greater than 20%. Non-detected quantitation limits should be qualified "UJ".

2-Butanone, 2-Hexanone, 4-Methyl-2-pentanone
09CE01-22, 09CE01-34, 09CE01-42, 09CE01-43, 09CE01-44, 09CE01-45, 09CE01-46, 09CE01-47, 09CE01-48, 09CE01-49, 09CE01-50, 09CE01-51, 09CE01-52, MB-616218

Acetone
09CE01-01, 09CE01-02, 09CE01-03, 09CE01-04, 09CE01-05, 09CE01-06, 09CE01-07, 09CE01-08, 09CE01-10, 09CE01-11, 09CE01-12, 09CE01-13, 09CE01-14, 09CE01-15, 09CE01-16, 09CE01-17, 09CE01-18, 09CE01-19, 09CE01-22, 09CE01-34, 09CE01-42, 09CE01-43, 09CE01-44, 09CE01-45, 09CE01-46, 09CE01-47, 09CE01-48, 09CE01-49, 09CE01-51, 09CE01-52, MB-614790, MB-616218, CCB1-10/14/08

Carbon disulfide, Chloromethane
CCB3-10/16/08

Methylene chloride
09CE01-01, 09CE01-02, 09CE01-03, 09CE01-04, 09CE01-05, 09CE01-06, 09CE01-07, 09CE01-08, 09CE01-10, 09CE01-12, 09CE01-13, 09CE01-14, 09CE01-15, 09CE01-16, 09CE01-17, 09CE01-20, 09CE01-23, 09CE01-25, 09CE01-26, 09CE01-27, 09CE01-28, 09CE01-29, 09CE01-30, 09CE01-31, 09CE01-35, 09CE01-36, 09CE01-37, 09CE01-38, 09CE01-39, 09CE01-40, 09CE01-54, 09CE01-55, 09CE01-56, 09CE01-57, MB-614790, MB-615290, MB-620435, CCB1-10/14/08

Trans-1,2-Dichloroethene
09CE01-46, CCB4–10/17/08

MEE: 7-pt Initial Calibration curves (2, 5, 10, 20, 50, 100 and 200 ppmV) were performed on 10/18/2008 and evaluated for a Goodness of Fit (correlation coefficient) ≥ 0.995. All r^2 were greater than 0.995; therefore, the results do not require any qualification.

Six continuing calibrations were analyzed on 10/18/2008 at the appropriate frequency of 1 CCV per 10 field samples. All %Ds were less than 20%; therefore, the results do not require any qualification.

4. BLANKS

VOC: The method blanks for the SW-846 Method 8260B analyses are MB-614790, MB-615290, MB-616218 and MB-620435. In addition to the method blanks there are four (4) VOC Continuing Calibration Blanks (CCBs); CCB1-10/14/08, CCB2-10/15/08, CCB3-10/16/08 and CCB4-10/17/08. The samples associated with each blank were determined from the Volatile Organic Instrument Performance Check Forms and the Method Blank Summaries. Copies of the Form 5As are included with the hardcopy validation package.

Method blanks MB-614790 and MB-620435 contained no target analytes; therefore no qualification is required for the samples associated with these method blanks. MB-615290 contained Bromomethane at 0.089 ug/L and MB-616218 contained Bromomethane at 0.073 ug/L. Bromomethane was not reported by the laboratory for MB-615290 and MB-616218. However, no qualification is required because Bromomethane was not detected in the samples associated with MB-615290 and MB-616218. The raw data for method blanks MB-615290 and MB-616218 are included with the hardcopy validation package.

CCB2-10/15/08 contained Vinyl chloride at 0.016 µg/L and CCB3-10/16/08 contained Bromomethane at 0.0711µg/L. Vinyl chloride was detected in samples 09CE01-09 and 09CE01-21 but the results were greater than SAS RL and 5X the blanks results; therefore, no qualification was required. Vinyl chloride and Bromomethane were not detected in the remaining associated samples with CCB2-10/15/08 and CCB3-10/16/08.

Eleven (11) samples; 09CE01-06, 09CE01-11, 09CE01-18, 09CE01-19, 09CE01-32, 09CE01-33, 09CE01-34, 09CE01-41, 09CE01-50, 09CE01-51 and 09CE01-53 are identified as Trip Blanks. Sample 09CE01-17 is identified as an Equipment Blank. Sample 09CE01-12 is identified as a Field Blank. The sample results were qualified for blank contamination in the order of:

1- Method blanks/CCBs
2- Trip blanks
3- Field blank & equipment blank.

The contamination of the trip blanks, field blank, equipment blank and the lists of samples associated with each QC blank are summarized in the excel worksheet included with the hardcopy validation package.

The following samples reported Chloromethane greater than laboratory RL but less than the dilution-adjusted SAS RL (0.2 µg/L). The presence of Chloromethane was qualified "U" and elevated to the SAS RL as resulting from trip blank contamination in the following samples.

Chloromethane
09CE01-04, 09CE01-09, 09CE01-20, 09CE01-25, 09CE01-43, 09CE01-44, 09CE01-49

The following samples reported Chloromethane and Methylene chloride greater than the SAS RL but less than 5X the blank results. The presence of these analytes were qualified "U" or "UJ because not all calibration or surrogate criteria was met" and reported at the sample value as resulting from trip blank contamination. The sample values are reported with a "U" flag.

Chloromethane
09CE01-03, 09CE01-08, 09CE01-10, 09CE01-13, 09CE01-14, 09CE01-15, 09CE01-16, 09CE01-21, 09CE01-22, 09CE01-23, 09CE01-24, 09CE01-26, 09CE01-27, 09CE01-28, 09CE01-29, 09CE01-30, 09CE01-31, 09CE01-35, 09CE01-36, 09CE01-37, 09CE01-38, 09CE01-39, 09CE01-40, 09CE01-42, 09CE01-45, 09CE01-46, 09CE01-47, 09CE01-48, 09CE01-52, 09CE01-54, 09CE01-55, 09CE01-57

Methylene chloride
09CE01-09, 09CE01-13, 09CE01-31, 09CE01-55, 09CE01-56, 09CE01-57

The following samples reported Chloroform greater than laboratory RL but less than SAS RL. The presence of these analytes were qualified "U" or "UJ because not all surrogate criteria was met" and elevated to the SAS RL as resulting from field blank contamination.

Chloroform
09CE01-01, 09CE01-02, 09CE01-05, 09CE01-09, 09CE01-13, 09CE01-14, 09CE01-22, 09CE01-30, 09CE01-31, 09CE01-43, 09CE01-44, 09CE01-56

The following samples reported Bromodichloromethane and Chloroform greater than the SAS RL but less than 5X the blank results. The presence of these analytes were qualified "U" and reported at the sample value as resulting from field & equipment blank contamination.

Bromodichloromethane
09CE01-14, 09CE01-31

Chloroform
09CE01-13, 09CE01-31

MEE: The MEE method blanks are MB-618176, MB-618179, MB-618184 and MB-618187 for the Mod RSK 175 analyses. None of the Method Blanks had any contaminants; therefore, the results are acceptable.

Sample 09CE01-12 is identified as a field blank and it contained Methane at 0.34 ug/L. The following samples reported Methane greater than laboratory RL but less than the undiluted SAS RL (10 µg/L). The presence of Methane was qualified "U" and elevated to the SAS RL as resulting from field blank contamination:

Methane
09CE01-13, 09CE01-14, 09CE01-16, 09CE01-20, 09CE01-22, 09CE01-31, 09CE01-35, 09CE01-48, 09CE01-49

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

VOC: 1,2-Dichloroethane-d_4, Bromofluorobenzene, Dibromofluoromethane and Toluene-d_8 were used as surrogates for the volatile analyses using SW-846 Method 8260. The percent recoveries of Toluene-d_8 in samples 09CE01-23, 09CE01-25MSD, 09CE01-29, 09CE01-30, 09CE01-45, 09CE01- 46 and 09CE01-55 were below the SAS limits of 75-135%. All detected compounds are qualified "J" and non-detected compounds are qualified "UJ".

MEE: Surrogate recoveries are not applicable to RSK-175 analyses.

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

VOC: Samples 09CE01-07, 09CE01-22, 09CE01-25 and 09CE01-56 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses.

The %recovery for Trichloroethene was greater than the upper limit of 130% in samples 09CE01-07MS. The %recoveries for Methylene chloride were greater than the upper limit of 130% in samples 09CE01-07MS and 09CE01-07MSD. The detection of Trichloroethene in the unspiked sample, 09CE01-07, should be qualified "J". Non-detected Methylene chloride in the unspiked sample, 09CE01-07, is not qualified for this criterion but ultimately qualified "UJ" because all calibration criteria was not met.

The %recoveries for 1,1-Dichloroethene, Chloroethane and Methylene chloride were greater than the upper limit of 130% in sample 09CE01-22MSD. The %recoveries for Bromomethane, Methyl tert-butyl ether, trans-1,2-Dichloroethene and Vinyl chloride were greater than the upper limit of 130% in samples 09CE01-22MS and 09CE01-22MSD. The %recoveries for Styrene were less than the lower limit 60% and greater than or equal to 20% in samples 09CE01-22MS and 09CE01-22MSD. The RPD for Methylene chloride was above the SAS limit of 30%. Non-detected Methylene chloride and Styrene in the unspiked sample, 09CE01-22, should be qualified "UJ". Non-detected 1,1-Dichloroethene, Bromomethane, Chloroethane, Methyl tert-butyl ether, trans-1,2-Dichloroethene and Vinyl chloride in the unspiked sample, 09CE01-22, are not qualified for this criterion.

The %recoveries for m&p-Xylene and o-Xylene were less than the lower limit 60% and greater than or equal to 20% in sample 09CE01-25MSD. The %recovery for Styrene was less than the lower limit 60% and greater than or equal to 20% in sample 09CE01-25MS. The %recovery for Styrene was less than 20% in sample 09CE01-25MSD. The %recoveries for Methyl tert-butyl ether and trans-1,2-Dichloroethene were greater than the upper limit of 130% in samples 09CE01-25MS and 09CE01-25MSD. The %recovery for Vinyl chloride was greater than the upper limit of 130% in sample 09CE01-25MS. The RPDs for m&p-Xylene, o-Xylene and Styrene were above the SAS limit of 30%. Non-detected m&p-Xylene and o-Xylene in the unspiked sample, 09CE01-25, should be qualified "UJ". Non-detected Styrene in the unspiked sample, 09CE01-25, should be qualified "R". Non-detected Methyl tert-butyl ether, trans-1,2-Dichloroethene and Vinyl chloride in the unspiked sample, 09CE01-25, are not qualified for this criterion.

The %recovery for cis-1,2-Dichloroethene was greater than the upper limit of 130% in sample 09CE01-56MS. The %recoveries for Methylene chloride were greater than the upper limit of 130% in samples 09CE01-56MS and 09CE01-56MSD. The

%recoveries for Bromomethane were less than the lower limit 60% and greater than or equal to 20% in samples 09CE01-56MS and 09CE01-56MSD. All RPDs were less than 30%. The detection of cis-1,2-Dichloroethene in the unspiked sample, 09CE01-56, should be qualified "J". Non-detected Bromomethane in the unspiked sample, 09CE01-56, should be qualified "UJ". Non-detected Methylene chloride in the unspiked sample, 09CE01-56, is not qualified for this criterion but qualified "UJ" because not all calibration criteria was met.

MEE: Samples 09CE01-07 and 09CE01-22 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses.

The %recoveries for Methane were greater than the upper limit of 130% in samples 09CE01-07MS and 09CE01-07MSD. All RPDs were less than 30%. Non-detected Methane in the unspiked sample, 09CE01-07, is not qualified for this criterion.

The %recovery for Methane was greater than the upper limit of 130% in sample 09CE01-22MSD. The %recoveries for Ethane and Ethene were less than the lower limit 60% and greater than or equal to 20% in sample 09CE01-22MS. The %recoveries for Ethane and Ethene were below 20% in sample 09CE01-22MSD. The RPDs for Ethane and Ethene were greater than 30%. Non-detected Ethane and Ethene in the unspiked sample, 09CE01-22, should be qualified "R". Non-detected Methane in the unspiked sample, 09CE01-22, is not qualified for this criterion.

6B. LABORATORY CONTROL SAMPLES

VOC: The VOC laboratory control samples are LCS-614789, LCS-615734, LCS-616212 and LCS-620381. The VOC laboratory control duplicate samples are LCSD-615287, LCSD-616071, LCSD-616232 and LCSD-620497.

LCS-614789 and LCSD-615287 were analyzed 10/13/2008 and 10/14/2008. The percent recoveries for all compounds were within the QC limits (60 – 130%). All RPDs were less than 30%. The samples associated with these LCS/LCSD samples, did not require any qualification.

LCS-615734 and LCSD-616071 were analyzed 10/15/2008 and 10/16/2008. The %recoveries for Methylene chloride were greater than the upper limit of 130% in samples LCS-615734 and LCSD-616071. The RPD for 1,1,2,2-Tetrachloroethane was greater than 30%. The detection for Methylene chloride in the following associated samples should be qualified "J". Non-detected Methylene chloride is not qualified for this criterion.

Methylene chloride
09CE01-25MS, 09CE01-25MSD, 09CE01-32, 09CE01-33, 09CE01-41

1,1,2,2-Tetrachloroethane
09CE01-25MS, 09CE01-25MSD

The quantitation limits for the non-detected 1,1,2,2-Tetrachloroethane in the following associated samples should be qualified "UJ".

1,1,2,2-Tetrachloroethane
09CE01-09, 09CE01-20, 09CE01-21, 09CE01-23, 09CE01-24, 09CE01-25, 09CE01-26, 09CE01-27, 09CE01-28, 09CE01-29, 09CE01-30, 09CE01-31, 09CE01-32, 09CE01-33, 09CE01-35, 09CE01-36, 09CE01-37, 09CE01-38, 09CE01-39, 09CE01-40, 09CE01-41

LCS-616212 and LCSD-616232 were analyzed 10/16/2008 and 10/17/2008. The %recoveries for Methylene chloride were greater than the upper limit of 130% in samples LCS-616212 and LCSD-616232. All RPDs were less than 30%. Non-detected Methylene chloride in samples 09CE01-22, 09CE01-45 and 09CE01-46 are ultimately qualified "UJ" because MS/MSD RPD or surrogate criteria was not met. Non-detected Methylene chloride for samples 09CE01-42, 09CE01-47, 09CE01-48, 09CE01-49, 09CE01-50 and 09CE01-52 are not qualified for this criterion. Detected Methylene chloride in the following samples should be qualified "J". Non-detected Methylene chloride is not qualified for this criterion.

Methylene chloride
09CE01-22MS, 09CE01-22MSD, 09CE01-34 , 09CE01-43, 09CE01-44, 09CE01-51

LCS-620381 and LCSD-620497 were analyzed 10/28/2008. The %recoveries for Methylene chloride were greater than the upper limit of 130% in samples LCS-620381 and LCSD-620497. The %recovery for Bromomethane was less than the lower limit of 60% and greater than or equal to 20% in sample LCSD-620497. The RPD for Bromomethane was greater than 30%. The detected compound in the following samples should be qualified "J".

Bromomethane
09CE01-56MS, 09CE01-56MSD

Methylene chloride
09CE01-53, 09CE01-56MS, 09CE01-56MSD

Non-detected Bromomethane for the following samples should be qualified "UJ".

Bromomethane
09CE01-53, 09CE01-54, 09CE01-55, 09CE01-56, 09CE01-57

Non-detected Methylene chloride for samples 09CE01-54, 09CE01-55, 09CE01-56 and 09CE01-57 are ultimately qualified "UJ" because not all surrogate or calibration criteria were met.

MEE: The MEE laboratory control samples are LCS-618175 and LCS-618183. The MEE laboratory control sample duplicates are LCSD-618182 and LCSD-618188.

All recoveries were within the QC limits of 60 – 130%. All RPDs were within the QC limits of 30%.

7. FIELD BLANK AND FIELD DUPLICATE

VOC: Eleven (11) samples; 09CE01-06, 09CE01-11, 09CE01-18, 09CE01-19, 09CE01-32, 09CE01-33, 09CE01-34, 09CE01-41, 09CE01-50, 09CE01-51 and 09CE01-53 are identified as trip blanks. Sample 09CE01-17 is identified as an equipment blank. Sample 09CE01-12 is identified as a field blank. The contamination of the trip blanks, field blank, equipment blank and the lists of samples associated with each QC blank are summarized in the excel worksheet included with the hardcopy validation package.

Sample 09CE01-02 is a field replicate of 09CE01-01. Sample 09CE01-14 is a field replicate of 09CE01-13. Sample 09CE01-40 is a field replicate of 09CE01-39. Sample 09CE01-49 is a field replicate of 09CE01-48. Sample results and RPDs for these replicate pairs are summarized in the excel tables which are included with the hardcopy validation package.

MEE: Sample 09CE01-12 is identified as a field Blank and it contained Methane at 0.34 ug/L. Sample 09CE01-02 is a field replicate of 09CE01-01. Sample 09CE01-14 is a field replicate of 09CE01-13. Sample 09CE01-49 is a field replicate of 09CE01-48. No compounds of interest were found in these samples.

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

VOC: 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 Laboratory MDL/LOD and SAS reporting limits are summarized in the excel table included with the hardcopy validation package. The non-detected 1,1,2,2-Tetrachloroethane, cis-1,3-Dichloropropene and trans-1,3-Dichloropropene in all samples, QC samples and blanks are qualified as "UJ" because the laboratory was unable to detect these compound at the concentration required by the SAS.

All results reported to the laboratory's detection limit or Level of Detection (LOD). 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".

1,1,1-Trichloroethane
09CE01-04, 09CE01-22, 09CE01-35, 09CE01-43

1,1,2-Trichloroethane, 1,1-Dichloroethane
09CE01-04

1,1-Dichloroethene
09CE01-01, 09CE01-02, 09CE01-07, 09CE01-09, 09CE01-23, 09CE01-30, 09CE01-35, 09CE01-43

1,2-Dichloroethane
09CE01-21, 09CE01-30, 09CE01-35, 09CE01-38, 09CE01-40, 09CE01-45

Acetone
09CE01-50

Benzene
09CE01-31

Bromodichloromethane, Styrene
09CE01-12, 09CE01-17

Carbon disulfide
09CE01-03, 09CE01-42, 09CE01-57

Chloromethane
09CE01-34

Chlorobenzene
09CE01-01, 09CE01-02, 09CE01-57

cis-1,2-Dichloroethene
09CE01-04, 09CE01-08, 09CE01-21

Dibromochloromethane
09CE01-01, 09CE01-02, 09CE01-05, 09CE01-09, 09CE01-13, 09CE01-31, 09CE01-43, 09CE01-44

Ethylbenzene
09CE01-57

Isopropylbenzene
09CE01-23

Methylene chloride
09CE01-18

Tetrachloroethene
09CE01-01

Toluene
09CE01-30

trans-1,2-Dichloroethene
09CE01-05, 09CE01-09, 09CE01-28, 09CE01-36, 09CE01-39, 09CE01-40, 09CE01-45, 09CE01-56

Trichloroethene
09CE01-10, 09CE01-29, 09CE01-30, 09CE01-38, 09CE01-43

MEE: The reporting limits for Ethane, Ethene and Methane were less than 10 µg/L as specified in the SAS contract. All results were reported to the laboratory 's detection limit. Methane for 09CE01-35 was reported at 49 ug/L. Only 0.49 ug/L of Methane was detected according to raw data page 839. Ethane was reported at 0.85 ug/L and Ethene was reported at 3.1 ug/L for sample 09CE01-56. According to raw data page 865, Ethane was not detected and Ethene was detected at 0.85 ug/L for sample 09CE01-56. Raw data for these two samples are included with hardcopy validation package.

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

Ethane
09CE01-05, 09CE01-07, 09CE01-07MS, 09CE01-07MSD, 09CE01-22MS, 09CE01-22MSD, 09CE01-57, LCS-618175, LCS-618183, LCSD-618182, LCSD-618188

Ethene
09CE01-07MS, 09CE01-07MSD, 09CE01-22MS, 09CE01-22MSD, 09CE01-56, LCS-618175, LCS-618183, LCSD-618182, LCSD-618188

Methane
09CE01-07MS, 09CE01-07MSD, 09CE01-12, 09CE01-22MS, 09CE01-22MSD, LCS-618175, LCS-618183, LCSD-618182, LCSD-618188

11. SYSTEM PERFORMANCE

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

12. ADDITIONAL INFORMATION

The final shipment of samples arrived at the Laboratory on 10/17/2008. The Laboratory Case Narrative was prepared on 11/04/2008 and forwarded by Ch2mHill on 11/05/2008 which is within 21 calendar days after 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 provided only 4 analyses identified as method blanks and an additional four analyses identified as Continuing Calibration Blanks. Volatile analyses require the analysis of a QC blank on each day of analysis and the volatile analyses spanned a 6-day time period. Inspections of both SW-846 Method 8000 (Determinative Chromatographic Separations, Sec. 7.7 & 8.2) and Method 8260 (Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry, Sec. 8.4) indicate that the terms method blank and continuing calibration blank could describe the same QC sample. As the CCB samples were analyzed daily and followed the Continuing Calibration Verification Standard, the Reviewer regarded them as method blanks for this data package. No Analysis Data Sheets were provided for the CCB samples. Copies of the raw data for these QC samples and the Form 5As (Volatile Organic Instrument Performance Check) are included with the hardcopy validation package.

The methods blanks were also non-compliant with the QC requirements identified in Table II in the following instances;

a) MB-615290 is associated with 15 samples rather than 10 samples.
b) MB-616218 is associated with 13 samples rather than 10 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 compound results were reported for the affected samples:

09CE01-04, 09CE01-07

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.

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 1/23/09

SUBJECT: Review of Data
Received for review on 11/10/08

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: 09CE01 **SDG NUMBER:** 69525-MET

Number and Type of Samples: 61 waters (31 total/ 30 dissolved)

Sample Numbers: 09CE01-01 thru -10, -12 thru -17, -20 thru -24, -31, -35, -36, -42 thru -44, -48 thru -49, -56 thru –57

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

Following are our findings:

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

Narrative

The laboratory's portion of this case contains 61 water samples (31 total, 30 dissolved, see attached table) which were collected between October 6 and 16, 2008 and received at the laboratory between October 7 and 17, 2008. They were analyzed for iron and manganese. Total and dissolved samples were assigned the same EPA sample IDs by the field personnel. See the attached table for specific Superfund and Laboratory identifiers. 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. The Field Chain of Custody was not signed by receiving personnel at the Laboratory for samples 09CE01-56 and -57

No analytical date was provided on the MDL summary form or the linearity form. MDL and linearity values recorded on the forms provided were used for evaluation of the data.
The values provided for MDLs on the calibration blanks forms (30 for Fe, 10 for Mn) were different from the Level of Detection (LOD) listed on the Form 1s (8 total Fe, 5 dissolved Fe, 4 total Mn, 1.2 dissolved Mn).

The Duplicate Forms included are for the LCS/LCSD and the MS/MSD. The laboratory performed post digestion spikes on perceived serial dilution failures and reported results unqualified. This does not make the data reportable. Samples affected by failed serial dilutions are qualified due to possible matrix interferences. The CLP requirement of the undiluted sample concentration being greater than 50x the MDL is used for determining applicability.

No times are included on the Analysis Run Logs for the calibration. Six run logs were included with the case; four were from one analytical run on October 13-14 and two were from another run on October 24-25. The same standards used on multiple "runs" are identified with different identifications.

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 SAS does not define what recovery is "acceptable", this reviewer used the CLP CRI acceptance criteria of 100 +/- 50%. The laboratory analyzed a sample identified as "mdl chk 3010" (MRL) which was at the SAS required reporting limit for Mn. The Fe concentration of the standard is 16 ug/L, which is just over half the SAS required reporting limit. All MRL samples except the final one in the October 24 analytical run passed the CLP requirement. All Fe results for that run are greater than 20x the MRL concentration. No results are qualified for the final MRL sample.

For Fe, all the serial dilution performed were either acceptable or the Fe concentration in the original sample was less than 50x the MDL and is not considered applicable. The preparation blank for batch 26834 had a negative value whose absolute value was greater than the MDL. The total Fe

sample result for 09CE01-10 is affected by a possible low bias and is estimated "J-". Fe was detected in some of the CCBs. The total Fe sample results for 09CE01-01, -02 and -04 are affected by the negative preparation blank and by the positive CCBs. Those results are estimated "J" due to an unknown bias. The dissolved Fe result for 09CE01-10 is affected by a positive CCB; that result is estimated "J+" due to possible contamination. Finally, the total Fe results for 09CE01-01, -02, -04, -10 and -44, and dissolved Fe results for 09CE01-01 and -10 are greater than the MDL but less than the SAS required reporting limit; those results are estimated "J".

For Mn, the RPD for the serial dilution performed on dissolved sample 09CE01-22 was greater than 10% indicating possible physical or chemical interference; the dissolved Mn results for samples 09CE01-10, -20, -22, -23 and -36 are estimated "J" for detects and "UJ" for non-detects due to possible physical or chemical interference.

Other comments: Total and dissolved samples 09CE01-01/-02, -13/-14 and -48/-49 were identified as field duplicates. Duplicates were evaluated according to the same criteria as laboratory duplicates. All showed good correlation.

Total and dissolved samples for 09CE01-17 were identified as equipment blanks. Sample 09CE01-12 was identified as a field blank (total only). No contamination was found in any of the equipment or field blanks.

Reviewed by: James Abston
Date: 1/23/2009

Lab ID (Total)	Sample ID (Total)	Lab ID (Dissolved)	Sample ID (Dissolved)	Sample Point	Sample Date	Sample Time
613050	09CE01-01	613051	09CE01-01	OPE-MW-103S	10/6/2008	15:00
613052	09CE01-02	613053	09CE01-02	OPE-MW-103SFR	10/6/2008	15:05
613054	09CE01-03	613055	09CE01-03	OEP-MW-3D	10/6/2008	16:45
613045	09CE01-04	613046	09CE01-04	OEP-MW-103D	10/6/2008	15:20
613047	09CE01-05	613048	09CE01-05	OEP-MW-5D	10/6/2008	17:05
613530	09CE01-07	613531	09CE01-07	OEP-MW-105S	10/7/2008	10:20
613511	09CE01-08	613512	09CE01-08	OEP-MW-105B	10/7/2008	10:45
613513	09CE01-09	613514	09CE01-09	OEP-MW-105D	10/7/2008	12:30
613533	09CE01-10	613534	09CE01-10	OEP-MW-101B	10/7/2008	12:20
513516	09CE01-12			OEP-FB-01	10/7/2008	15:00
613521	09CE01-13	613522	09CE01-13	OEP-MW-15D	10/7/2008	15:50
613523	09CE01-14	613524	09CE01-14	OEP-MW-15D FR	10/7/2008	15:55
613525	09CE01-15	613526	09CE01-15	OEP-MW-15B	10/7/2008	16:00
613527	09CE01-16	613528	09CE01-16	OEP-MW-15S	10/7/2008	16:55
613518	09CE01-17	613519	09CE01-17	OEP-EB-01	10/7/2008	17:10
613798	09CE01-20	613799	09CE01-20	OEP-MW-04S	10/8/2008	10:30
613800	09CE01-21	613801	09CE01-21	OEP-SW-04D	10/8/2008	11:30
613758	09CE01-22	613766	09CE01-22	OEP-MW-01S	10/8/2008	10:25
613768	09CE01-23	613773	09CE01-23	OEP-MW-01D	10/8/2008	12:20
613817	09CE01-24	613818	09CE01-24	OEP-SW-01	10/8/2008	12:10
613775	09CE01-31	613776	09CE01-31	OEP-MW-102D	10/8/2008	14:32
613778	09CE01-35	613779	09CE01-35	OEP-MW-13S	10/8/2008	14:40
613780	09CE01-36	613781	09CE01-36	OEP-MW-13D	10/8/2008	15:25
614321	09CE01-42	614325	09CE01-42	OEP-MW-12B	10/9/2008	10:25
614326	09CE01-43	614327	09CE01-43	OEP-MW-12D	10/9/2008	10:20
614328	09CE01-44	614329	09CE01-44	OEP-MW-12S	10/9/2008	11:35
614310	09CE01-48	614311	09CE01-48	OEP-SW-03	10/9/2008	14:25
614312	09CE01-49	614313	09CE01-49	OEP-SW-03FR	10/9/2008	14:30
616360	09CE01-56	616377	09CE01-56	OEP-MW-16S	10/16/2008	13:42
616382	09CE01-57	616383	09CE01-57	OEP-SW-02	10/16/2008	14:10

Reviewed by: James Abston
Date: 1/23/2009

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: James Abston
Date: 1/23/2009

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: January 22, 2009

SUBJECT: Review of Data
Received for review on November 10, 2008

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: 09CE01 **SDG NUMBER:** 69525-INO

Number and Type of Samples: 31 water samples

Sample Numbers: 09CE01-01 - 10, 12 - 17, 20 - 24, 31, 35 - 36, 42 - 44, 48 - 49, 56 – 57

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

Following are our findings:

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

Case: 09CE01
Site: Oconomowoc Electroplating

SDG: 69525-INO
Laboratory: CT Laboratories

Narrative

The laboratory's portion of this case contains 31 water samples (see TABLE 1). The samples were collected between October 6 and 16, 2008. 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 09CE01-12, 09CE01-17, 09CE01-24, and 09CE01-49, which were non-detects. These samples are flagged "UJ". All other alkalinity results are acceptable.

Ammonia: No defects were found. All ammonia results are acceptable

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

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

Ortho-phosphate: No defects were found. All ortho-phosphate results are acceptable.

Sulfate: The matrix spike recovery was below the acceptable limit for sample 09CE01-44. Samples 09CE01-42, -43, -44, -48, and -49 are flagged "J" and considered estimated. All other sulfate results are acceptable.

Sulfide: The matrix spike recovery was below the acceptable limit for sample 09CE01-57. The duplicate RPD was below the acceptable limit for sample 09CE01-57. Sample 09CE01-56 is flagged "J" and considered estimated. All other 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. The lowest calibration standard was 10 mg/L. TOC results for 09CE01-03 thru -05, -07 thru -10, -12 thru -17, -20 thru -23, -31, -35, -36, -42 thru 44 and -56 are below 10 mg/L and are estimated "J" for detects and "UJ" for non-detects.

Other comments: Samples 09CE01-01/-02, 09CE01-13/-14 and 09CE01-48/-49 were identified as a field duplicate pair. Duplicates were evaluated according to the same criteria as laboratory

Reviewed by: James Abston (TechLaw/ESAT)
Date: 01/22/2009

duplicates. All tests showed good correlation. Sample 09CE01-12 was identified as field blank. Sample 09CE01-17 was identified as equipment blank. The equipment blank and field blank showed no contamination.

TABLE 1

Lab ID	*EPA sample ID*	*Sample location*	*Cooler Tem.*	*Collection date*	*Collection time*	*Received date*
613050	09CE01-01	OPE-MW-103S	2.8	10/6/2008	15:00	10/7/2008
613051						
613052	09CE01-02	OPE-MW-103SFR	2.8	10/6/2008	15:05	10/7/2008
613053						
613054	09CE01-03	OEP-MW-3D	2.8	10/6/2008	16:45	10/7/2008
613055						
613045	09CE01-04	OEP-MW-103D	2.8	10/6/2008	15:20	10/7/2008
613046						
613047	09CE01-05	OEP-MW-5D	2.8	10/6/2008	17:05	10/7/2008
613048						
613530	09CE01-07	OEP-MW-105S	1.8	10/7/2008	10:20	10/8/2008
613531						
613511	09CE01-08	OEP-MW-105B	2.4	10/7/2008	10:45	10/8/2008
613512						
613513	09CE01-09	OEP-MW-105D	2.4	10/7/2008	12:30	10/8/2008
613514						
613533	09CE01-10	OEP-MW-101B	1.8	10/7/2008	12:20	10/8/2008
613534						
613516	09CE01-12	OEP-FB-01	2.4	10/7/2008	15:00	10/8/2008
613521	09CE01-13	OEP-MW-15D	2.4	10/7/2008	15:50	10/8/2008
613522						
613523	09CE01-14	OEP-MW-15D FR	2.4	10/7/2008	15:55	10/8/2008
613524						
613525	09CE01-15	OEP-MW-15B	2.4	10/7/2008	16:00	10/8/2008
613526						
613527	09CE01-16	OEP-MW-15S	2.4	10/7/2008	16:55	10/8/2008
613528						
613518	09CE01-17	OEP-EB-01	2.4	10/7/2008	17:10	10/8/2008
613519						
613798	09CE01-20	OEP-MW-04S	1.2	10/8/2008	10:30	10/9/2008
613799						
613800	09CE01-21	OEP-SW-04D	1.2	10/8/2008	11:30	10/9/2008
613801						
613758	09CE01-22	OEP-MW-01S	2.2	10/8/2008	10:25	10/9/2008
613766						
613768	09CE01-23	OEP-MW-01D	NOT RECORDED	10/8/2008	12:20	10/9/2008
613773						
613817	09CE01-24	OEP-SW-01	1.2	10/8/2008	12:10	10/9/2008
613818						
613775	09CE01-31	OEP-MW-102D	1.6	10/8/2008	14:32	10/9/2008
613776						

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Case: 09CE01
Site: Oconomowoc Electroplating

SDG: 69525-INO
Laboratory: CT Laboratories

613778	09CE01-35	OEP-MW-13S	1.6	10/8/2008	14:40	10/92008
613779						
613780	09CE01-36	OEP-MW-13D	1.6	10/8/2008	15:25	10/9/2008
613781						
614321	09CE01-42	OEP-MW-12B	NOT RECORDED	10/9/2008	10:25	10/10/2008
614325						
614326	09CE01-43	OEP-MW-12D	NOT RECORDED	10/9/2008	10:20	10/10/2008
614327						
614328	09CE01-44	OEP-MW-12S	NOT RECORDED	10/9/2008	11:35	10/10/2008
614329						
614310	09CE01-48	OEP-SW-03	2.8	10/9/2008	14:25	10/10/2008
614311						
614312	09CE01-49	OEP-SW-03FR	2.8	10/9/2008	14:30	10/10/2008
614313						
616360	09CE01-56	OEP-MW-16S	2.0	10/16/2008	13:42	10/17/2008
616377						
616382	09CE01-57	OEP-SW-02	2.0	10/16/2008	14:10	10/19/2008
616383						

Reviewed by: James Abston (TechLaw/ESAT)
Date: 01/22/2009

Case: 09CE01
Site: Oconomowoc Electroplating

SDG: 69525-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.

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Date: 01/22/2009