CH2M HILL
135 South 84th Street
Suite 325
Milwaukee, WI 53214
Tel 414-272-2426
Fax 414-272-4408

CH2MHILL

January 14, 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 Second 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-ROM containing the finalized 2008 Second 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 second quarter groundwater sampling event. Please contact me if you have any questions or concerns at 414-847-0437.

Sincerely,

CH2M HILL

Matt Boekenhauer
Site Manager

Enclosures

c: Pat Vogtman, PO/USEPA, Region 5 (w/o enclosure)
Parveen Vij, CO/USEPA, Region 5 (w/o enclosure)
Gary Edelstein/WDNR, Madison
Ike Johnson, PM/CH2M HILL, Milwaukee
Dan Plomb, DPM/CH2M HILL, Milwaukee
Regina Bayer, QAM/CH2M HILL, Milwaukee
Jeff Danko, RTL/CH2M HILL, Milwaukee (w/o enclosure)
Cindi Cruciani/CH2M HILL, Milwaukee (w/o enclosure)
Jon Tortomasi/CH2M HILL, Milwaukee (w/o enclosure)
Cherie Wilson, AA/CH2M HILL, Milwaukee

2008 Second 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)

PREPARED BY: Jon Tortomasi/CH2M HILL

COPIES: Pat Vogtman, PO/USEPA Region 5 (w/o enclosure)
Parveen Vij, CO/US EPA Region 5 (w/o enclosure)
Gary Edelstein/WDNR
Ike Johnson, PM/CH2M HILL
Dan Plomb, DPM/CH2M HILL
Matt Boekenhauer, SM/CH2M HILL
Jeff Danko, PM/CH2M HILL
Cherie Wilson, AA/CH2M HILL

DATE: January 8, 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 April 14, 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 April 2008 second quarter sampling event and includes tables and figures to present these data.

Site Setting

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

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

Field Activities

The purpose of each groundwater sampling event is to monitor groundwater contaminant concentrations and natural attenuation parameters in order to assess the 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 33 site monitoring wells was measured during the week of April 14, 2008. All wells, with the exception of MW-16S, had depth to water measured on April 14, 2008. Monitoring well MW-16S could not be measured until April 18, 2008 because of access issues. Depth to groundwater could not be measured in monitoring well MW-5 due to a damaged surface completion. At this time, there is no plan to replace this well due to its proximity to monitoring wells MW-103S and MW-105S. 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 due to 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 is no longer 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 15 shallow monitoring wells were used to generate a water table elevation map for the shallow unconsolidated aquifer (Figure 4). The apparent groundwater flow direction in this aquifer is primarily toward Davy Creek to the south-

southwest of the site. Table 2 contains a summary of the calculated vertical gradients. Vertical gradients between the shallow and deep unconsolidated aquifers are downward at well nests MW-15 and MW-102 upland from the wetland area and Davy Creek, and upward at well nests located to the south and east of the site, within (or proximal to) the wetland area and near Davy Creek (MW-12, MW-13, MW-102, MW-103, MW-105, MW-106, and MW-107). Vertical gradients between the unconsolidated aquifer and bedrock vary across the site, with a downward gradient at well nests MW-3, MW-4, MW-15, and MW-105, and slight upward gradients at well nests MW-1, MW-12, and MW-101.

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 deep unconsolidated aquifer and bedrock vary across the site, with downward gradients at the MW-15 and MW-105 nests, and an upward gradient at nest MW-12 (located within the wetland area near Davy Creek).

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 nondedicated sampling equipment was decontaminated following FOP No. 6—*Field Sampling Equipment Decontamination* (CH2M HILL, 2006).

Private well locations were sampled as part of the second quarter April 2008 compliance monitoring in accordance with FOP No. 10—*Private Residential Well Groundwater Sampling Procedures* (CH2M HILL, 2006), with the exception of field parameter collection. Due to the variable nature of access points for private well sampling and the various treatment sequences of these wells, field parameters cannot be used as an indication of proper purging prior to sample collection. Private well taps were opened for 10 to 15 minutes prior to sampling. 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 (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 vinyl chloride.

Unconsolidated Monitoring Wells

Groundwater PAL and ES exceedances of COCs in groundwater from the shallow unconsolidated aquifer are present for both parent and daughter compounds at four monitoring well locations: MW-12S, MW-103S, and MW-105S (Figures 7 and 8). Groundwater collected at MW-16S was found to have exceedances for daughter compounds, but no detections of any parent compounds. Groundwater 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. There is also a single ES exceedance for TCE at MW-15D, west of the site, and a downgradient PAL exceedance for VC at MW-13D. A number of these exceedances are due to 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 April 2008 sampling event, with the exception of unconfirmed (not detected in consecutive sampling events) low-level detections of acetone at MW-106S and MW-107S. Acetone is a known laboratory contaminant, and is not believed to be attributable to historic 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, as they are typically drilled to a depth where they intersect a significant water-bearing fracture or joint.

Groundwater collected at bedrock monitoring well MW-1D contained vinyl chloride concentrations that exceed the PAL. MW-1D is located east of the former facility. In all other bedrock monitoring wells, no COCs were identified that exceed the PAL or 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). Table 4 contains a summary of the results from

the samples collected at these wells. Vinyl chloride was detected at concentrations exceeding the PAL (0.020 micrograms per liter [µg/L]) at two private wells (PW-07 and PW-09, with groundwater concentrations of 0.065 and 0.058 µg/L, respectively). TCE was detected at a concentration of 0.54 µg/L, exceeding the PAL of 0.5 µg/L in groundwater collected from PW-03. Wells PW-03, PW-07, and PW-09 are on the downgradient/western side of the OECI site. No other COCs were identified that exceed the PAL or ES in the private wells; however, 1,2-dichloroethane (1,2-DCA); cis-1,2-DCE; MTBE; trans-1,2-DCE; and TCE also were detected at low levels in groundwater collected from several 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 previously detected in several upgradient wells and these compounds were not part of historic 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 in 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) 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 and SG-03 during the April 2008 sampling event.

Surface water collected at SG-02 contained VOC detections of 1,1-dichloroethane, 1,1-dichloroethene, acetone, benzene, chlorobenzene, chloroethane, cis-1,2-DCE, toluene, trans-1,2-DCE, TCA, TCE, and VC. Surface water collected at SG-03 contained VOC detections of TCA, cis-1,2-DCE, and TCE. The detections of acetone, benzene, chlorobenzene, chloroethane, toluene, and VC are all unconfirmed. Detections of TCA, cis-1,2-DCE, and TCE were found in surface water collected at locations at SG-02 and SG-03 are confirmed from the January 2008 sampling event (detections were found in consecutive sampling events). Surface water collected at upstream location SG-01 had no VOC detections during the April 2008 sampling event.

Previous detections of COCs found in surface water at SG-03 were not thought to have originated from the site for two reasons. As stated in the 2007 *Annual Groundwater Report and Evaluation of Monitored Natural Attenuation* (CH2M HILL 2007b), (1) these VOCs would not be expected to persist in a flowing surface water body and be detected 500 to 1,000 feet downgradient from the site, and (2) this suite of VOCs has not been detected in the groundwater sentinel wells. However, the April 2008 surface water results confirmed the VOC data collected at SG-02 and SG-03 in January 2008, and previous assumptions may no

longer hold true. 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, and then move downstream to SG-03 appear possible. Monitoring at all three surface water locations will continue and results and trends will be evaluated when additional quarterly data has 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 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 May 1, 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 May 16, 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 April 2008 data is included in Appendix A.

Summary and Recommendations

The 2008 second quarter sampling event was conducted at the OECI site during the week of April 14, 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 crossgradient to the west (MW-15D and MW-102D). In the bedrock aquifer, groundwater at one monitoring well and two private well locations contain vinyl chloride concentrations that exceed the PAL (upgradient well MW-1D, and private wells PW-07 and PW-09). Groundwater from private well PW-03 exceeds the PAL for TCE. 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 several 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, but 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 historic site activities.

Surface water from three locations along Davy Creek (SG-01, SG-02, and SG-03) was collected during the April 2008 sampling event. Confirmed detections of TCA, cis-1,2-DCE, and TCE were found in surface water collected at locations SG-02 and SG-03. The presence of upward vertical gradients in the area of Davy Creek and the wetland, coupled with the known high 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, and then move downstream to SG-03 appear likely. Surface water collected at upstream location SG-01 had no VOC detections during the April 2008 sampling event. Monitoring at all three surface water locations will continue and results and trends will be evaluated when additional quarterly data has been collected.

Monitoring well MW-14D is considered destroyed, and CH2M HILL has recommended replacing the well. CH2M HILL recommends that site monitoring continue under the current sampling plan for natural attenuation and regulatory compliance parameters at the selected monitoring wells, private wells, and surface water sampling points. The next quarterly monitoring event is scheduled for July 2008.

References

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

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

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

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

Tables

TABLE 1
Groundwater Elevations--April 2008
2008 2nd Quarter Groundwater Report
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Well ID	Hydrogeologic Unit Screened	Top of Casing (TOC) Elevation (ft amsl)	Groundwater Depth April 2008 (measured from TOC)	Groundwater Elevation April 2008 (ft amsl)
MW-1S	Shallow Unconsolidated	853.42	4.72	848.70
MW-1D	Upper Bedrock	853.14	4.15	848.99
MW-2D	Upper Bedrock	852.36	3.65	848.71
MW-3S	Shallow Unconsolidated	853.39	4.23	849.16
MW-3D	Upper Bedrock	853.51	5.73	847.78
MW-4S	Shallow Unconsolidated	854.58	5.30	849.28
MW-4D	Upper Bedrock	854.63	5.89	848.74
MW-5	Shallow Unconsolidated	849.07	Broken	--
MW-5D	Deep Unconsolidated	848.80	1.51	847.29
MW-9S	Shallow Unconsolidated	851.57	4.16	847.41
MW-12S	Shallow Unconsolidated	849.17	3.10	846.07
MW-12D	Deep Unconsolidated	848.31	1.17	847.14
MW-12B	Upper Bedrock	849.40	2.12	847.28
MW-13S	Shallow Unconsolidated	850.91	4.02	846.89
MW-13D	Deep Unconsolidated	850.02	2.89	847.13
MW-15S	Shallow Unconsolidated	854.68	6.40	848.28
MW-15D	Deep Unconsolidated	855.30	7.68	847.62
MW-15B	Upper Bedrock	854.35	14.88	839.47
MW-16S[1]	Shallow Unconsolidated	847.90	2.30	845.60
MW-101S	Shallow Unconsolidated	851.24	2.11	849.13
MW-101B	Upper Bedrock	851.08	3.01	848.07
MW-102S	Shallow Unconsolidated	853.65	5.85	847.80
MW-102D	Deep Unconsolidated	853.70	5.96	847.74
MW-103S	Shallow Unconsolidated	851.84	4.45	847.39
MW-103D	Deep Unconsolidated	851.97	4.54	847.43
MW-104S	Shallow Unconsolidated	850.56	3.35	847.21
MW-104D	Deep Unconsolidated	850.57	3.24	847.33
MW-105S	Shallow Unconsolidated	849.01	2.76	846.25
MW-105D	Deep Unconsolidated	848.90	1.75	847.15
MW-105B	Upper Bedrock	848.90	1.78	847.12
MW-106S	Shallow Unconsolidated	848.92	2.66	846.26
MW-106D	Deep Unconsolidated	849.01	1.74	847.27
MW-107S	Shallow Unconsolidated	848.66	2.36	846.30
MW-107D	Deep Unconsolidated	848.64	1.56	847.08

ft amsl = feet above mean sea level

[1]MW-16S depth to groundwater collected 4/18/2008; all other groundwater depths collected 4/14/2008.

TABLE 2
Vertical Gradient Summary - April 2008
2008 2nd Quarter Groundwater Report
OECI Site

Well Nest	Screen Midpoint Shallow	Screen Midpoint Deep	Screen Midpoint Bedrock	GW Elev. Shallow - April 2008	GW Elev. Deep - April 2008	Unconsolidated (Shallow to Deep) Vertical Gradient (ft/ft)	GW Elev. Unconsolidated - April 2008	GW Elev. Bedrock - April 2008	Unconsolidated to Bedrock Vertical Gradient (ft/ft)
1	842.62		806.04				848.70	848.99	-0.008
3	844.59		810.51				849.16	847.78	0.040
4	844.78		809.73				849.28	848.74	0.015
5	841.07	825.30			847.29	NA			
12	841.17	827.81	810.90	846.07	847.14	-0.080	847.14	847.28	-0.008
13	842.91	823.52		846.89	847.13	-0.012			
15	843.18	818.30	799.35	848.28	847.62	0.027	847.62	839.47	0.430
101	843.24		804.58				849.13	848.07	-0.001
102	842.65	807.20		847.80	847.74	0.002			
103	842.84	830.47		847.39	847.43	-0.003			
104	840.56	825.07		847.21	847.33	-0.008			
105	841.01	824.40	807.40	846.25	847.15	-0.054	847.15	847.12	0.002
106	838.92	797.51		846.26	847.27	-0.024			
107	835.62	818.24		846.30	847.08	-0.045			

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

TABLE 3

Monitoring Well Field and Analytical Results—April 2008

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OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-1S 08CE12-50, 51	MW-1D 08CE12-48, 49	MW-3D 08CE12-01, 02	MW-4S 08CE12-58, 59	MW-4D 08CE12-56, 57	MW-5D 08CE12-76, 77	MW-12B 08CE12-42, 43	MW-12S 08CE12-39, 40	MW-12D 08CE12-37, 38	MW-13S 08CE12-35, 36	MW-13D 08CE12-32, 33
Field Parameters														
Dissolved Oxygen (DO)	mg/L			0.43	0.47	2.18	0.45	2.99	0.4	1.31	0.33	1.38	2.79	0.34
Oxidation Reduction Potential (ORP)	millivolts			-30.6	-75.5	-53.5	-15.3	48.4	-91.8	-14.6	63.8	-87.7	37.7	-54.1
pH	pH units			7.03	7.43	7.3	6.64	7.68	7.12	8.01	7.22	7.16	7.18	7.26
Specific Conductivity	mmhos/cm			0.906	0.575	1.006	1.111	1.056	1.028	0.982	1.336	1.174	0.956	0.948
Temperature	deg c			9.4	11.43	10.37	8.02	9.48	11.09	10.23	8.61	10.05	6.81	10.53
Depth to water	feet			4.72	4.15	5.73	5.30	5.89	1.51	2.12	3.10	1.17	4.02	2.89
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	400	340	310	600	310	380	330	420	380	310	330
Chloride (as Cl)	mg/L	125	250	57	6.8	99	24	130	110	120	190	140	110	95
Ethane	µg/L	N/A	N/A	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	150	300	550	2,100	660 J	780	73 J+	2,800	52 J+	230 J	940	207 J	779
Iron, dissolved	µg/L	150	300	430	360	517 J	490	29 J+	1,800	5.9 J+	20 J+	780	11 J+	710
Manganese, total	µg/L	25	50	120	33	21	160	36	58	13 J	120	30	36	26.1
Manganese, dissolved	µg/L	25	50	110 J+	33	20.9	150	35	59	11	110	31	34	28
Methane	µg/L	N/A	N/A	1.7 J	850	55	5.4	2.1 J	36 J	0.25 U	18	12	20	9.2 J
Nitrogen, nitrate (as N)	mg/L	2	10	0.26	0.05 U	0.41	0.27	2.8	0.29	0.47	0.41	0.26	2.9	0.05 U
Sulfate (as SO4)	mg/L	125	250	65	1 J	61	62	57	48	32	54	72	38	61
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	1.5 J	0.61 J	1.8 J	8.1 J	1.9 J	2 J	0.99 J	3.9 J	3.7 J	1.8 J	1.9 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	90	1.9	0.37	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.95 U	0.019 U	0.38 U	0.095 U	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	1.2 U	0.3 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	17	0.06 U	58	13	0.077 J	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	5.2 J	0.05 U	17	0.25 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	3.5 U	0.07 U	1.4 U	0.35 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	1.2 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 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	1 U	0.25 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	1 U	0.25 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	1 U	0.25 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	3.8 J	0.03 U	0.6 U	0.15 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	1 U	0.25 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	1.4 U	0.027 U	0.54 U	0.14 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	0.04 U	0.8 U	0.2 U	0.04 U	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	30 U	0.6 U	12 U	3 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	80 U	1.6 U	32 U	8 U	1.6 U	1.6 U
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	40 U	0.8 U	16 U	4 U	0.8 U	0.8 U
Acetone	µg/L	200	1,000	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	75 U	1.5 U	30 U	7.5 U	1.5 U	2.5 J
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	4.1 J	0.05 U	1 U	0.25 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	1.4 U	0.028 U	0.56 U	0.14 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	2.1 J	0.03 U	2 J	0.3 J	0.03 U	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	2 U	0.04 U	0.8 U	0.2 U	0.04 U	0.04 U
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	6.1 J	0.07 U	1.4 U	0.35 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	4.5 UJ	0.09 U	1.8 U	0.45 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	2.8 J	0.022 U	0.44 U	0.11 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2.8 J	0.04 U	0.8 U	0.2 U	0.04 U	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	8 J	0.07 U	1.4 U	0.35 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	1.1 U	0.022 U	0.44 U	0.11 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	6.5 J	0.05 U	1 U	0.25 U	0.17 U	1.5
cis-1,2-Dichloroethene	µg/L	7	70	0.24	0.05 U	0.21	0.05 U	0.05 U	110	0.05 U	34	5.8	0.28	1.2
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	2.4 J	0.017 U	0.34 U	0.085 U	0.017 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	1.3 U	0.026 U	0.52 U	0.13 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	3.7 J	0.03 U	0.6 U	0.15 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	1.2 U	0.024 U	0.48 U	0.12 U	0.024 U	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	2 U	0.04 U	0.8 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 U	0.08 U	0.08 U	0.08 U	4.1 J	0.08 U	1.6 U	0.4 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.29	0.08 U	2	4 U	0.08 U	1.6 U	0.4 U	0.08 U	0.55
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	14 J	0.18 UJ	3.6 UJ	0.9 UJ	0.18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	1.2 U	0.023 U	0.46 U	0.12 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	2.4 J	0.022 U	0.44 U	0.11 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	1 U	0.25 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	1.2 U	0.3 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	19	1 J	0.06 U	0.083 J
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	2.4 J	0.017 U	0.34 U	0.085 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.23	0.05 U	0.05 U	0.05 U	0.05 U	200	0.05 U	120	1.3	1.4	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.076	0.013 U	0.013 U	0.013 U	7.4	0.013 U	1.2	0.38	0.013 U	0.056

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—April 2008

2008 2nd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-15B 08CE12-69, 70	MW-15S 08CE12-14, 15	MW-15D 08CE12-12, 13	MW-16S 08CE12-87, 88	MW-101B 08CE12-74, 75	MW-102D 08CE12-79, 80	MW-103S 08CE12-04, 05	MW-103D 08CE12-06, 07	MW-105B 08CE12-21, 22	MW-105S 08CE12-23, 24	MW-105D 08CE12-25, 26
Field Parameters														
Dissolved Oxygen (DO)	mg/L			0.84	9.9	6.52	0.35	0.26	0.28	0.5	2.53	0.32	1.82	1.86
Oxidation Reduction Potential (ORP)	millivolts			-98.6	91.3	64.1	-234.0	-131.8	-103.0	89.7	-11.9	-88.3	-79.0	-102.5
pH	pH units			6.82	7.36	7.56	6.66	7.13	7.00	6.97	6.68	7.31	7.08	7.22
Specific Conductivity	mmhos/cm			0.752	0.542	1.025	3.928	0.901	1.623	1.416	1.159	0.964	1.525	1.228
Temperature	deg c			13.5	8.83	10.98	8.21	11.06	11.62	7.68	9.95	9.26	7.89	9.73
Depth to water	feet			14.88	6.4	7.68	2.30	3.01	5.96	4.45	4.54	1.78	2.76	1.75
Natural Attenuation Parameters														
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	370	200	310	850	320	450	460	370	340	410	410
Chloride (as Cl)	mg/L	125	250	18	8.5	130	270	89	230	140	160	120	240	150
Ethane	µg/L	N/A	N/A	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.75 J	0.4 U
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	150	300	480	41 J	54 J	9,200	32 J+	2,200	44 J	17 J	740	4,500	1,300
Iron, dissolved	µg/L	150	300	190 J	5.9 J+	8.1 J+	8,800	32 J+	2,000	27 J+	12 J+	710	1,500	1,200
Manganese, total	µg/L	25	50	750	6.8 J+	150	95	69	53	400	260	900	180	55
Manganese, dissolved	µg/L	25	50	710	1.2 UJ	120	91	73	50	420	260	880	180	56
Methane	µg/L	N/A	N/A	610	0.25 U	0.78 J	24	69	7.1 J	34	87	590	120 J	32
Nitrogen, nitrate (as N)	mg/L	2	10	0.05 U	1.7	2.8	0.05 U	0.05 U	0.29	0.35	0.3	0.05 U	0.05 U	0.05 U
Sulfate (as SO4)	mg/L	125	250	52	12	63	1,400	46	120	94	37	8.9	61	67
Sulfide	mg/L	N/A	N/A	1 U	1 U	1 U	3.2	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Total Organic Carbon	mg/L	N/A	N/A	1.8 J	1.7 J	2.3 J	4.6 J	1.6 J	3.1 J	8.8 J	3.2 J	1.7 J	3.9 J	4 J
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	87	140	0.05 U	5 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	0.095 U	0.019 U	0.019 U	0.019 U	0.095 U	1.9 U	0.019 U	1.9 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.3 U	6 U	0.06 U	6 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.3 U	0.14 J	0.06 U	0.06 U	7.5	11 J	0.06 U	200	6.9
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.25 U	1.3	0.05 U	0.13 J	2	10 J	0.05 U	31	1.5
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.35 U	0.07 U	0.07 U	0.07 U	0.35 U	7 U	0.07 U	7 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.3 U	6 U	0.06 U	6 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.25 U	5 U	0.05 U	5 U	0.05 U
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.25 U	5 U	0.05 U	5 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.25 U	5 U	0.05 U	5 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 U	0.15 U	2.6	0.03 U	0.45	0.15 U	3 U	0.03 U	3 U	0.099 J
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	0.25 U	5 U	0.05 U	5 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.14 U	0.027 U	0.027 U	0.027 U	0.14 U	2.7 U	0.027 U	2.7 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.2 U	4 U	0.04 U	4 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	3 U	0.6 U	0.6 U	0.6 U	3 U	60 U	0.6 U	60 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	8 U	1.6 U	1.6 U	1.6 U	8 U	160 U	1.6 U	160 U	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 U	0.8 U	4 U	0.8 U	0.8 U	0.8 U	4 U	80 U	0.8 U	80 U	0.8 U
Acetone	µg/L	200	1,000	4 J	1.7 J	7.5 U	1.6 J	1.5 U	1.5 U	7.5 U	150 U	1.6 J	150 U	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	1.6	5 U	0.05 U	5 U	0.05 U
Bromochioromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.14 U	0.028 U	0.028 U	0.028 U	0.14 U	2.8 U	0.028 U	2.8 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	0.31 J	0.03 U	0.03 U	0.03 U	0.35 J	5.9 J	0.03 U	4.2 J	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.2 U	4 U	0.04 U	4 U	0.04 U
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.35 U	0.07 U	0.07 U	0.07 U	0.35 U	7 U	0.07 U	7 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 U	0.45 U	0.09 U	0.09 U	0.09 U	0.45 U	9 U	0.09 U	9 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U	0.11 U	2.2 U	0.022 U	2.2 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	1.6	0.04 U	0.04 U	0.04 U	2.8	4 U	0.04 U	4 U	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.35 U	0.07 U	0.07 U	0.07 U	0.35 U	7 U	0.07 U	7 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U	0.11 U	2.2 U	0.022 U	2.2 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 U	0.25 U	0.24	0.17 U	0.21	0.25 U	5 U	0.17 U	5 U	0.2
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 U	1.2	1,500	0.34	27	19	84	0.073 J	830	28
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.085 U	0.017 U	0.017 U	0.017 U	0.085 U	1.7 U	0.017 U	1.7 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.13 U	0.026 U	0.026 U	0.026 U	0.13 U	2.6 U	0.026 U	2.6 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.15 U	0.03 U	0.03 U	0.03 U	0.15 U	3 U	0.03 U	3 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.12 U	0.024 U	0.024 U	0.024 U	0.12 U	2.4 U	0.024 U	2.4 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.2 U	0.04 U	0.04 U	0.04 U	0.2 U	4 U	0.04 U	4 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.08 U	0.4 U	0.08 U	0.08 U	0.08 U	0.4 U	8 U	0.08 U	8 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.4 U	0.08 U	0.27	1.3	0.4 U	8 U	0.08 U	8 U	0.17 J
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.9 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.9 UJ	18 UJ	0.18 UJ	18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 U	0.12 U	0.023 U	0.023 U	0.023 U	0.12 U	2.3 U	0.023 U	2.3 U	0.023 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.11 U	0.022 U	0.022 U	0.022 U	0.11 U	2.2 U	0.022 U	2.2 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.25 U	0.05 U	0.05 U	0.05 U	2.2	5 U	0.05 U	5 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.3 U	0.06 U	0.06 U	0.06 U	0.3 U	6 U	0.06 U	6 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.3 U	40	0.06 U	1.8	0.82 J	6 U	0.06 U	23	1.2
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.085 U	0.017 U	0.017 U	0.017 U	0.085 U	1.7 U	0.017 U	1.7 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	18	0.05 U	0.15 J	2.2	180	840	0.05 U	1,300 J	14
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	0.065 U	38	0.013 U	0.14	0.31	1.3 U	0.013 U	12 J	0.58

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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).

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2008 2nd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-106S 08CE12-72	MW-106D 08CE12-71	MW-107S 08CE12-85	MW-107D 08CE12-84
Field Parameters							
Dissolved Oxygen (DO)	mg/L			0.49	0.19	0.47	0.47
Oxidation Reduction Potential (ORP)	millivolts			-96.7	-85.2	-100.6	-89.2
pH	pH units			7.21	6.97	7.3	7.21
Specific Conductivity	mmhos/cm			0.886	1.135	0.761	1.115
Temperature	deg c			9.98	10.50	7.91	9.08
Depth to water	feet			2.66	1.74	2.36	1.56
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 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.03 U	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	1.6 U	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 U	0.8 U	0.8 U	0.8 U
Acetone	µg/L	200	1,000	2.1 J	1.5 U	1.7 J	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	0.03 U	0.03 U
Bromoform	µg/L	0.44	4.4	0.04 U	0.04 U	0.04 U	0.04 U
Bromomethane	µg/L	1	10	0.07 U	0.07 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.09 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.04 U	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 U	0.17 U	0.17 U
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 U	0.05 U	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
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.08 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.08 U	0.08 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 U	0.023 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.06 U	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
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	0.013 U	0.013 U

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 4

Private Well Analytical Results—April 2008

2008 2nd Quarter Groundwater Report

OECI Site

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	PW-01 08CE12-10	PW-02 08CE12-73	PW-03 08CE12-60	PW-04 08CE12-62	PW-05 08CE12-46	PW-07 08CE12-67	PW-08 08CE12-29	PW-09 08CE12-61	PW-10 08CE12-30	PW-11 08CE12-45	DW-01 08CE12-44
VOCs														
1,1,1-Trichloroethane	µg/L	40	200	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U	0.019 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethane	µg/L	85	850	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,1-Dichloroethene	µg/L	0.7	7	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dibromoethane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichlorobenzene	µg/L	60	600	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,2-Dichloroethane	µg/L	0.5	5	0.25	0.03 U	0.049 J	0.03 U	0.03 U	0.049 J	0.03 U	0.057 J	0.03 U	0.03 U	0.03 U
1,2-Dichloropropane	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U	0.027 U
1,4-Dichlorobenzene	µg/L	15	75	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
2-Butanone	µg/L	N/A	N/A	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
2-Hexanone	µg/L	N/A	N/A	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U	1.6 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U	0.8 U
Acetone	µg/L	200	1,000	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U	1.5 J	1.5 U	1.5 U	1.5 U	1.5 U	1.5 U
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U	0.028 U
Bromodichloromethane	µg/L	0.06	0.6	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 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 U	0.04 U	0.04 U	0.04 U	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 U	0.07 U	0.07 U	0.07 U	0.07 U
Carbon disulfide	µg/L	200	1,000	0.09 U	0.12 J	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.5	5	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	N/A	N/A	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Chloroethane	µg/L	80	400	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Chloroform	µg/L	0.6	6	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.13 U	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 U	0.17 U	0.17 U	0.05 U	0.17 U	0.17 U	0.17 U	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/L	7	70	0.05 U	0.05 U	0.76	0.88	0.78	4.9	1.6	5.5 J	0.05 U	0.62	0.05 U
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Dibromochloromethane	µg/L	6	60	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U	0.026 U
Dichlorodifluoromethane	µg/L	200	1,000	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
Ethylbenzene	µg/L	140	700	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U	0.024 U
Isopropylbenzene	µg/L	N/A	N/A	0.04 U	0.088 J	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
m,p,-Xylene (sum of isomers)	µg/L	1,000	10,000	0.08 U	0.14 J	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 UJ	0.08 U	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	12	60	0.08 U	0.08 U	0.64	0.5	0.83	0.87	0.75	0.93	0.3	0.91	0.08 U
Methylene chloride	µg/L	0.5	5	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ	0.18 UJ
o-Xylene	µg/L	N/A	N/A	0.023 U	0.21	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 UJ	0.023 U	0.023 U	0.023 U
Styrene	µg/L	10	100	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 U	0.022 R	0.022 U	0.022 U	0.022 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
trans-1,2-Dichloroethene	µg/L	20	100	0.06 U	0.06 U	0.074 J	0.099 J	0.071 J	0.36	0.11 **J**	0.37	0.06 U	0.071 J	0.06 U
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.5	5	0.05 U	0.05 U	**0.54**	0.057 J	0.1 J	0.055 J	0.11 **J**	0.083 J	0.05 U	0.05 U	0.05 U
Vinyl chloride	µg/L	0.02	0.2	0.013 U	0.013 U	0.013 U	0.013 U	0.013 U	**0.065**	0.013 U	**0.058** J	0.013 U	0.013 U	0.013 U

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

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 5

Private Well Analytical Results—April 2008

2008 2nd Quarter Groundwater Report

OECI Site

Constituent	Units	SW-01 08CE12-17, 18	SW-02 08CE12-89, 90	SW-03 08CE12-65, 66
Natural Attenuation Parameters				
Alkalinity, total (as CaCO3)	mg/L	220	350	260
Chloride (as Cl)	mg/L	22	190	31
Ethane	µg/L	0.4 U	0.4 U	0.4 U
Ethene	µg/L	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	100 J	790	136 J
Iron, dissolved	µg/L	81 J	94 J+	58 J
Manganese, total	µg/L	4 UJ	78	4.2 J+
Manganese, dissolved	µg/L	4 J+	81	2.8 J+
Methane	µg/L	0.69 J	52	1.4 J
Nitrogen, ammonia (as N)	mg/L	0.08 U	0.08 U	0.08 U
Nitrogen, nitrate (as N)	mg/L	1.2	0.49	0.65
Phosphorus, total	mg/L	0.14 U	0.14 U	1.4 U
Sulfate (as SO4)	mg/L	14	59	16
Sulfide	mg/L	1 U	1 U	1 U
Total Organic Carbon	mg/L	13	7.5 J	13
VOCs				
1,1,1-Trichloroethane	µg/L	0.05 U	13	0.2
1,1,2,2-Tetrachloroethane	µg/L	0.019 U	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	3.2	0.06 U
1,1-Dichloroethene	µg/L	0.05 U	0.71	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 U
2-Hexanone	µg/L	1.6 U	1.6 U	1.6 U
4-Methyl-2-pentanone	µg/L	0.8 U	0.8 U	0.8 U
Acetone	µg/L	1.5 U	2.2 J	1.5 U
Benzene	µg/L	0.05 U	0.06 J	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 U	0.07 U
Carbon disulfide	µg/L	0.09 U	0.09 U	0.09 U
Carbon tetrachloride	µg/L	0.022 U	0.022 U	0.022 U
Chlorobenzene	µg/L	0.04 U	0.054 J	0.04 U
Chloroethane	µg/L	0.07 U	0.14 J	0.07 U
Chloroform	µg/L	0.022 U	0.022 U	0.022 U
Chloromethane	µg/L	0.05 U	0.05 U	0.17 U
cis-1,2-Dichloroethene	µg/L	0.05 U	20	0.16 J
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	0.024 U	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	0.08 U	0.08 U
Methyl tert-butyl ether	µg/L	0.08 U	0.08 U	0.08 U
Methylene chloride	µg/L	0.18 UJ	0.18 UJ	0.18 UJ
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	0.11 J	0.06 U
trans-1,2-Dichloroethene	µg/L	0.06 U	0.39	0.06 U
trans-1,3-Dichloropropene	µg/L	0.017 U	0.017 U	0.017 U
Trichloroethene	µg/L	0.05 U	55	0.6
Vinyl chloride	µg/L	0.013 U	1.6	0.013 U

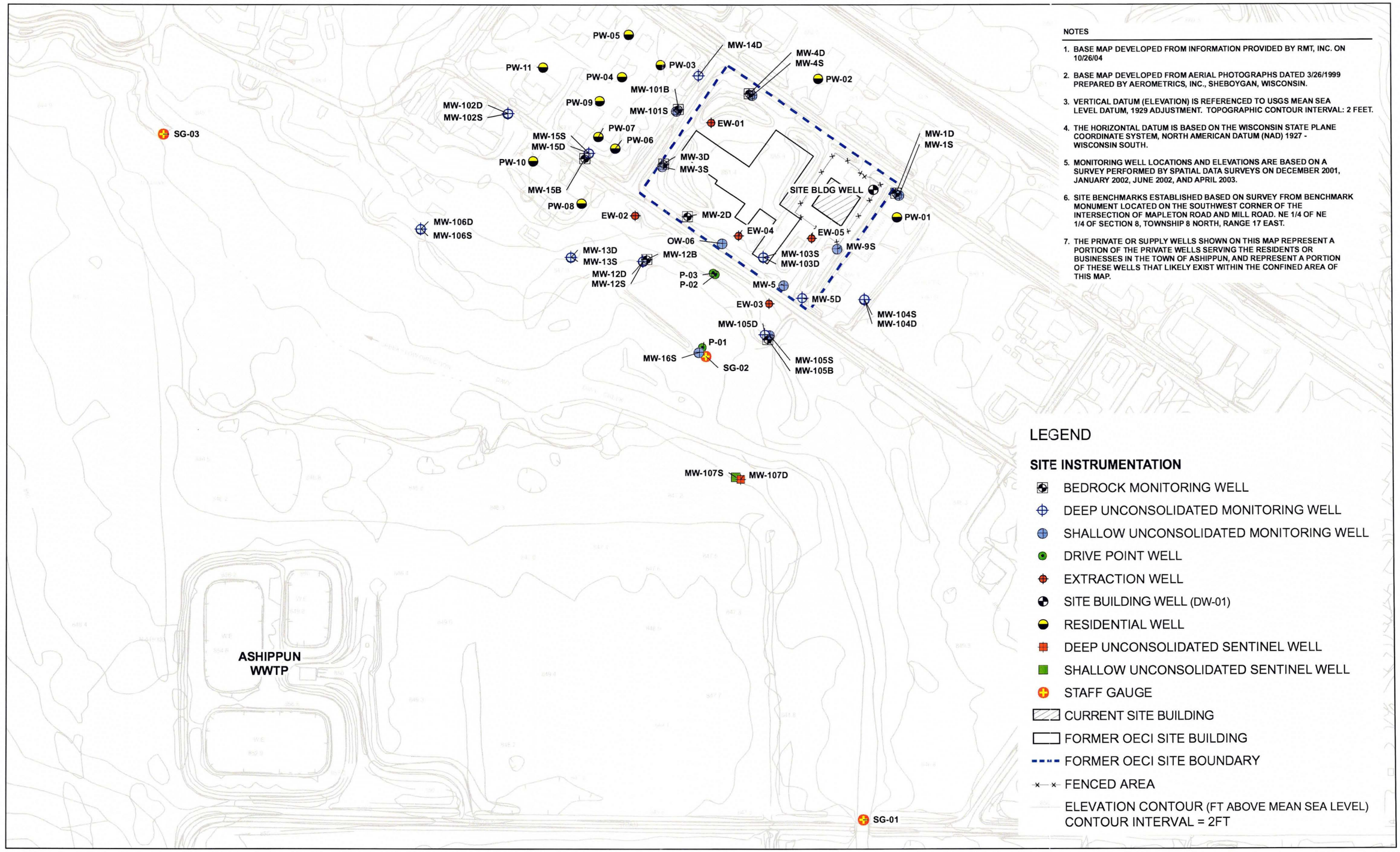
J indicates that the value was between the method detection limit and the limit of quantitation and, therefore, is estimated.

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

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

LEGEND

SITE INSTRUMENTATION

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

FIGURE 1
Site Monitoring Location– April 2008
2008 2nd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_Site_MonitoringLocations_Fig01_2ndQR-2008_v01

CH2MHILL

NOTES

1. BASE MAP DEVELOPED FROM INFORMATION PROVIDED BY RMT, INC. ON 10/26/04
2. BASE MAP DEVELOPED FROM AERIAL PHOTOGRAPHS DATED 3/26/1999 PREPARED BY AEROMETRICS, INC., SHEBOYGAN, WISCONSIN.
3. VERTICAL DATUM (ELEVATION) IS REFERENCED TO USGS MEAN SEA LEVEL DATUM, 1929 ADJUSTMENT. TOPOGRAPHIC CONTOUR INTERVAL: 2 FEET.
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PW-05
PW-11
PW-03
MW-14D
PW-04
PW-02
MW-4D
MW-4S
PW-09
MW-101B
MW-101S
MW-102D
MW-102S
EW-01
PW-07
PW-06
MW-15D
MW-15S
MW-15B
PW-10
MW-3D
MW-3S
MW-1D
MW-1S
SITE BLDG WELL
PW-08
EW-02
MW-2D
PW-01
MW-106D
MW-106S
EW-04
EW-05
MW-9S
OW-06
MW-12D
MW-12S
MW-103S
MW-103D
MW-13D
MW-13S
MW-12B
P-03
P-02
MW-5
MW-5D
EW-03
MW-104S
MW-104D
MW-105D
MW-105S
MW-105B
MW-16S
P-01
SG-02
MW-107S
MW-107D

LEGEND

SITE INSTRUMENTATION

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

N

0 60 120
Feet

FIGURE 2
Site Monitoring Well Locations – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_Site_MonitoringWellLocations_Fig02_2ndQR-2008_v04

CH2MHILL

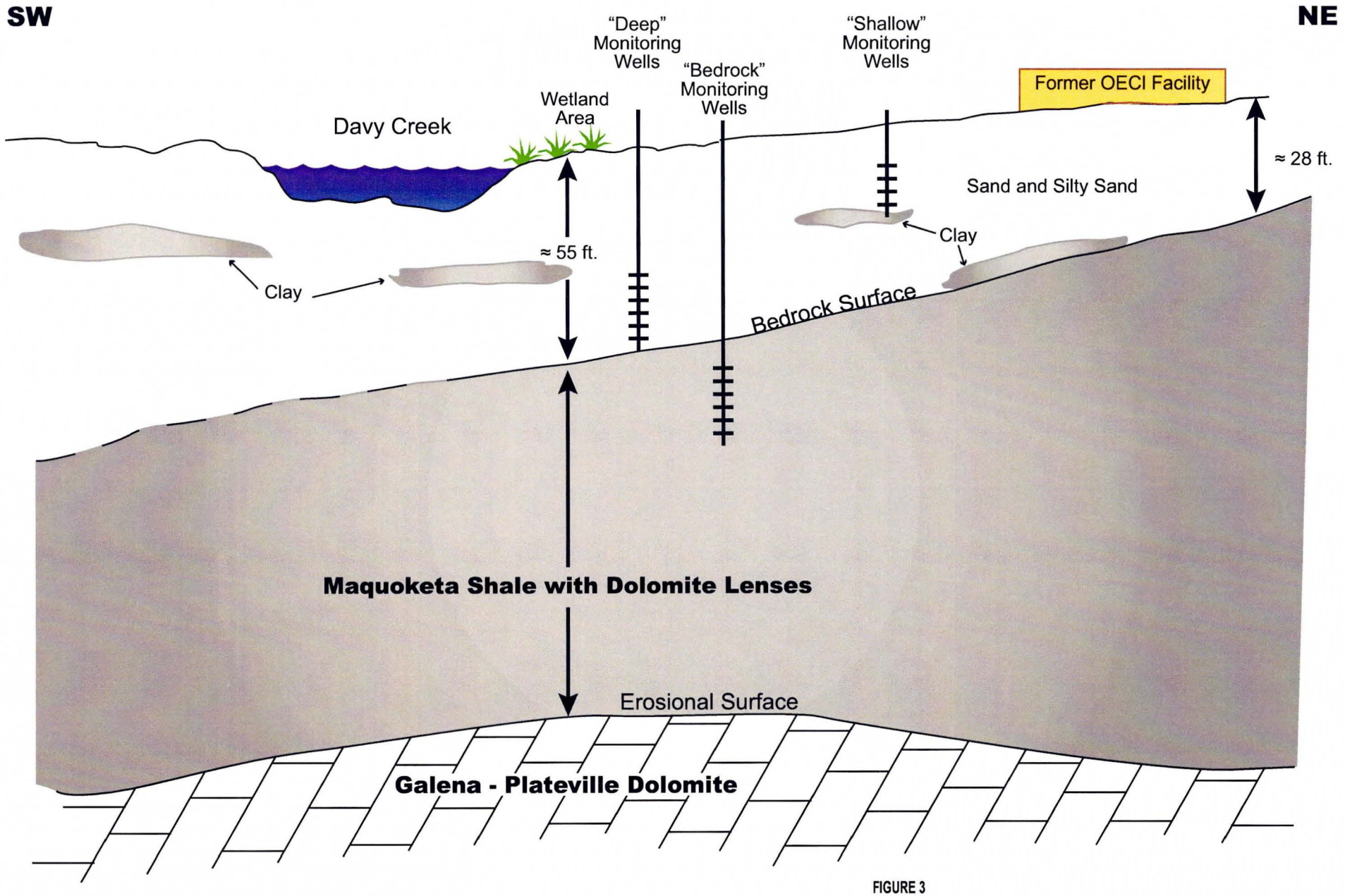

FIGURE 3
Conceptual Depiction of Site Aquifer Units and Well Placement – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

- NOT TO SCALE -

NOTES

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MW-102S
847.80

MW-15S
848.28

MW-101S
849.13

MW-4S
849.28

MW-3S
849.16

MW-1S
848.70

MW-9S
847.41

MW-5
Well Broken

MW-104S
847.21

MW-106S
846.26

MW-13S
846.89

MW-12S
846.07

MW-103S
847.39

MW-16S
845.60

MW-105S
846.25

MW-107S
846.30

849.2
849
848.8
848.6
848.4
848.2
848
847.8
847.6
847.4
847.2
847
846.8
846.6
846.4
846.2
846
845.8

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 - April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_APRIL_2008\FIGURE04_SHALLOW_UNCONSOLIDATED_AQUIFER_APRIL2008_GW_ELEV.MXD 8/27/2008 16:51:51

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.

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

MW-14D
Well Inaccessible

MW-102D
847.74

MW-15D
847.62

MW-106D
847.27

MW-13D
847.13

MW-12D
847.14

MW-103D
847.43

MW-5D
847.29

MW-104D
847.33

MW-105D
847.15

MW-107D
847.08

847.7
847.6
847.5
847.4
847.3
847.2
847.1

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

0 60 120
Feet

N

FIGURE 5
Deep Unconsolidated Groundwater Elevations - April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_APRIL_2008\FIGURE05_DEEP_UNCONSOLIDATED_AQUIFER_APRIL2008_GW_ELEV.MXD 8/20/2008 08:42:21

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.

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-101B
848.07

MW-4D
848.74

MW-3D
847.78

MW-15B
839.47

MW-1D
848.99

MW-2D
848.71

MW-12B
847.28

MW-105B
847.12

840 841 842 843 844 845 846 847 848 849

DAVY CREEK

ELM STREET

WOOD STREET

ATHLETIC FIELD

HWY DEPT

TOWN OF ASHIPPUN DEPT

ASHIPPUN HWY

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 - April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

MKE \\WAVE\PROJ\GIS\OECI\MAPFILES\GROUNDWATER_ELEVATION_MAPS_APRIL_2008\FIGURE06_BEDROCK_CONTOUR_APRIL2008_GW_ELEV.MXD 8/21/2008 16:08:40

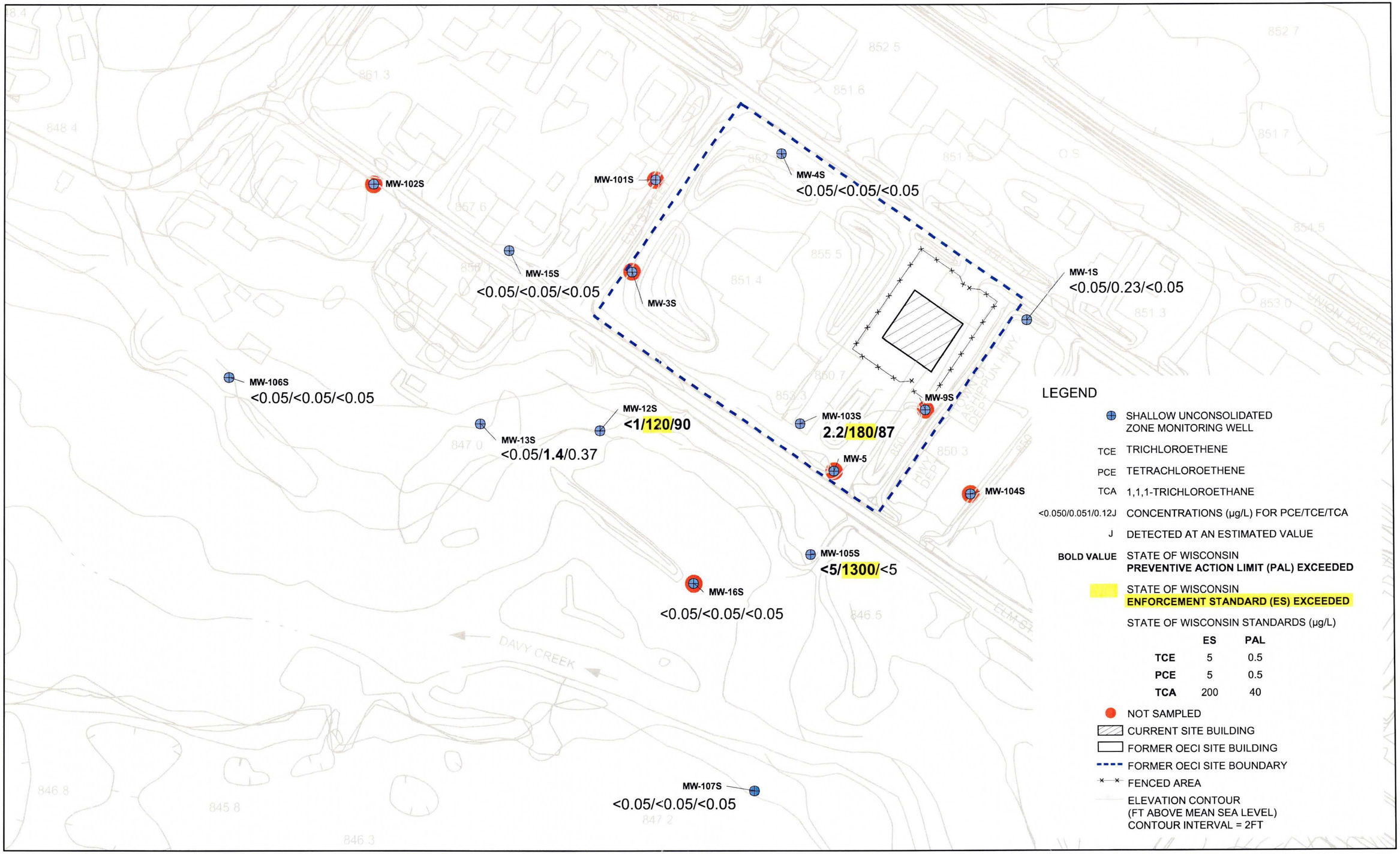

FIGURE 7
Groundwater PCE, TCE and TCA Concentrations in Shallow Unconsolidated Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

ES052007001CVO-OECI_TCE_PCE_TCA_Shallow_2ndQR-2008_v04

CH2MHILL

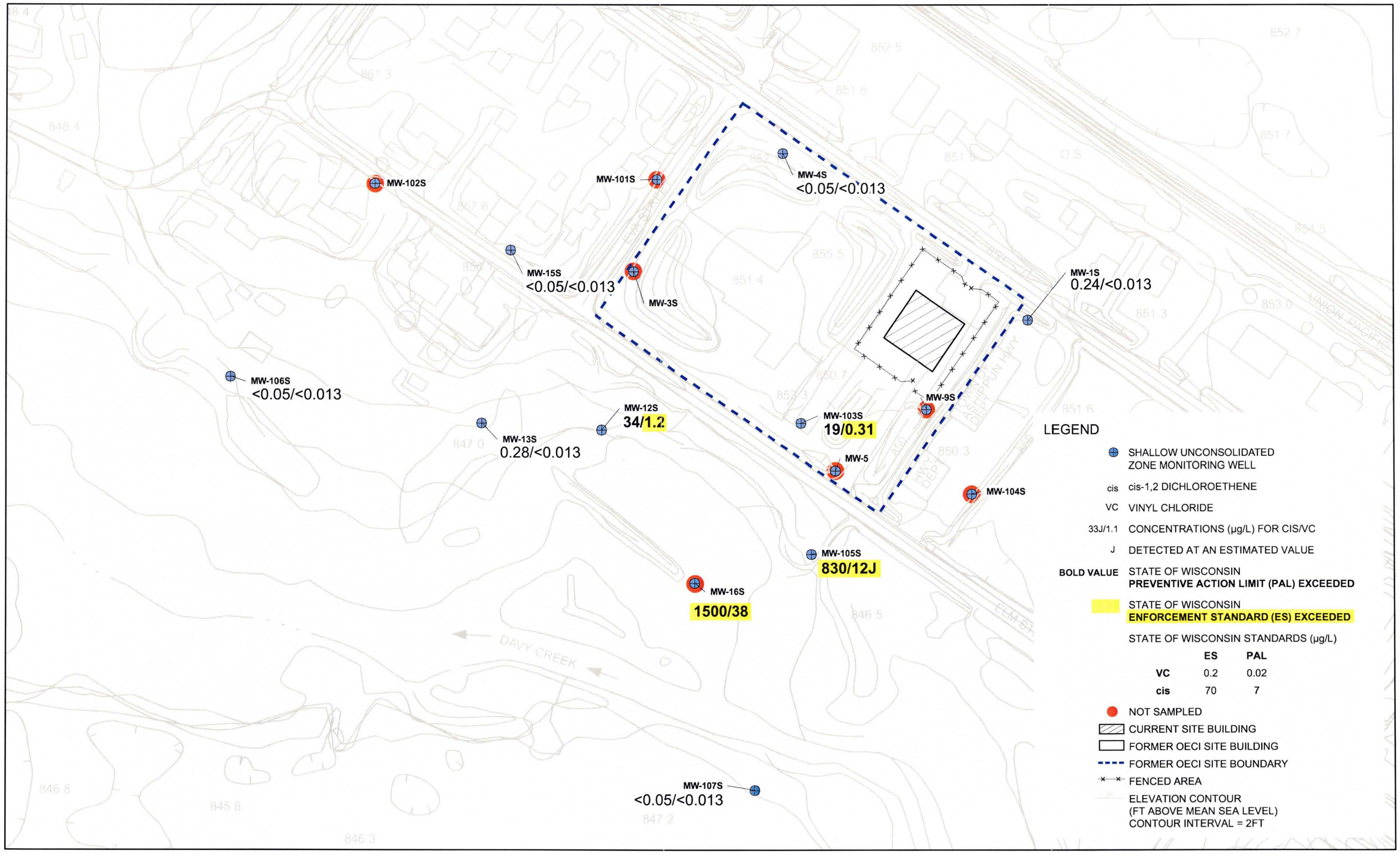

FIGURE 8
Groundwater CIS and VC Concentrations in Shallow Unconsolidated Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_VEcis_Shallow_Fig08_2ndQR-2008_v05

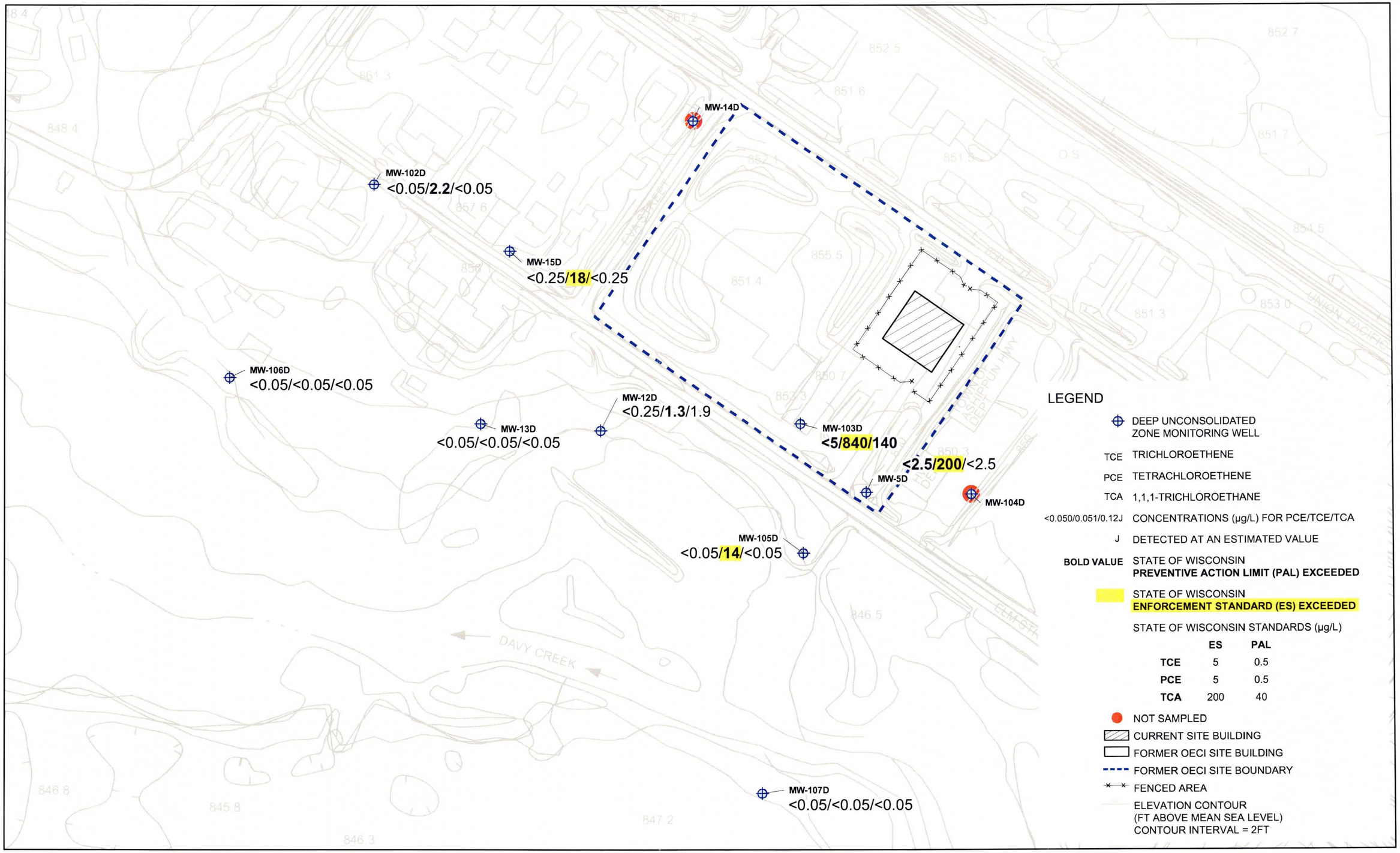

FIGURE 9
Groundwater PCE, TCE and TCA Concentrations in Deep Unconsolidated Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_TCE_PCE_TCA_Deep_Fig09_2ndQR-2008_v06

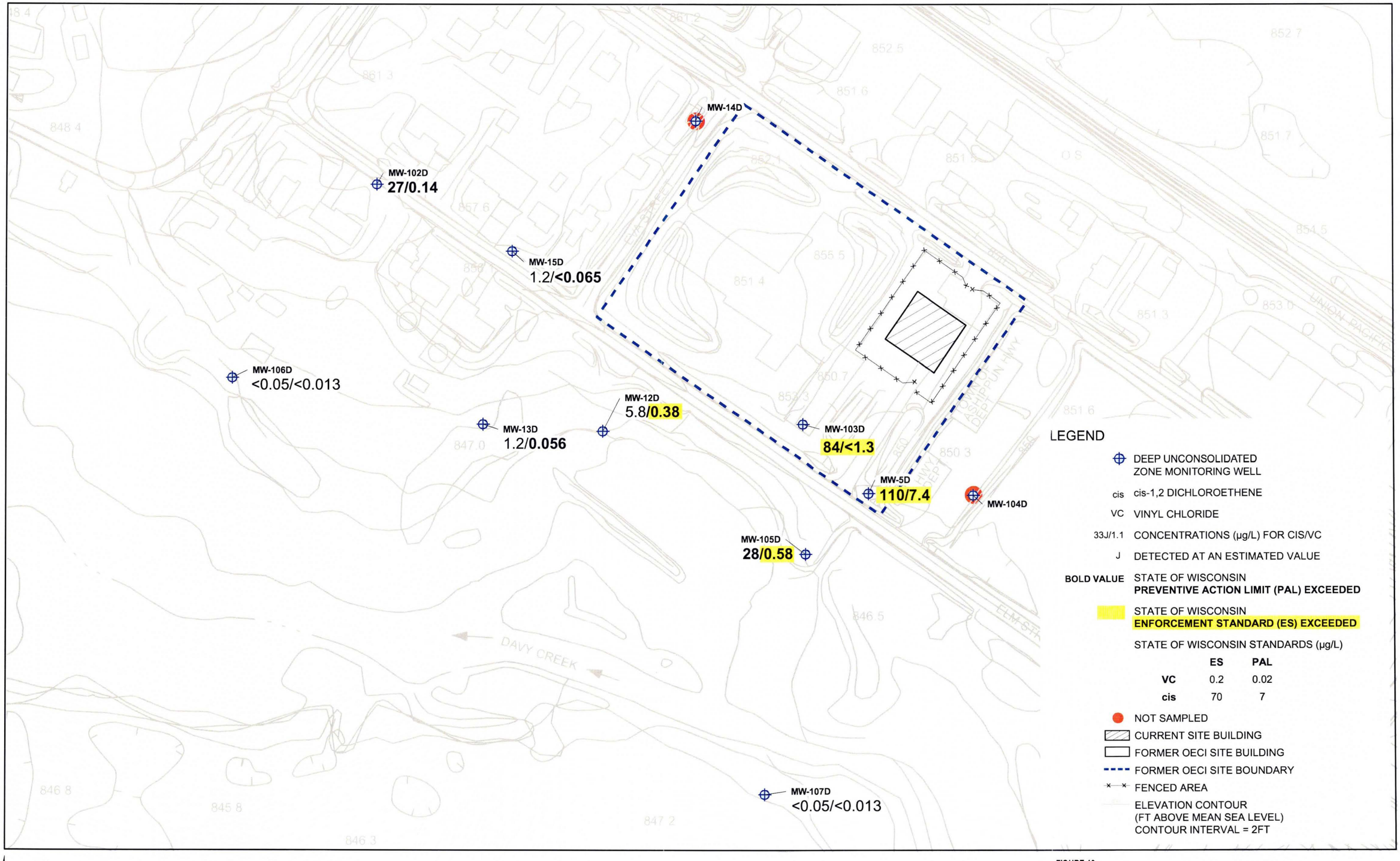

FIGURE 10
Groundwater CIS and VC Concentrations in Deep Unconsolidated Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_VEcis_Deep_Fig10_2ndQR-2008_v05

PW-05
<0.05/0.1J/<0.05

PW-11
<0.05/<0.05/<0.05

PW-03
<0.05/**0.54**/<0.05

PW-04
<0.05/0.057J/<0.05

PW-02
<0.05/<0.05/<0.05

MW-4D
<0.05/<0.05/<0.05

PW-09
<0.05/0.083J/<0.05

MW-101B
<0.05/0.15J/<0.05

<0.05/0.055J/<0.05

PW-07

PW-06

<0.05/<0.05/<0.05

PW-10
<0.05/<0.05/<0.05

MW-15B
<0.05/<0.05/<0.05

MW-3D
<0.05/<0.05/<0.05

MW-1D
<0.05/<0.05/<0.05

SITE BLDG WELL

PW-08
<0.05/0.11J/<0.05

MW-2D

PW-01
<0.05/<0.05/<0.05

MW-12B
<0.05/<0.05/<0.05

MW-105B
<0.05/<0.05/<0.05

LEGEND

- SITE BUILDING WELL
- BEDROCK MONITORING WELL
- PRIVATE WELL
- TCE TRICHLOROETHENE
- PCE TETRACHLOROETHENE
- TCA 1,1,1-TRICHLOROETHANE
- <0.050/0.051/0.12J CONCENTRATIONS (µg/L) FOR PCE/TCE/TCA
- 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
TCE	5	0.5
PCE	5	0.5
TCA	200	40

- 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

DAVY CREEK

ATHLETIC FIELD

ELM STREET

HOBB STREET

UNION PACIFIC

0 60 120
Feet

N

FIGURE 11
Groundwater PCE, TCE and TCA Concentrations in Bedrock Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_TCA_PCE_TCE_Bedrock_Fig11_2ndQR-2008_v03

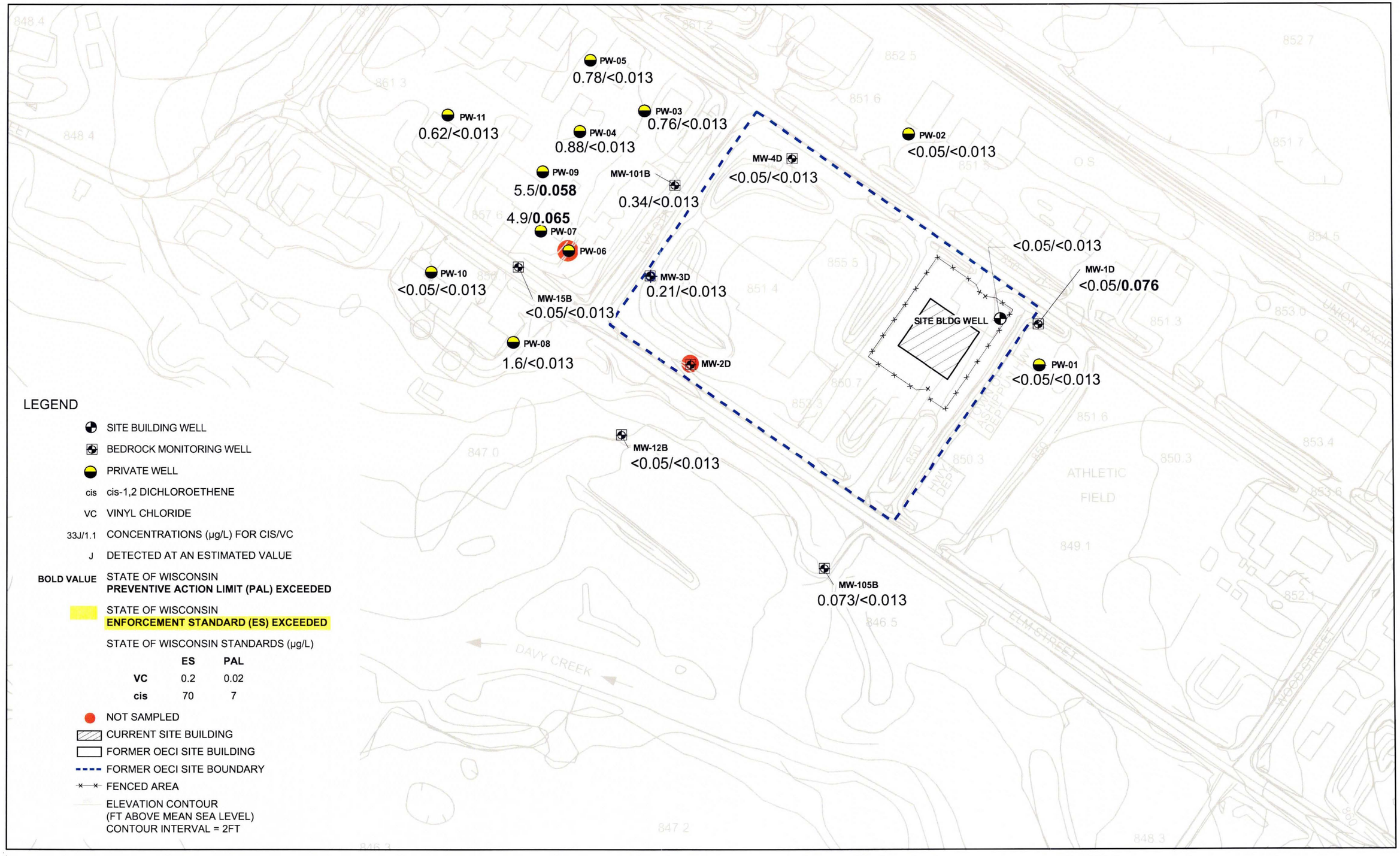

FIGURE 12
Groundwater CIS and VC Concentrations in Bedrock Wells – April 2008
2008 2nd Quarter Groundwater Report
OECI Site

CH2MHILL

ES052007001CVO-OECI_VCcis_Bedrock_Fig12_2ndQR-2008_v04

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: September 11, 2008

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 April 2008. CH2M HILL performed the sampling. CT Laboratories, Inc. of Baraboo, Wisconsin, performed the analyses.

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

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

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

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

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

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

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

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

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

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

Groundwater Samples

CH2M HILL conducted a review of the validation performed by USEPA for the groundwater samples in sample delivery group (SDG) 66005. 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
08CE12-01	OEP-MW-003D	08CE12-31	OEP-JS-003	08CE12-62	OEP-PW-04
08CE12-02	OEP-MW-003D(F)	08CE12-32	OEP-MW-013D	08CE12-63	OEP-JS-007
08CE12-03	OEP-JS-001	08CE12-33	OEP-MW-013D(F)	08CE12-64	OEP-JS-008
08CE12-04	OEP-MW-103S	08CE12-34	OEP-JS-004	08CE12-65	OEP-SW-03
08CE12-05	OEP-MW-103S(F)	08CE12-35	OEP-MW-013S	08CE12-66	OEP-SW-03(F)
08CE12-06	OEP-MW-103D	08CE12-36	OEP-MW-013S(F)	08CE12-67	OEP-PW-07
08CE12-07	OEP-MW-103D(F)	08CE12-37	OEP-MW-012D	08CE12-68	OEP-JS-009
08CE12-08	OEP-MW-103DFR	08CE12-38	OEP-MW-012D(F)	08CE12-69	OEP-MW-015B
08CE12-09	OEP-MW-103DFR(F)	08CE12-39	OEP-MW-012S	08CE12-70	OEP-MW-015B(F)
08CE12-10	OEP-PW-01	08CE12-40	OEP-MW-012S(F)	08CE12-71	OEP-MW-106D
08CE12-11	OEP-PW-01FR	08CE12-41	OEP-JS-005	08CE12-72	OEP-MW-106S
08CE12-12	OEP-MW-015D	08CE12-42	OEP-MW-012B	08CE12-73	OEP-PW-02

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

Sample ID	Location	Sample ID	Location	Sample ID	Location
08CE12-13	OEP-MW-015D(F)	08CE12-43	OEP-MW-012B(F)	08CE12-74	OEP-MW-101B
08CE12-14	OEP-MW-015S	08CE12-44	OEP-DW-01	08CE12-75	OEP-MW-101B(F)
08CE12-15	OEP-MW-015S(F)	08CE12-45	OEP-PW-11	08CE12-76	OEP-MW-005D
08CE12-16	OEP-JS-002	08CE12-46	OEP-PW-05	08CE12-77	OEP-MW-005D(F)
08CE12-17	OEP-SW-01	08CE12-47	OEP-JS-006	08CE12-78	OEP-JS-010
08CE12-18	OEP-SW-01(F)	08CE12-48	OEP-MW-001D	08CE12-79	OEP-MW-102D
08CE12-19	OEP-SW-01FR	08CE12-49	OEP-MW-001D(F)	08CE12-80	OEP-MW-102D(F)
08CE12-20	OEP-SW-01FR(F)	08CE12-50	OEP-MW-001S	08CE12-81	OEP-MW-101BFR
08CE12-21	OEP-MW-105B	08CE12-51	OEP-MW-001S(F)	08CE12-82	OEP-MW-101BFR(F)
08CE12-22	OEP-MW-105B(F)	08CE12-52	OEP-FB-001	08CE12-83	OEP-JS-011
08CE12-23	OEP-MW-105S	08CE12-54	OEP-EB-001	08CE12-84	OEP-MW-107D
08CE12-24	OEP-MW-105S(F)	08CE12-55	OEP-EB-001(F)	08CE12-85	OEP-MW-107S
08CE12-25	OEP-MW-105D	08CE12-56	OEP-MW-004D	08CE12-86	OEP-MW-107SFR
08CE12-26	OEP-MW-105D(F)	08CE12-57	OEP-MW-004D(F)	08CE12-87	OEP-MW-016S
08CE12-27	OEP-MW-105DFR	08CE12-58	OEP-MW-004S	08CE12-88	OEP-MW-016S(F)
08CE12-28	OEP-MW-105DFR(F)	08CE12-59	OEP-MW-004S(F)	08CE12-89	OEP-SW-02
08CE12-29	OEP-PW-08	08CE12-60	OEP-PW-03	08CE12-90	OEP-SW-02(F)
08CE12-30	OEP-PW-10	08CE12-61	OEP-PW-09	08CE12-91	OEP-JS-014

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

- The MS/MSD recovery for styrene was below 20 percent for sample 08CE12-61. The sample result was qualified as unusable "R".

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

Conclusions

The USEPA validation reports were verified to comply with the applicable NFG for data review. This verification confirmed that the validation performed by USEPA was complete for the entire dataset analyzed by CT Laboratories. Qualified data, if not rejected, are

considered usuable for the project decision-making process. The project data quality objectives (DQOs) established a completeness goal for the project at 90 percent. The percent completeness for these groundwater data is 99.9 percent (0.1 percent of the data were rejected) and met the established DQOs set forth in the quality assurance project plan (CH2M HILL 2004).

Data summary tables of the results have been provided as a table in the *2008 Second Quarter Groundwater Report – OECI Site.* An electronic file of these data also will be submitted as part of this deliverable.

Reference Cited

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

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

Attachment 1

Validation Narratives

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: 5/5/08

SUBJECT: Review of Data
Received for review on 1/31/08

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: 08CE08 **SDG NUMBER:** 64519-MET

Number and Type of Samples: 57 waters (29 total/28 dissolved)

Sample Numbers: 08CE08-01 thru -07, -10 thru -22, -28 thru -31, -39 thru -40, -44 thru -51, -53 thru -56, -58 thru -65, -74 thru -76

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 57 water samples (28 dissolved, 29 total, see attached table) which were collected between January 7 and 11, 2008 and received at the laboratory between January 8 and 12, 2008. They were analyzed for iron and manganese. Total and dissolved samples collected January, 2008 were assigned the same EPA sample IDs by the field personnel. See the attached table for specific 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. Samples identified as "mdl chk" and "mrl" were present in some of the analytical runs. No CLP forms were provided for them.

The analytical run logs contained more than one calibration per form. Additionally, some of the "runs" reported on separate forms were actually different sections of the same analytical run. Multiple copies of the runs were present in the raw data; much time was required to interpret the data. None of the raw data contained all samples and QC actually analyzed in the run. Of the four aactual runs from which data were reported only the first (calibrated on 1-11) contained the raw data for both "mdl chk" and "mrl" samples. The second run (calibrated on 1-16) contained the "mdl chk" sample. Neither the 1-17 nor 1-18 (start date) runs contained raw data for those samples. No times are included on the Analysis Run Logs for the calibration.

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 (87 for Fe, 3.1 for Mn) were different from the Level of Detection (LOD) listed on the Form 1s (39 total Fe, 10 dissolved Fe, 0.5 total Mn, 0.4 dissolved Mn). Dissolved LOD/RL values are used for evaluation of the blank data. No values or units were filled in for the method blanks for the dissolved analyses.

The Duplicate Forms included (pages 1215-1219 in the case) are for the LCS/LCSD. No sample description is provided on the Form. Duplicate forms are also included for the MS/MSD. The laboratory performed post digestion spikes on 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.

No times are included on the Analysis Run Logs for the calibration. Four run logs were included with the case; each represents part of the same analytical run.

Analytical QC samples are reported up to three times for the same sample due to the way the laboratory uses its lab sample ID's.

Serial dilution form for 08CE08-05 dissolved not provided (results acceptable). Mn for 08CE05-44

Reviewed by: James Abston
Date: 5/5/2008

(total) not listed on form, the result failed.

ICP-AES: Section 8(d) of the SAS requires that the RL must be shown to have been met before any samples are analyzed; since the "CRDL" sample was not analyzed at the SAS required RL (the sample contains 300 ug/L Fe and 10 ug/L Mn; the SAS requires 30 ug/L Fe and 6 ug/L Mn), this requirement was not met. All Fe results less than 300 ug/L and Mn results less than 10 ug/L are estimated "J" for detects and "UJ" for non-detects due to the failure of the laboratory to meet the SAS required reporting limit. Method blank form 3 for dissolved samples (lab ID 536252 & 537529) not completed.

For Fe, the SAS required reporting limit for total Fe (30 ug/L) was not met by the laboratory. All non-detect total Fe results (08CE08-03, -06, -20 and -22) are estimated "UJ." Additionally, all Fe results (total and dissolved) greater than the MDL but less than 300 ug/L are estimated for the laboratory failing to meeting the SAS requirement of showing they were able to meet the SAS required reporting limit (see above). Total Fe results for 08CE08-01, -04, -05, -07, -12, -16, -18, -28, -53, -55, -58, -64, -75 and dissolved Fe results for 08CE08-05, -17, -19, -21, -29, -63, -65, -74, -76 are estimated "J" due to the laboratory not demonstrating that they could meet the SAS required reporting limit.

MS/MSD for 08CE08-44 (lab ID 535405/6 is invalid; sample is greater than 4X spike added.

ICSA values cannot be translated to raw data because no lab identifiers are used on the reporting forms and reported values do not agree with order from raw data. Actual values appear to be within acceptance criteria; no results are qualified for this.

For Fe, Fe was detected in one of the ICB's. The result for total sample 08CE08-06 is estimated "J+" due to possible contamination. Also, the results for dissolved samples 08CE08-05, -17, -19, -21, -29 are estimated "J+" due to possible contamination.

For Fe (total) and Mn (total) serial dilution failed. All results are estimated due to possible interferences.

Other comments: Total samples 08CE08-03/-04, -16/-18, -58/-60 and dissolved samples -03/-04, -17/-19, -59/-61 were identified as field duplicates. Duplicates were evaluated according to the same criteria as laboratory duplicates. All showed good correlation.

Samples 08CE08-20 and -21 were identified as equipment blanks. Sample 08CE08-22 was identified as a field blank. No contamination was found in any of the equipment or field blanks.

Lab ID	Sample ID (Total)	Lab ID	Sample ID (Dissolved)	Sample Point	Sample Date	Sample Time
534660	08CE08-01	534661	08CE08-01	OEP-MW-004D	1/7/2008	12:20
534662	08CE08-02	534663	08CE08-02	OEP-MW-004S	1/7/2008	11:33
534664	08CE08-03	534665	08CE08-03	OEP-MW-103D	1/7/2008	15:45
534666	08CE08-04	534667	08CE08-04	OEP-MW-103DFR	1/7/2008	15:45
534646	08CE08-05	534654	08CE08-05	OEP-MW-103S	1/7/2008	15:15
534655	08CE08-06	534656	08CE08-06	OEP-MW-015D	1/7/2008	16:55
534657	08CE08-07	534658	08CE08-07	OEP-MW-015S	1/7/2008	16:35
534920	08CE08-10	534921	08CE08-11	OEP-MW-001D	1/8/2008	10:35
534922	08CE08-12	534923	08CE08-13	OEP-MW-001S	1/8/2008	10:15
534929	08CE08-14	534930	08CE08-15	OEP-MW-003D	1/8/2008	10:20
534924	08CE08-16	534925	08CE08-17	OEP-SW-01	1/8/2008	11:05
534926	08CE08-18	534927	08CE08-19	OEP-SW-01FR	1/8/2008	11:05
534931	08CE08-20	534932	08CE08-21	OEP-EB-001	1/8/2008	12:10
534933	08CE08-22			OEP-FB-001	1/8/2008	12:20
535224	08CE08-28	535225	08CE08-29	OEP-MW-101B	1/9/2008	11:10
535230	08CE08-30	535231	08CE08-31	OEP-MW-015B	1/9/2008	9:50
535233	08CE08-39	535234	08CE08-40	OEP-MW-102D	1/9/2008	12:25
535189	08CE08-44	535194	08CE08-45	OEP-MW-105D	1/9/2008	15:20
535199	08CE08-46	535200	08CE08-47	OEP-MW-105S	1/9/2008	15:15
535205	08CE08-48	535206	08CE08-49	OEP-MW-105B	1/9/2008	16:10
535207	08CE08-50	535208	08CE08-51	OEP-MW-005D	1/9/2008	16:25
535496	08CE08-53	535497	08CE08-54	OEP-MW-013D	1/10/2008	10:00
535498	08CE08-55	535499	08CE08-56	OEP-MW-013S	1/10/2008	10:20
535504	08CE08-58	535505	08CE08-59	OEP-MW-012D	1/10/2008	11:50
535506	08CE08-60	535507	08CE08-61	OEP-MW-012DFR	1/10/2008	11:50
535508	08CE08-62	535509	08CE08-63	OEP-MW-012S	1/10/2008	12:00
535501	08CE08-64	535502	08CE08-65	OEP-MW-012B	1/10/2008	12:35
535604	08CE08-73	535605	08CE08-74	OEP-SW-02	1/11/2008	9:40
535606	08CE08-75	535607	08CE08-76	OEP-SW-03	1/11/2008	10:00

Reviewed by: James Abston
Date: 5/5/2008

ILM05.4 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: 5/5/2008

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V
SUPERFUND DIVISION

DATE:

SUBJECT: Review of Data
Received for Review on: May 23, 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: 08CE12 SDG Number: 66005-VOC

Number and Type of Samples: 60 Waters (60 VOCs/ 31 MEE)

Sample Numbers: 08CE12; -01, -03, -04, -06, -08, -10 thru -12, -14, -16, -17, -19, -21, -23, -25, -27, -29 thru -32, -34, -35, -37, -39, -41, -42, -44 thru -48, -50, -52, -54, -56, -58, -60 thru -65, -67 thru -69, -71 thru -74, -76, -78, -79, -81, -83 thru -87, -89, -91

Laboratory: CT Laboratories Hrs for Review:

Following are our findings:

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

SAS Project: 08CE12
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 66005-VOC
Laboratory: CT Laboratories

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

Sixty (60) preserved water samples listed in the following table were collected April 14 - 18, 2008. CT Laboratories of Baraboo, Wisconsin received the samples April 15 - 19, 2008. All samples were received intact and properly cooled. Sixty (60) samples were analyzed April 22 – 27, 2008 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2011. Thirty-one (31) samples were analyzed April 22 - 25, 2008 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	VOC Analyses	MEE Analyses
08CE12-01	556236	OEP-MW-003D	04/14/08	04/22/08	04/22/08
08CE12-03	556260	OEP-JS-001	04/14/08	04/26/08	
08CE12-04	556261	OEP-MW-103S	04/14/08	04/22/08	04/24/08
08CE12-06	556263	OEP-MW-103D	04/14/08	04/22/08	04/24/08
08CE12-08	556265	OEP-MW-103DFR	04/14/08	04/22/08	04/24/08
08CE12-10	556523	OEP-PW-01	04/14/08	04/23/08	
08CE12-11	556524	OEP-PW-01FR	04/14/08	04/23/08	
08CE12-12	556269	OEP-MW-015D	04/14/08	04/22/08	04/24/08
08CE12-14	556271	OEP-MW-015S	04/14/08	04/23/08	04/23/08
08CE12-16	556273	OEP-JS-002	04/14/08	04/25/08	
08CE12-17	556274	OEP-SW-01	04/14/08	04/23/08	04/24/08
08CE12-19	556267	OEP-SW-01FR	04/14/08	04/22/08	04/22/08
08CE12-21	556502	OEP-MW-105B	04/15/08	04/23/08	04/24/08
08CE12-23	556504	OEP-MW-105S	04/15/08	04/22/08	04/24/08
08CE12-23MS	558276	OEP-MW-105S		04/22/08	04/24/08
08CE12-23MSD	558279	OEP-MW-105S		04/22/08	04/24/08
08CE12-25	556514	OEP-MW-105D	04/15/08	04/23/08	04/24/08
08CE12-27	556516	OEP-MW-105DFR	04/15/08	04/22/08	04/24/08
08CE12-29	556525	OEP-PW-08	04/15/08	04/23/08	
08CE12-30	556526	OEP-PW-10	04/15/08	04/23/08	
08CE12-31	556506	OEP-JS-003	04/15/08	04/25/08	
08CE12-32	556518	OEP-MW-013D	04/15/08	04/23/08	04/24/08
08CE12-34	556520	OEP-JS-004	04/15/08	04/26/08	
08CE12-35	556521	OEP-MW-013S	04/15/08	04/23/08	04/24/08
08CE12-37	556507	OEP-MW-012D	04/15/08	04/22/08	04/24/08
08CE12-39	556509	OEP-MW-012S	04/15/08	04/22/08	04/24/08
08CE12-41	556511	OEP-JS-005	04/15/08	04/25/08	
08CE12-42	556512	OEP-MW-012B	04/15/08	04/23/08	04/24/08
08CE12-44	556527	OEP-DW-01	04/15/08	04/23/08	

08CE12-45	556528	OEP-PW-11	04/15/08	04/23/08	
08CE12-46	556529	OEP-PW-05	04/15/08	04/23/08	
08CE12-47	556530	OEP-JS-006	04/15/08	04/26/08	
08CE12-48	556809	OEP-MW-001D	04/16/08	04/24/08	04/25/08
08CE12-50	556811	OEP-MW-001S	04/16/08	04/24/08	04/25/08
08CE12-52	556799	OEP-FB-001	04/16/08	04/23/08	04/24/08
08CE12-54	556800	OEP-EB-001	04/16/08	04/24/08	04/24/08
08CE12-56	556813	OEP-MW-004D	04/16/08	04/24/08	04/25/08
08CE12-58	556815	OEP-MW-004S	04/16/08	04/24/08	04/25/08
08CE12-60	556793	OEP-PW-03	04/16/08	04/23/08	
08CE12-61	556794	OEP-PW-09	04/16/08	04/23/08	
08CE12-61MS	559352	OEP-PW-09		04/23/08	
08CE12-61MSD	559353	OEP-PW-09		04/23/08	
08CE12-62	556795	OEP-PW-04	04/16/08	04/23/08	
08CE12-63	556817	OEP-JS-007	04/16/08	04/26/08	
08CE12-64	556802	OEP-JS-008	04/16/08	04/26/08	
08CE12-65	556803	OEP-SW-03	04/16/08	04/25/08	04/24/08
08CE12-67	556796	OEP-PW-07	04/16/08	04/23/08	
08CE12-68	556797	OEP-JS-009	04/16/08	04/26/08	
08CE12-69	556805	OEP-MW-015B	04/16/08	04/24/08	04/25/08
08CE12-71	556807	OEP-MW-106D	04/16/08	04/24/08	
08CE12-72	556808	OEP-MW-106S	04/16/08	04/24/08	
08CE12-73	556798	OEP-PW-02	04/16/08	04/23/08	
08CE12-74	557213	OEP-MW-101B	04/17/08	04/24/08	04/25/08
08CE12-76	557223	OEP-MW-005D	04/17/08	04/26/08	04/25/08
08CE12-76MS	560161	OEP-MW-005D		04/26/08	04/25/08
08CE12-76MSD	560162	OEP-MW-005D		04/26/08	04/25/08
08CE12-78	557225	OEP-JS-010	04/17/08	04/26/08	
08CE12-79	557215	OEP-MW-102D	04/17/08	04/27/08	04/25/08
08CE12-81	557217	OEP-MW-101BFR	04/17/08	04/25/08	04/25/08
08CE12-83	557219	OEP-JS-011	04/17/08	04/26/08	
08CE12-84	557220	OEP-MW-107D	04/17/08	04/26/08	
08CE12-85	557221	OEP-MW-107S	04/17/08	04/25/08	
08CE12-86	557222	OEP-MW-107SFR	04/17/08	04/25/08	
08CE12-87	557402	OEP-MW-016S	04/18/08	04/25/08	04/25/08
08CE12-89	557405	OEP-SW-02	04/18/08	04/27/08	04/25/08
08CE12-91	557410	OEP-JS-014	04/18/08	04/26/08	

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

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

The method blanks for the SW-846 Method 8260B analyses are MB-558232, MB-558272 and MB-559892. In addition to the method blanks there are four (4) VOC Continuing Calibration Blanks (CCBs); CCB1-04/23/08, CCB2-04/24/08, CCB3-04/26/08 and CCB4-04/27/08. The MEE method blanks are MB-560172 and MB-560670 for the Mod RSK 175 analyses. In addition to the method blanks there are two (2) MEE Continuing Calibration Blanks (CCBs); CCB-04/25/08 and CCB-04/24/08.

Samples 08CE12-23, 08CE12-61 and 08CE12-76 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses. Samples 08CE12-23 and 08CE12-76 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses.

The VOC laboratory control samples are LCS-558239, LCS-559343 and LCS-559891. The VOC laboratory control duplicate samples are LCSD-558275, LCSD-559351 and LCSD-561364. The MEE laboratory control samples are LCS-560171, LCS-560175 and LCS-560671. The MEE laboratory control sample duplicate is LCSD-560674.

Twelve (12) samples; 08CE12-03, 08CE12-16, 08CE12-31, 08CE12-34, 08CE12-41, 08CE12-47, 08CE12-63, 08CE12-64, 08CE12-68, 08CE12-78, 08CE12-83 and 08CE12-91 are identified as Trip Blanks. Sample 08CE12-54 is identified as an Equipment Blank. Sample 08CE12-52 is identified as a Field Blank. Sample 08CE12-08 is a field replicate of 08CE12-06. Sample 08CE12-11 is a field replicate of 08CE12-10. Sample 08CE12-19 is a field replicate of 08CE12-17. Sample 08CE12-27 is a field replicate of 08CE12-25. Sample 08CE12-81 is a field replicate of 08CE12-74. Sample 08CE12-86 is a field replicate of 08CE12-85.

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

1. HOLDING TIME

Sixty (60) preserved water samples listed in the following table were collected April 14 - 18, 2008. CT Laboratories of Baraboo, Wisconsin received the samples April 15 - 19, 2008. All samples were received intact and properly cooled. Sixty (60) samples were analyzed April 22 – 27, 2008 by SW-846 Method 8260 for the volatile list of organic analytes identified in the SAS contract for estimated dates of collection January 2007 through March 2011. Thirty-one (31) samples were analyzed April 22 - 25, 2008 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. The VOA analyses were performed within the technical holding time of 14 days after sample collection; therefore, the results are acceptable.

2. GC/MS TUNING AND GC INSTRUMENT PERFORMANCE

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

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

3. CALIBRATION

VOC: A 7-point calibration curve (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) was performed on April 21, 2008. All %RSDs were less than 15%; therefore, the results do not require any qualification for this criterion.

The average RRFs for Acetone and 2-Butanone in the initial and continuing calibrations were less than 0.05 but greater than the minimum RRF of 0.01 currently used in SOW SOM01.1. The average RRFs for all surrogates 1,2-Dichloroethane-d_4, Bromofluorobenzene, Dibromofluoromethane and Toluene-d_8 were mostly less than 0.05 and less than the minimum RRF of 0.05 currently used in SOW SOM01.1. All %Ds were greater than 20%. Sample results are not qualified based on the RRF values or %D of the surrogates alone.

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 analyte has %Ds greater than 20%. Detected compounds should be qualified "J".

Methylene chloride
08CE12-23MS, 08CE12-23MSD, 08CE12-61MS, 08CE12-61MSD, 08CE12-76, 08CE12-76MS, 08CE12-76MSD, LCS-558239, LCSD-558275, LCS-559343, LCSD-559351, LCS-559891, LCSD561364

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

Methylene chloride
08CE12-01, 08CE12-03, 08CE12-04, 08CE12-06, 08CE12-08, 08CE12-10, 08CE12-11, 08CE12-12, 08CE12-14, 08CE12-16, 08CE12-17, 08CE12-19, 08CE12-21, 08CE12-23, 08CE12-25, 08CE12-27, 08CE12-29, 08CE12-30, 08CE12-31, 08CE12-32, 08CE12-34, 08CE12-35, 08CE12-37, 08CE12-39, 08CE12-41, 08CE12-42, 08CE12-44, 08CE12-45, 08CE12-46, 08CE12-47, 08CE12-48, 08CE12-50, 08CE12-52, 08CE12-54, 08CE12-56, 08CE12-58, 08CE12-60, 08CE12-61, 08CE12-62, 08CE12-63, 08CE12-64, 08CE12-65, 08CE12-67, 08CE12-68, 08CE12-69, 08CE12-71, 08CE12-72, 08CE12-73, 08CE12-74, 08CE12-78, 08CE12-79, 08CE12-81, 08CE12-83, 08CE12-84, 08CE12-85, 08CE12-86, 08CE12-87, 08CE12-89, 08CE12-91, MB-558232, MB-558272, MB559892

MEE: A 7-pt Initial Calibration curve (2, 5, 10, 20, 50, 100 and 200 ppmV) was performed on February 8, 2008 and evaluated for a Goodness of Fit (correlation coefficient) ≥ 0.995. All %RSDs were less than 15%; therefore, the results do not require any qualification.

Continuing calibrations were analyzed on April 24, 2008 and April 25, 2008 at the appropriate frequency of 1 CCV after every 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-558232, MB-558272 and MB-559892. In addition to the method blanks there are four (4) VOC Continuing Calibration Blanks (CCBs); CCB1-04/23/08, CCB2-04/24/08, CCB3-04/26/08 and CCB4-04/27/08. The samples associated with each blank were determined from the Volatile Organic Instrument Performance Check Forms. Copies of the Form 5As are included with the hardcopy validation package.

Method blanks MB-558232, MB-558272 and MB-559892 contained no target analytes; therefore no qualification is required for the samples associated with these method blanks.

CCB1 (04/23/08) contained Chloroethane at 0.0742 µg/L. CCB2 (04/24/08) contained Chloromethane at 0.0586 µg/L and Acetone at 1.9457 µg/L. CCB3 (04/26/08) contained Chloromethane at 0.0754 µg/L and Acetone at 2.3294 µg/L. CCB4 (04/27/08) contained Methylene chloride at 1.0898 µg/L. The concentrations of Chloromethane were less than the reporting limits of 0.2 µg/L in the following samples. The presence of the analyte should be qualified "U" and elevated to the RL as resulting from continuing calibration blank contamination.

Chloromethane
08CE12-34, 08CE12-47, 08CE12-63, 08CE12-74, 08CE12-91

Sample 08CE12-52 is identified as a Field Blank. The field blank contained Chloromethane at 0.060 µg/L and Chloroform at 0.93 µg/L. The concentrations of the analytes were less than the reporting limits of 0.2 µg/L in the following samples. The presence of the analytes should be qualified "U" and elevated to the RL as resulting from field blank contamination.

Chloromethane
08CE12-21, 08CE12-29, 08CE12-35, 08CE12-60, 08CE12-61, 08CE12-62, 08CE12-65, 08CE12-67, 08CE12-81, 08CE12-84, 08CE12-85, 08CE12-86

Chloroform
08CE12-61

Twelve (12) samples; 08CE12-03, 08CE12-16, 08CE12-31, 08CE12-34, 08CE12-41, 08CE12-47, 08CE12-63, 08CE12-64, 08CE12-68, 08CE12-78, 08CE12-83 and 08CE12-91 are identified as Trip Blanks. The trip blanks contained no target analytes; therefore no qualification is required for this criterion.

MEE: The MEE method blanks are MB-560172 and MB-560670 for the Mod RSK 175 analyses. In addition to the method blanks there are two (2) MEE Continuing Calibration Blanks (CCB); CCB-04/25/08 and CCB-04/24/08. Continuing Calibration Blank – 04/25/08 contained Methane at 0.07 µg/L.

None of the Method Blank had any contaminants; therefore, the results are acceptable. The Volatile Method Blank Summaries for Analytical Method Mod RSK 175 list the samples associated with each method blank.

Sample 08CE12-52 is identified as a Field Blank and it contained no MEE analytes.

5. SYSTEM MONITORING COMPOUND AND SURROGATE RECOVERY

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

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

6A. MATRIX SPIKE/MATRIX SPIKE DUPLICATE

VOC: Samples 08CE12-23, 08CE12-61 and 08CE12-76 are the parent samples used for the VOC Matrix Spike / Matrix Spike Duplicate analyses.

The %recoveries for Vinyl chloride were greater than the upper limit of 130% in samples 08CE12-23MS and 08CE12-23MSD. The %recoveries for Trichloroethene were below the lower limit of 60% and greater than or equal to 20% in samples 08CE12-23MS and 08CE12-23MSD. The RPD was greater than 30% for Trichloroethene. The detection of Vinyl chloride and Trichloroethene in the unspiked sample, 08CE23-23, should be qualified "J".

The %recoveries for Vinyl chloride were greater than the upper of 130% in samples 08CE12-61MS and 08CE12-61MSD. The %recovery for cis-1,2-Dichloroethene was greater than the upper limit of 130% in sample 08CE12-61MS. The %recoveries for Methylene chloride, m & p-Xylene and o-Xylene were less than the lower limit 60% and greater than or equal to 20% in samples 08CE12-61MS and 08CE12-61MSD. The %recoveries of Styrene were less than 20% in samples 08CE12-61MS and 08CE12-61MSD. All RPDs were less than 30%. The detections of Vinyl chloride and cis-1,2-Dichloroethene in the unspiked sample, 08CE12-61, should be qualified "J". The non-detection of Methylene chloride, m & p-Xylene and o-Xylene in the unspiked sample, 08CE12-61, should be qualified "UJ". The non-detection of Styrene in the unspiked sample, 08CE12-61, should be qualified "R".

The %recoveries for Methylene chloride were greater than the upper of 130% in samples 08CE12-76MS and 08CE12-76MSD. The %recovery for Chloromethane was greater than the upper limit of 130% in sample 08CE12-76MS. The %recoveries for Carbon disulfide were less than the lower limit 60% and greater than or equal to 20% in samples 08CE12-76MS and 08CE12-76MSD. All RPDs were less than 30%. The detections of Methylene chloride and Chloromethane in the unspiked sample, 08CE12-76, should be qualified "J". The non-detection of Carbon disulfide in the unspiked sample, 08CE12-76, should be qualified "UJ".

MEE: Samples 08CE12-23 and 08CE12-76 are the parent samples used for the MEE Matrix Spike / Matrix Spike Duplicate analyses.

The %recoveries for Methane were greater than the upper of 130% in samples 08CE12-23MS and 08CE12-23MSD. All RPDs were less than 30%. The detection of Methane in the unspiked sample, 08CE12-23, should be qualified "J".

The %recovery for Methane was below 20% in sample 08CE12-76MS. All RPD for Methane was greater than 30%. The detection of Methane in the unspiked sample, 08CE12-76, should be qualified "J".

6B. LABORATORY CONTROL SAMPLES

VOC: The VOC laboratory control samples are LCS-558239, LCS-559343 and LCS-559891. The VOC laboratory control duplicate samples are LCSD-558275, LCSD-559351 and LCSD-561364.

LCS-558239 and LCSD-558275 were analyzed April 22 - 23, 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-559343 and LCSD-559351 were analyzed April 24, 2008. The percent recoveries for all compounds were within the QC limits (60 – 130%). The RPD for Methylene chloride was greater than 30%. The detection of Methylene chloride samples 08CE12-61MS and 08CE12-61MSD should be qualified "J". The quantitation limits for the non-detected Methylene chloride in the following associated samples should be qualified "UJ".

Methylene chloride
08CE12-30, 08CE12-44, 08CE12-45, 08CE12-46, 08CE12-48, 08CE12-50, 08CE12-52, 08CE12-54, 08CE12-56, 08CE12-58, 08CE12-60, 08CE12-61, 08CE12-61MS, 08CE12-61MSD, 08CE12-62, 08CE12-65, 08CE12-67, 08CE12-69, 08CE12-71, 08CE12-72, 08CE12-73, 08CE12-74

LCS-559891 and LCSD-561364 were analyzed April 25 - 26, 2008. The percent recoveries for Methylene chloride were greater than 130%. All RPDs were less than 30%. The detection of Methylene chloride in samples 08CE12-76, 08CE12-76MS and 08CE12-76MSD should be qualified "J". The quantitation limits for the non-detected Methylene chloride is ultimately qualified "UJ" because all the calibration criteria were not met.

Methylene chloride
08CE12-03, 08CE12-16, 08CE12-31, 08CE12-34, 08CE12-41, 08CE12-47, 08CE12-63, 08CE12-64, 08CE12-68, 08CE12-76, 08CE12-76MS, 08CE12-76MSD, 08CE12-78, 08CE12-79, 08CE12-81, 08CE12-83, 08CE12-84, 08CE12-85, 08CE12-86, 08CE12-87, 08CE12-89, 08CE12-91

MEE: The MEE laboratory control samples are LCS-560171, LCS-560175 and LCS-560671. The MEE laboratory control sample duplicate is LCSD-560674. All recoveries were within the QC limits of 60 – 130%. The RPDs between LCS-560171 and LCSD-560175 were within the QC limits of 30%. No LCSD samples were analyzed for LCS-560571 and LCS-560674.

7. FIELD BLANK AND FIELD DUPLICATE

VOC: Twelve (12) samples; 08CE12-03, 08CE12-16, 08CE12-31, 08CE12-34, 08CE12-41, 08CE12-47, 08CE12-63, 08CE12-64, 08CE12-68, 08CE12-78, 08CE12-83 and 08CE12-91 are identified as Trip Blanks. The trip blanks contained no target analytes; therefore no qualification is required for this criterion.

Sample 08CE12-54 is identified as an Equipment Blank. The equipment blank contained Chloroform at 0.98 µg/L.

Sample 08CE12-52 is identified as a Field Blank. The field blank contained Chloromethane at 0.060 µg/L and Chloroform at 0.93 µg/L.

Sample 08CE12-08 is a field replicate of 08CE12-06. Sample 08CE12-11 is a field replicate of 08CE12-10. Sample 08CE12-19 is a field replicate of 08CE12-17. Sample 08CE12-27 is a field replicate of 08CE12-25. Sample 08CE12-81 is a field replicate of 08CE12-74. Sample 08CE12-86 is a field replicate of 08CE12-85. Sample results and RPDs for these replicate pairs are summarized in the following table.

Analyte	**08CE12-06**	**08CE12-08**	RPDs
	Df = 1.0	Df = 1.0	
1,1-Dichloroethene	10	7.9	23.5 %
1,1-Dichloroethane	11	11	0.0 %
1,1,1-Trichloroethane	140	130	7.4 %
Bromodichloromethane	5.9	6	1.7 %
Trichloroethene	840	810	3.6 %
Cis-1,2-Dichloroethene	84	82	2.4 %

Analyte	**08CE12-10**	**08CE12-11**	RPDs
	Df = 1.0	Df = 1.0	
Acetone	0.0	1.9	200.0 %
1,2-Dichloroethane	0.25	0.28	11.3 %

Analyte	**08CE12-17**	**08CE12-19**	RPDs
	Df = 1.0	Df = 1.0	
Acetone	0	2	200.0 %

Analyte	**08CE12-25**	**08CE12-27**	RPDs
	Df = 1.0	Df = 1.0	
Chloromethane	0.2	0.0	200.0 %
Vinyl chloride	0.58	0.58	0.0 %
1,1-Dichloroethene	1.5	1.3	14.3 %
1,1-Dichloroethane	6.9	6.0	14.0 %
1,2-Dichloroethane	0.099	0.0	200.0 %
Trichloroethane	14	14	0.0 %
Cis-1,2-Dichloroethene	28	28	0.0 %
Methyl tert-butyl ether	0.17	0.0	200.0 %
Trans-1,2-Dichloroethene	1.2	0.79	41.2 %

Analyte	**08CE12-74**	**08CE12-81**	RPDs
	Df = 1.0	Df = 1.0	
Chloromethane	0.079	0.071	10.7 %
Trichloroethene	0.15	0.15	0.0 %
Cis-1,2-Dichloroethene	0.34	0.34	0.0 %
Methyl tert-butyl ether	0.27	0.29	7.1 %

Analyte	**08CE12-85**	**08CE12-86**	RPDs
	Df = 1.0	Df = 1.0	
Chloromethane	0.067	0.088	27.1 %
Acetone	1.7	0.0	200.0 %

MEE: Sample 08CE12-52 is identified as a Field Blank and it contained no MEE analytes.

Sample 08CE12-08 is a field replicate of 08CE12-06. Sample 08CE12-19 is a field replicate of 08CE12-17. Sample 08CE12-27 is a field replicate of 08CE12-25. Sample 08CE12-81 is a field replicate of 08CE12-74. Sample results and RPDs for these replicate pairs are summarized in the following table.

Analyte	**08CE12-06**	**08CE12-08**	RPDs
	Df = 10.0	Df = 10.0	
Methane	87	93	6.7 %
	08CE12-17	**08CE12-19**	
	Df = 1.0	Df = 1.0	
Methane	0.69	1.4	67.9 %
	08CE12-25	**08CE12-27**	
	Df = 4.0	Df = 4.0	
Methane	32	32	0.0 %

	08CE12-74	08CE12-81	
	Df = 5.0	Df = 10.0	
Methane	69	82	17.2 %

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 requested reporting limit for cis-1,3-Dichloropropene was 0.016 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for trans-1,3-Dichloropropene was 0.015 µg/L and the actual reporting limit was 0.017 µg/L. The requested reporting limit for 1,1,2,2-Tetrachloroethane was 0.018 µg/L and the actual reporting limit was 0.019 µg/L. Xylenes (total) was reported as m,p-Xylene and o-Xylene.

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

Chloromethane
08CE12-52

Chloroethane, Benzene, Toluene, Chlorobenzene
08CE12-89

Acetone
08CE12-11, 08CE12-14, 08CE12-21, 08CE12-67, 08CE12-85, 08CE12-87

Carbon disulfide, m & p-Xylene, Isopropylbenzene
08CE12-73

1,1-Dichloroethene
08CE12-35, 08CE12-79

1,1-Dichloroethane
08CE12-87

1,2-Dichloroethane
08CE12-25, 08CE12-60, 08CE12-61, 08CE12-67

1,1,1-Trichloroethane
08CE12-35, 08CE12-65

Trichloroethene
08CE12-29, 08CE12-46, 08CE12-61, 08CE12-62, 08CE12-67, 08CE12-74, 08CE12-81

Cis-1,2-Dichloroethene
08CE12-21, 08CE12-65

Methyl tert-butyl ether
08CE12-25

Trans-1,2-Dichloroethene
08CE12-29, 08CE12-32, 08CE12-45, 08CE12-46, 08CE12-60, 08CE12-62

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

The following 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
08CE12-23, 08CE12-23MS, 08CE12-23MSD, 08CE12-76MS, 08CE12-76MSD, LCS560171, LCS-560175, LCS-560671, LCSD-560674

Ethene
08CE12-23MS, 08CE12-23MSD, 08CE12-76MS, 08CE12-76MSD, LCS-560171, LCS-560175, LCS-560671, LCSD-560674

Methane
08CE12-12, 08CE12-17, 08CE12-19, 08CE12-32, 08CE12-50, 08CE12-56, 08CE12-58, 08CE12-65, 08CE12-79, LCS-560171, LCS-560175, LCS-560671, LCSD-560674

11. SYSTEM PERFORMANCE

GC/MS baseline indicated acceptable performance.

12. ADDITIONAL INFORMATION

The final shipment of samples arrived at the Laboratory on April 21, 2008. The Laboratory Case Narrative was prepared on May 5, 2008 and forwarded by Ch2mHill on May 16, 2008 which is more than 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 3 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-558272 is associated with 11 samples rather than 10 samples.
b) MB-559892 is associated with 12 samples rather than 10 samples.
c) CCB-1 is associated with 13 samples rather than 10 samples.
d) The concentrations of Acetone detected in CCB3 was greater than the SAS detection limit of 2.0 µg/L.

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:

08CE12-04, 08CE12-06, 08CE12-23, 08CE12-25, 08CE12-79, 08CE12-87, 08CE12-89

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

08CE12-01, 08CE12-04, 08CE12-06, 08CE12-08, 08CE12-21, 08CE12-23, 08CE12-25, 08CE12-27, 08CE12-39, 08CE12-48, 08CE12-69, 08CE12-74, 08CE12-76, 08CE12-81, 08CE12-87, 08CE12-89

SAS Project: 08CE12
Site Name: Oconomowoc Electroplating (WI)

SDG Number: 66005-VOC
Laboratory: CT Laboratories

Data Qualifier Sheet

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

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

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

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

Reviewed by: Allison C Harvey / TechLaw-ESAT
Date: July 10, 2008

Regional Transmittal Form

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION V

DATE: June 10, 2008

SUBJECT: Review of Data
Received for review on May 23, 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: 08CE12 **SDG NUMBER:** 66005-INO

Number and Type of Samples: 31 water samples

Sample Numbers: 08CE12-01, -04, -06, -08, -12, -14, -17, -19, -21, -23, -25, -27, -32, -35, -37
-37, -39, -42, -48, -50, -52, -54, -56, -58, -65, -69, -74, -76, -79, -81, -87, -89

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

Following are our findings:

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

Case: 08CE12
Site: Oconomowoc Electroplating

SDG: 66005-INO
Laboratory: CT Laboratories

Narrative

The laboratory's portion of this case contains 31 water samples (see TABLE 1). The samples were collected between April 14 and 18, 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 08CE12-52 and 08CE12-54, 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: No defects were found. All nitrate results are acceptable

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

TOC: The SAS requires a low standard be run to confirm the reporting limit of 1.0 mg/L. This was not performed. The lowest calibration standard was 10 mg/L. All TOC results, except 08CE12-02, -17, -65, and -65 Dup, are below 10 mg/L and are estimated "J" for detects and "UJ" for non-detects.

Other comments: Samples 08CE12-06/-08, 08CE12-17/-19, 08CE12-25/-27 and 08CE12-74/-81 were identified as field duplicate pairs. Duplicates were evaluated according to the same criteria as laboratory duplicates. Samples 08CE12-06/-08 and 08CE12-74/-81 were outside the acceptance criteria for nitrate. All other tests showed good correlation. Sample 08CE12-52 was identified as field blank. Sample 08CE12-54 was identified as equipment blank. The field blank contains TOC

Reviewed by: Paul Little (TechLaw/ESAT)
Date: 06/10/2008

above the reporting limit (1.3 mg/L). The equipment blank showed no contamination.

TABLE 1

Lab ID	*EPA sample ID*	*Sample location*	*Cooler Tem.*	*Collection date*	*Collection time*	*Received date*
556236	08CE12-01	OPE-MW-003D	4.8	4/14/2008	12:20	4/15/2008
556261	08CE12-04	OPE-MW-103S	4.8	4/14/2008	15:15	4/15/2008
556263	08CE12-06	OEP-MW-103D	4.8	4/14/2008	15:40	4/15/2008
556265	08CE12-08	OEP-MW-103DFR	4.8	4/14/2008	15:40	4/15/2008
556269	08CE12-12	OEP-MW-015D	4.0	4/14/2008	16:40	4/15/2008
556271	08CE12-14	OEP-MW-015S	4.0	4/14/2008	16:45	4/15/2008
556274	08CE12-17	OEP-SW-01	4.0	4/14/2008	17:15	4/15/2008
556267	08CE12-19	OEP-SW-01FR	4.0	4/14/2008	17:15	4/15/2008
556502	08CE12-21	OEP-MW-105B	4.1	4/15/2008	10:15	4/16/2008
556504	08CE12-23	OEP-MW-105S	4.1	4/15/2008	10:20	4/16/2008
556514	08CE12-25	OEP-MW-105D	5.1	4/15/2008	11:15	4/16/2008
556516	08CE12-27	OEP-MW-105DFR	5.1	4/15/2008	11:15	4/16/2008
556518	08CE12-32	OEP-MW-013D	5.1	4/15/2008	13:35	4/16/2008
556521	08CE12-35	OEP-MW-013S	5.1	4/15/2008	13:50	4/16/2008
556507	08CE12-37	OEP-MW-012D	3.8	4/15/2008	14:40	4/16/2008
556509	08CE12-39	OEP-MW-012S	3.8	4/15/2008	14:50	4/16/2008
556512	08CE12-42	OEP-MW-012B	3.8	4/15/2008	15:30	4/16/2008
556809	08CE12-48	OEP-MW-001D	3.0	4/16/2008	09:55	4/17/2008
556811	08CE12-50	OEP-MW-001S	3.0	4/16/2008	10:40	4/17/2008
556799	08CE12-52	OEP-FB-001	3.4	4/16/2008	10:55	4/17/2008
556800	08CE12-54	OEP-EB-001	3.4	4/16/2008	11:05	4/17/2008
556813	08CE12-56	OEP-MW-004D	3.0	4/16/2008	10:00	4/17/2008
556815	08CE12-58	OEP-MW-004S	3.0	4/16/2008	10:50	4/17/2008
556803	08CE12-65	OEP-SW-03	3.4	4/16/2008	13:20	4/17/2008
556805	08CE12-69	OEP-MW-015B	3.4	4/16/2008	15:00	4/17/2008
556265	08CE12-74	OEP-MW-101B	3.1	4/17/2008	10:00	4/18/2008
557223	08CE12-76	OEP-MW-005D	3.1	4/17/2008	10:20	4/18/2008
557215	08CE12-79	OEP-MW-102D	3.1	4/17/2008	10:00	4/18/2008
557217	08CE12-81	OEP-MW-101BFR	3.1	4/17/2008	10:00	4/18/2008
557402	08CE12-87	OEP-MW-016S	3.2	4/18/2008	11:00	4/19/2008
557405	08CE12-89	OEP-SW-02	3.2	4/18/2008	11:10	4/19/2008

Case: 08CE12
Site: Oconomowoc Electroplating

SDG: 66005-INO
Laboratory: CT Laboratories

Data Qualifier Sheet

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

Reviewed by: Paul Little (TechLaw/ESAT)
Date: 06/10/2008