Five-Year Review Report

Third Five-Year Review Report
for
Oconomowoc Electroplating Company, Inc. Superfund Site
Town of Ashippun, Dodge County, Wisconsin

July 2007

PREPARED BY:

Wisconsin Department of Natural Resources (WDNR)
Madison, Wisconsin
&
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Region 5
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Approved by:

Richard C. Karl, Director
Superfund Division

Date: 7/11/07

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List of Acronyms

ARAR	Applicable or Relevant and Appropriate Requirement
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
U.S. EPA	United States Environmental Protection Agency
CFR	Code of Federal Regulations
CVOC	Chlorinated Volatile Organic Compounds
ES	State of Wisconsin Groundwater Enforcement Standard
ESD	Explanation of Significant Difference
FYR	Five-Year Review
GAC	Granular Activated Carbon
MCL	Maximum Contaminant Level
MCLG	Maximum Contaminant Level Goal
MNA	Monitored Natural Attenuation
NCP	National Contingency Plan
NPL	National Priorities List
O&M	Operation and Maintenance
PAH	Polyaromatic Hydrocarbon
PAL	State of Wisconsin Groundwater Preventive Action Limit
PCB	Polychlorinated Biphenyl
PPB	Parts per Billion
PRP	Potentially Responsible Party
RA	Remedial Action
RAO	Remedial Action Objective

RD	Remedial Design
RI/FS	Remedial Investigation/Feasibility Study
ROD	Record of Decision
VOC	Volatile Organic Compound
WDNR	Wisconsin Department of Natural Resources
WPDES	Wisconsin Pollutant Discharge Elimination System

Executive Summary

The remedy for the Oconomowoc Electroplating Company, Inc. (OECI) Superfund Site (the site) included excavation and disposal of lagoon sludge and surrounding soils, excavation and disposal of non-lagoon contaminated soils and debris from the site (including the abandoned electroplating building), excavation and disposal of metals-contaminated sediments from the wetlands area adjacent to Davy Creek, and extraction and treatment of contaminated groundwater to State groundwater quality standards. The site achieved construction completion with the signing of the Preliminary Close Out Report (PCOR) on September 25, 1996. This Five-Year Review (FYR) is the third FYR conducted for the site. The first FYR was completed on September 29, 1997 and the second FYR was completed on July 12, 2002. The trigger for this FYR was the signature date for the second five-year review.

The third five year review found that the remedy was implemented in accordance with the requirements of the Record of Decision (ROD). One Explanation of Significant Difference (ESD) was issued in 1991 to establish cleanup goals for the wetlands and Davy Creek. Another ESD was issued in 1994 to address the removal of the abandoned electroplating building and hazardous chemicals inside.

Groundwater monitoring during the MNA evaluation period has detected the presence of Volatile Organic Compounds (VOCs) in several nearby private wells. At present, the concentrations have not exceeded drinking water or other applicable standards. U.S. EPA and WDNR are carefully monitoring the private wells, and if levels approach risk-based Maximum Contaminant Levels (MCLs), contingency actions will be implemented.

The remedy is currently protective of human health and the environment in the short term. The removal of lagoon sludge, soils, debris and sediment to eliminate the source of contamination has achieved the remedial action objectives, which were to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminated soils and sediments.

However, in order for the remedy to be protective in the long-term, an assessment is necessary to determine the future effects of shutting down the groundwater extraction and treatment system, and institutional controls need to be implemented, maintained, and monitored to ensure long-term protectiveness. The effects of shutting down the treatment system are currently being evaluated in conjunction with the efficacy of natural attenuation. Should VOC concentrations in nearby private wells approach risk-based standards, contingency actions will be implemented to reduce human exposure. The remedy will achieve long-term protectiveness when the groundwater cleanup standards are attained throughout the plume. Additionally, given that areas of Site do not allow for unlimited use/unrestricted exposure, Institutional Controls (ICs) are needed to assure protectiveness of the remedy.

Five-Year Review Summary Form

Site name *(from WasteLAN)*: Oconomowoc Electroplating Company, Inc. Superfund Site		
EPA ID *(from WasteLAN)*: WID006100275		
Region: 5	**State:** WI	**City/County:** Ashippun/Dodge
NPL status: ☒ Final ☐ Deleted ☐ Other (specify)		
Remediation status (choose all that apply): ☐ Under Construction ☒ Operating ☐ Complete		
Multiple OUs?* ☐ YES ☒ NO	**Construction completion date:** 9 / 25 / 1996	
Has site been put into reuse? ☐ YES ☒ NO		
Lead agency: ☒ EPA ☐ State ☐ Tribe ☐ Other Federal Agency _____		
Author name: Edward K. Lynch, P.E.		
Author title: Natural Resources Program Manager	**Author affiliation:** Wisconsin DNR	
Review period:** November 15, 2006 to July 11, 2007		
Date(s) of site inspection: November 20, 2006		
Type of review: ☒ Post-SARA ☐ Pre-SARA ☐ NPL-Removal only ☐ Non-NPL Remedial Action Site ☐ NPL State/Tribe-lead ☐ Regional Discretion)		
Review number: ☐ 1 (first) ☐2 (second) ☒ 3 (third) ☐ Other (specify)		
Triggering action: ☐ Actual RA On-site Construction at OU #___ ☐ Actual RA Start at OU# NA ☐ Construction Completion ☒ Previous Five-Year Review Report ☐ Other (specify)		
Triggering action date *(from WasteLAN)*: July 12, 2002 (date of last 5 year review)		
Due date for final *(five years after triggering action date)*: July 12, 2007		

* ["OU" refers to operable unit.]
** [Review period should correspond to the actual start and end dates of the Five-Year Review in WasteLAN.]

Five-Year Review Summary Form - cont'd.

Issues:

1. Vinyl chloride detections in private water supply wells
2. MNA evaluation
3. ROD Amendment or ESD for MNA
4. Institutional controls

Recommendations and Follow-up Actions:

1. Vinyl chloride detections in private water supply wells – Continue to monitor private water supply wells adjacent to the OECI site for vinyl chloride as well as other volatile organic compounds. Should vinyl chloride concentrations exceed risk-based standards, implement contingency actions to limit human exposure.
2. MNA evaluation – Evaluate the effectiveness of MNA and plan for potential enhancements to the MNA remedy and/or the need to restart the groundwater extraction and treatment system.
3. ROD Amendment or ESD – Prepare an amendment to the existing ROD or an ESD to document the decisions made concerning the shut down of the groundwater extraction system at the OECI site as well as the need for future actions. Future actions will depend upon the effectiveness of natural attenuation at the site, and the results of the compliance monitoring program. Future actions could include restarting of the groundwater extraction and treatment system and/or providing alternative water supply or in home treatment systems to affected private water supplies. This document should identify all appropriate institutional and land use controls.
4. Institutional and land use controls – IC evaluation activities are in progress. Once the IC evaluation activities are complete, an IC plan will be developed by U.S. EPA within 6 months of the Five Year Review completion. The IC plan will incorporate the results of the evaluation activities and plan for additional IC activities as needed, including planning for long- term stewardship. In the meantime, consideration will be given to putting a notice in the WDNR GIS Registry so that parties who may be interested in using or purchasing the property will be aware of the conditions at the site, restrictions on its use, and any effects it may have on nearby properties.

Protectiveness Statement(s):
The remedy is currently protective of human health and the environment in the short term. The removal of lagoon sludge, soils, debris and sediment to eliminate the source of contamination has achieved the remedial action objectives, which were to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminated soils and sediments.

However, in order for the remedy to be protective in the long-term, an assessment is necessary to determine the future effects of shutting down the groundwater extraction and treatment system, and institutional controls need to be implemented to ensure long-term protectiveness. The effects of shutting down the treatment system are currently being evaluated in conjunction with the efficacy of natural attenuation. Should VOC concentrations in nearby private wells approach risk-based standards, contingency actions will be implemented to reduce human exposure. The remedy will achieve long-term protectiveness when the groundwater cleanup standards are attained throughout the plume. Additionally, given that areas of Site do not allow for unlimited use/unrestricted exposure, Institutional Controls (ICs) are needed to assure protectiveness of the remedy.

Other Comments:

None.

OCONOMOWOC ELECTROPLATING SUPERFUND SITE
ASHIPPUN, WISCONSIN
THIRD FIVE-YEAR REVIEW REPORT

I. INTRODUCTION

The purpose of the five year review is to determine whether the remedy at a site is protective of human health and the environment. The methods, findings, and conclusions of reviews are documented in FYR reports. In addition, FYR reports identify issues found during the review, if any, and identify recommendations to address them.

U.S. EPA is preparing this Second FYR report pursuant to CERCLA §121 and the National Contingency Plan (NCP). CERCLA §121 states:

> *If the President selects a remedial action that results in any hazardous substances, pollutants, or contaminants remaining at the site, the President shall review such remedial action no less often than each five years after the initiation of such remedial action to assure that human health and the environment are being protected by the remedial action being implemented. In addition, if upon such review it is the judgment of the President that action is appropriate at such site in accordance with section [104] or [106], the President shall take or require such action. The President shall report to the Congress a list of facilities for which such review is required, the results of all such reviews, and any actions taken as a result of such reviews.*

U.S. EPA interpreted this requirement further in the NCP; 40 CFR §300.430(f)(4)(ii) states:

> *If a remedial action is selected that results in hazardous substances, pollutants, or contaminants remaining at the site above levels that allow for unlimited use and unrestricted exposure, the lead agency shall review such action no less often than every five years after the initiation of the selected remedial action.*

Wisconsin Department of Natural Resources (WDNR) and the United State Environmental Protection Agency (U.S. EPA) - Region 5, conducted the third FYR of the remedy implemented at the OECI Superfund Site in Ashippun, Wisconsin. This review was conducted by the WDNR's project manager with support from the U.S. EPA Remedial Project Manager (RPM) for the entire site from November 2006 to March 2007. This report documents the results of the review.

This is the third FYR for the OECI Superfund Site. The first FYR was completed on September 29, 1997 and the second FYR was completed on July 12, 2002. The triggering action for this statutory review was the signature date of the second FYR. The FYR is required due to the fact that hazardous substances, pollutants, or contaminants remain at the site above levels that allow for unlimited use and unrestricted exposure.

II. SITE CHRONOLOGY

Table 1 - Chronology of Site Events

EVENT	DATE
Proposed for inclusion on NPL	September 8, 1983
Listed on NPL	September 21, 1984
OECI Operations	1957 - 1990
RI/FS (entire site)	April 24, 1987 - September 20, 1990
ROD (entire site)	September 20, 1990
ESD	September 30, 1991
RD	September 26, 1990 - June 30, 1993
Building Removal	April 1991 - March 1992
Pre-Final Inspection of Building Removal	March 21, 1992
ESD	March 8, 1994
Remediation of Lagoons, Soils and Sediments	August 1994 - June 1995
Construction of Groundwater Pump & Treat System	May 1995 - September 1996
Pre-Final Inspection of Lagoon, Soil and Sediment Remediation	June 12, 1995
Pre-Final Inspection of Groundwater Pump & Treat System	September 25, 1996
Final Inspection of Entire Site	October 10, 1996
PCOR	September 25, 1996
First Five-Year Review	September 29, 1997
Second Five-Year Review Site Inspections	January 29-31, March 12, and May 22, 2002
Modification/Optimization of Groundwater Extraction and treatment System	January 2002 - Present
Second Five-Year Review	July 12, 2002
Submittal of Report entitled "Hydro geologic Investigation and Groundwater Extraction System Evaluation" – RMT, Inc.	February 2004
Groundwater Extraction and Treatment System shut down and placed in stand-by mode	July 2004
Submittal of Report entitled "Groundwater Management Plan" – CH2MHill	March 2005
Third Five-Year Review Site Inspection	November 20, 2006

III. BACKGROUND

Physical Characteristics - The 10.5-acre OECI site comprises the 4-acre site of a former electroplating facility located at 2572 Oak Street, Ashippun, Wisconsin and 6.5 acres of an adjacent wetlands area located to the southwest of the former facility. The cities of Oconomowoc and Watertown are approximately 8 miles south and 10 miles west of the site, respectively. Milwaukee lies approximately 35 miles to the southeast. A small creek, Davy Creek, is located approximately 500 feet south of the site. Davy Creek, which flows through the wetlands, is a tributary to the Rock River. A map of the OECI site is provided in Attachment 1.

The OECI site is bordered on the north by Oak Street, on the south by Elm Street and Davy Creek, on the west by Eva Street, and to the east is the Ashippun Town Garage. Several small businesses line Oak Street to the northwest, and back up to the Chicago and North Western Railroad tracks. Residential areas are west (200 feet) and northwest (200 feet) of the OECI site beyond Eva Street, and southeast (1,400 feet) of the OECI site beyond the town garage facilities.

Land and Resource Use - The 4-acre OECI facility consisted of a main building that housed the office and process lines; a wastewater treatment building (to the west); parking area (to the north and east); two formerly used wastewater treatment lagoons (to the south); various storage tank and container deposit areas; a fill area and a lowlands area between the main building and adjacent property. The site also includes Davy Creek and the adjacent wetlands. The OECI facility has been inactive since 1990.

The natural resource areas associated with the OECI site are the adjacent wetlands, Davy Creek, and the wildlife associated with them. Davy Creek is a warm water sport fishery. Residents in the area rely on groundwater for their source of drinking water. Two parks with facilities for baseball, skeet shooting, and picnicking are also near the site. One park with a playground is adjacent to the town garage between Oak and Elm Streets, and the other is beyond the residential block to the northwest.

History of Contamination - OECI began operation in 1957. Electroplating processes at the facility used nickel, chrome, zinc, copper, brass, cadmium, and tin. Finishing processes have included chromate conversion, coating, and anodizing. OECI ceased operations in October 1990 due to financial hardship. The electroplating facility was demolished and removed in March 1992.

Wastewaters formerly generated at the OECI facility can be divided into three categories: 1) cyanide-bearing (from rinses following zinc, copper, nickel, brass, and cadmium plating); 2) chromium-bearing (from chrome and chrome conversion operations); and 3) acid-alkaline (from rinses following cleaning, anodizing, and plating operations). Tin plating was suspended at the facility in 1981 and chromium, copper, and nickel plating in 1982. Plating of cadmium ceased in October 1984, and as of February 1985, OECI had suspended all cyanide plating processes, and afterwards only utilized a zinc plating process.

In conjunction with the electroplating processes, degreasing operations were also performed at the OECI site and contributed to the waste stream. A number of VOCs are believed to have been used by OECI and include: chloroform; 1-1-dichloroethane; 1-2 dichloroethane; 1,1-dichloroethylene; tetrachloroethylene; 1,1,1-trichloroethane, and trichloroethylene. These contaminants became incorporated in both sludge bottoms and wastewater streams.

In 1972, OECI constructed two unlined settling lagoons to supplement their wastewater treatment system. Each lagoon was 60 foot by 40 foot wide with a sidewall depth of 5 feet. The walls were concrete on two sides and gravel on the others. There was a concrete divider running lengthwise between the two lagoons. Over the years, both lagoons accumulated large volumes of plating sludges. In the past, untreated plating sludges overflowed the settling lagoons and accumulated in the wetlands between the OECI facility and Davy Creek.

Prior to 1972, untreated waste waters were discharged directly into the wetland area south of the OECI property. In November 1973, after installation of a wastewater treatment system, a Wisconsin Pollutant Discharge Elimination System (WPDES) permit was issued for discharging treated wastewater to the creek. Spills from the wastewater treatment unit are well documented in the WDNR files. In August 1978, OECI was denied a WPDES permit by the WDNR; however, OECI appealed the permit denial and the facility continued to operate.

In 1979, the effects of the wastewater discharge and sludge overflow were investigated by the Solid Waste Management Division of the WDNR. Analytical results of stream sediment samples collected from Davy Creek downstream of the OECI's discharge point confirmed the presence of high concentrations of heavy metals; specifically, cadmium, chromium, copper, and nickel. An analysis of surface soil samples collected from the wetlands area adjacent to the facility showed comparable concentrations of metals.

In 1980, OECI contracted with Waste Management, Inc. to remove the sludge from the lagoons. Approximately 1 million pounds of sludge were removed and sent to a hazardous waste landfill. However, OECI did not have sufficient funds to complete the job. The lagoons were left approximately one-third full of electroplating sludges. Because these sludges were wastewater treatment sludges from electroplating operations, they were defined as listed hazardous waste (F006) by the Resource Conservation and Recovery Act (RCRA) 40 CFR Part 261 Subpart D-261.31.

Initial Response - A preliminary assessment was performed in May 1983 by the U.S. EPA Field Investigation Team (FIT). The site (including the Davy Creek wetlands) received a Hazard Ranking Score (HRS) score of 31.86 and was placed on the National Priorities List (NPL) September 21, 1984.

In a letter dated September 18, 1985, the U.S. EPA notified OECI officials that they had been identified as a Potentially Responsible Party (PRP) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) for the documented release or threatened release of hazardous substances. No other responsible parties have been named

to date. On October 9, 1985, OECI informed U.S. EPA that it did not have the financial resources to conduct a Remedial Investigation/Feasibility Study (RI/FS) and formally declined to participate in the CERCLA process.

Between 1983 and 1987, the WDNR sampled residential wells in the area on seven different occasions. In 1985, three shallow monitoring wells were installed by the Wisconsin Geological and Natural History Survey (WGNHS): two near the lagoons and one southeast of the OECI site on the town garage property. Sampling efforts indicated elevated concentrations of cadmium, nickel, and zinc. In addition, sampling indicated the presence of 1,1-dichloroethane, 1,1,1-trichloroethane, and trichloroethylene.

In the summer of 1986, the Technical Assistance Team (TAT), a contractor to the U.S. EPA Emergency Response Section, conducted a limited sediment sampling survey in the wetlands. The analytical results of these samples indicated high concentrations of metals and cyanide in the wetlands area immediately south of OECI. In March and April of 1987, the TAT conducted an extensive sampling program which covered approximately 300 acres of wetlands along Davy Creek. This program also included sampling of the OECI sludge lagoons and soils at the ballpark located southeast of OECI. The analytical results indicated that several acres of the wetlands adjacent to OECI and the sludge is contaminated with cadmium, chromium, nickel, copper, zinc, (as high as 90,000 mg/kg in one area) and cyanide associated with the facility's electroplating process.

After OECI declined to participate in the RI/FS process, U.S. EPA used Federal funds to perform an RI/FS. U.S. EPA initiated the RI/FS in April 1987. The RI/FS was completed in September 1990 and made available to the public. A Proposed Plan identifying U.S. EPA's recommended remedy was presented to the public on July 23, 1990, starting the period for public comment.

Basis for Taking Action - Hazardous substances that have been released at the site in each media include:

Soil	**Lagoon Sludge/Liquid**
Arsenic	Arsenic
Cadmium	Cadmium
Chromium	Chromium
Copper	Copper
Lead	Lead
Nickel	Nickel
Zinc	Zinc
Cyanide	Cyanide
Acetone	Acetone
Methylene Chloride	Methylene Chloride
1,1-Dichloroethane	1,1-Dichloroethane
1,2-Dichloroethene (total)	1,1,1-Trichloroethane
1,1,1-Trichloroethane	Trichloroethene

Soil
Trichloroethene
Tetrachloroethene
Toluene
Xylene

Groundwater
Cadmium
Nickel
Cyanide
Acetone
Methylene Chloride
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethene (total)
1,2-Dichloroethane
1,1,1-Trichloroethane
Trichloroethene
Vinyl Chloride

Lagoon Sludge/Liquid
Tetrachloroethene
Toluene
Ethylbenzene
Xylene

Wetland Sediment
Cadmium
Chromium
Copper
Lead
Nickel
Zinc
Cyanide

Exposure to soil and groundwater are associated with significant human health risks due to exceedances of U.S. EPA's risk management criteria for the reasonable maximum exposure scenarios. The carcinogenic risks were highest for exposure to contaminated groundwater from a possible future ingestion pathway. Soil contaminants posed the greatest non-carcinogenic risk to human health through dermal contact and ingestion by children and future workers, primarily from cadmium and lead.

The major areas of environmental concern associated with the OECI site are Davy Creek and the adjacent wetlands area. Davy Creek and the wetlands area were contaminated with elevated levels of cadmium, chromium, nickel, copper, lead, zinc and cyanide. The levels of contaminants exceeded what was expected to be highly toxic to various aquatic species. Toxicity tests confirmed these expectations.

IV. REMEDIAL ACTIONS

Remedy Selection - A ROD was signed for the site on September 20, 1990. The Remedial Action Objectives (RAOs) were developed as a result of data collected during the RI and included multiple removal activities to eliminate the source of contamination from the site and to contain and remediate the contaminated groundwater. These include:

- Excavation and disposal of the lagoon sludge and surrounding soils
- Excavation and disposal of non-lagoon contaminated soils and debris from the site
- Excavation and disposal of metals contaminated sediments from the wetlands area adjacent to Davy Creek
- Extract and treat groundwater contamination to state groundwater quality standards

The selected remedy has the following specific components:

- For the surface water, sludge and contaminated soils associated with the two RCRA Subtitle C lagoons located behind the OECI facility: Clean closure by excavation, treatment and disposal at an off-site RCRA Subtitle C disposal facility
- For all other contaminated soil around the OECI facility not associated with the RCRA lagoons, or beneath the manufacturing buildings, including the fill area, the lowlands area, the drainage ditches, and the parking lot: Treatment and disposal at an off-site RCRA Subtitle C disposal facility
- For contaminated groundwater associated with the site: Construction and operation of a groundwater extraction and treatment system to achieve state groundwater quality standards. The treated water to be discharged into the adjacent Davy Creek is to be in compliance with the substantive requirements of a WPDES permit
- Excavation, treatment and disposal at an off-site RCRA Subtitle C disposal facility for the most highly contaminated sediments in the Davy Creek/Wetlands area. This was an interim action when the ROD was signed because cleanup goals had not been established for the contaminated sediment. Additional monitoring of Davy Creek and the wetland will be performed after the remediation to determine the effectiveness of the remedy
- Removal under remedial authority for the building foundation, chemicals left inside, and underlying soils that require further investigation

ESDs were signed on September 30, 1991 and March 8, 1994. The 1991 ESD established cleanup goals for the wetlands and Davy Creek. The 1994 ESD addressed the removal of the abandoned electroplating building and hazardous chemicals inside.

Health-based performance standards specified in the ROD for soil are: Arsenic, 47 mg/kg; lead, 300 mg/kg; cadmium, 500 mg/kg; nickel, 2500 mg/kg; copper, 1500 mg/kg; chromium, 1200 mg/kg; zinc, 4500 mg/kg; cyanide, 90 mg/kg; 1,1-dichloroethane, .07 mg/kg; toluene, .075 mg/kg; and 1,1,1-trichloroethane, .21 mg/kg.

The cleanup goals for the wetland and creek sediment as established in the 1994 ESD are: 4 mg/kg for cyanide; 54 mg/kg for nickel; and 85 mg/kg for copper. Cleanup goals for the groundwater are preventive actions levels (PALs) established by the WDNR listed on the next page.

Groundwater Contaminant	Cleanup Goal (ppb)
Arsenic	5
Cadmium	1
Chromium	5
Copper	500
Lead	5
Manganese	25
Mercury	0.2
Zinc	2,500
Cyanide	40
1,1-Dichloroethane	85
1,2-Dichloroethane	0.05
1,1-Dichloroethene	0.024
1,2-Dichloroethene	10
Tetrachloroethene	0.1
1,1,1-Trichloroethane	40
1,1,2-Trichloroethane	0.06
Trichloroethene	0.18
Vinyl Chloride	0.02

The selected remedy eliminates the principal threat posed by the site by reducing the toxicity and mobility of the highly contaminated materials, thereby reducing the potential exposure to VOCs, and metals. The groundwater treatment system includes granular activated carbon for VOCs removal, chemical precipitation for metals, and chemical oxidation for cyanide.

Remedy Implementation - On September 30, 1990, an Interagency Agreement (IAG) was signed with the U.S. Army Corps of Engineers (USACE) to perform a Remedial Design (RD) for the site. The RD was conducted in conformance with the ROD as modified by the two ESDs. The RD was completed on June 30, 1993.

From April 27, 1991 to March 31, 1992, prior to completion of the RD, removal of the building and the hazardous chemicals inside was performed under remedial authority. The soil was also removed and stockpiled at that time because it posed a significant threat to surrounding residents. The hazardous chemicals and soil were removed for treatment and disposal at approved hazardous waste treatment facilities. U.S. EPA conducted a pre-final inspection on March 21, 1992 and found no outstanding construction items.

In August 1994, remediation of the lagoons, stockpiled soil, and sediments in the wetlands and Davy Creek began. The hazardous soil and sediment was removed for treatment and disposal at an approved hazardous waste treatment facility. On June 12, 1995, a pre-final inspection was performed, in conjunction with the WDNR and a list of outstanding construction items was made.

From May 1995 through September 1996, the groundwater extraction and treatment system was constructed. A pre-final inspection was performed on September 25, 1996 and the

system was operational until shutdown in July 2004. A layout of the groundwater extraction and treatment system and monitoring wells is provided in Attachment 1.

The groundwater extraction system included five wells, four of which were installed during construction of the treatment plant. These four wells are 6 inches in diameter and have approximately 30 feet of screen, extending from approximately 7 feet below the surface to a 5-foot-long sump set into bedrock. The fifth well was installed for a pump test conducted during the pre-design investigation. This well is significantly shallower (15 feet deep). Each well is supplied with a Grundfos submersible pump. The well heads are completed above ground inside hinged, locked and insulated fiberglass housing. The connections to the extraction piping, flow-control valve, flow meter, and sample port are all contained inside the housing. Power and control lines were run in below-grade conduits parallel to the collection piping. All the extraction wells were connected to the treatment plant by a common 1 to 1.5-inch header pipe.

When operating, the groundwater extraction wells discharged into a 20,000-gallon equalization storage tank. Water was pumped from the equalization storage tank to the cyanide and metals removal tanks. The water was then filtered through a 4-foot diameter continuous backwash sand filter, before being processed through a six-tray low profile air stripper for VOC removal. The air stripper effluent was treated through two Granular Activated Carbon (GAC) units in series, each containing 1,000 pounds of GAC. The effluent was then discharged via a 3-inch force main to a percolation bed located below the surface water level in the wetland area in the flood plain of Davy Creek.

Sludge was produced in the cyanide and metals removal tanks. Sludge was transferred to a sludge-settling tank and allowed to consolidate in the bottom of the unit prior to being pumped to a 30 cubic foot plate and frame filter press. The sludge cake was analyzed and found to be below toxicity characteristic leaching procedure (TCLP) concentrations for metals and organics. However, the WDNR considered the sludge to be a listed F006 waste (due to the historical use of the site as an electroplating facility), which required disposal at a RCRA Subtitle C landfill. The entire site achieved construction completion status when the PCOR was signed on September 25, 1996.

U.S. EPA and the WDNR determined that all RA construction activities were performed according to specifications. At the time of construction, it was expected that cleanup levels for all groundwater contaminants would be reached within 30 years, as specified in the ROD. After groundwater cleanup levels have been met, U.S. EPA will issue a Final Close Out Report.

Institutional Controls - Institutional Controls (ICs) are non-engineered instruments, such as administrative and/or legal controls, that help minimize the potential for exposure to contamination and protect the integrity of the remedy. Compliance with ICs is required to assure long-term protectiveness for any areas which do not allow for unlimited use or unrestricted exposure (UU/UE). Although not specifically outlined in the ROD, Institutional controls (ICs) are required to ensure the protectiveness of the remedy given that part of the

Site was cleaned up to industrial standards, which would not allow UU/US, and given that the estimated time to cleanup the groundwater to the designated performance standards is approximately 30 years.

Table 2 below is an Institutional Controls Summary Table, which summarizes the required ICs.

Table 2 - Institutional Controls Summary Table

Media, Engineered Controls, & Areas that Do Not Support UU/UE Based on Current Conditions.	**IC Objective**	**Title of Institutional Control Instrument Implemented (note if planned)**
Oconomowoc Electroplating Inc. - Area of Soil treated to industrial cleanup standards identified in Attachment 2.	Prohibit residential use	Under Review
Groundwater – current area that exceeds groundwater cleanup standards identified in Attachment 2.	Prohibit groundwater use until cleanup standards are achieved	Under Review

Attachment 2 is an aerial photograph indicating where there are areas that do not allow for unlimited use or unrestricted exposure (UU/UE).

IC evaluation activities are in progress. These activities include assessing Site ownership and determining whether any prior-in-time encumbrances exist on the properties which require ICs to determine if they would interfere with the ICs. Once the IC evaluation activities are complete, an IC plan will be developed by U.S. EPA within 6 months of the Five Year Review completion. The IC plan will incorporate the results of the evaluation activities and plan for additional IC activities as needed, including planning for long- term stewardship. As mentioned below under O&M, the plan will also include a requirement for monitoring and maintaining the ICs once implemented. In the meantime, consideration will be given to putting a notice in the WDNR GIS Registry so that parties who may be interested in using or purchasing the property will be aware of the conditions at the site, restrictions on its use, and any effects it may have on nearby properties.

Based on the site inspections and interviews, no uses of the Site were observed that are not considered protective. That is, no inconsistent uses were noted at the Site based upon the industrial use cleanup assumptions. Furthermore, no one is using water which has any contaminants above the health-based standards (i.e., the Federal Maximum Contaminant Level or the Wisconsin Enforcement Standard.)

System Operations/Operation and Maintenance (O&M) - The second Five year review included recommendations and follow-up actions concerning the extraction and treatment system's capture zone analysis, adequacy of data, and extraction and treatment system O&M. These items were followed up on in the above reference study by RMT, Inc. entitled *Hydrogeologic Investigation and Groundwater Extraction System Evaluation* - February of 2004.

The capture zone analysis was conducted using a flow model and indicated that most of the plume was captured at the then current flow rates. No modifications to the well field were proposed. To address data adequacy at the site and to better define the site groundwater flow and groundwater contamination, 16 additional monitoring wells were installed and comprehensive sampling of extraction wells, certain residential wells, and surface water was conducted. This study also found that chemically reducing conditions exist at the site, which is favorable to bacteria in the aquifer that can degrade chlorinated solvents via reductive dechlorination.

Concerning the extraction and treatment system O&M, one conclusion reached as part of this study were estimates of the time it would take for the groundwater extraction and treatment system to achieve groundwater quality standards. These estimates ranged from 170 to 420 years to reach the groundwater enforcement standard for TCE. These lengthy time estimates, continued treatment system maintenance problems, and the reductive geo-chemistry of the site lead to the recommendations that the extraction and treatment system be shut down and the selected remedy changed to MNA. The groundwater extraction and treatment system was shut down and placed in a standby mode in July of 2004, and U.S. EPA will evaluate amending the ROD to MNA once the adequacy of natural attenuation is firmly established.

Prior to shut down, the USACE conducted the long-term groundwater monitoring and O&M of the groundwater extraction and treatment system, in accordance with the June 1998 O&M Plan and subsequent modifications to that plan. The primary activities associated with O&M activities included:

- Operation of the treatment plant 24 hours per day, seven days per week while treating water from all active extraction wells
- Inspection and maintenance of groundwater extraction and monitoring wells
- Inspection, maintenance, and operation of the treatment system
- Weekly monitoring of treatment system influent and effluent to ensure compliance with the substantial requirements of the WPDES permit
- Quarterly groundwater monitoring
- Monthly reporting on treatment system monitoring and O&M activities/problems

These services continued up until the time the system was shut down.

In general, up through closure of the groundwater extraction and treatment system, O&M costs included USACE O&M contract management, sampling and monitoring efforts, well maintenance, treatment system maintenance (including parts and labor), treatment system and well maintenance chemicals, sludge disposal, and utilities (electric and gas). From system start up in 1996, costs were relatively consistent and ranged from $500,000 to $650,000. As a result of the cyanide and metals treatment processes shutdown, there was an expected O&M cost savings for the time period from September 2001 to September 2002 of $67,000. With the elimination of chemicals and sludge disposal, subsequent yearly O&M cost savings was estimated as high as $92,000.

Last, long-term protectiveness requires compliance with the ICs. Compliance with ICs will be accomplished by planning for long-term stewardship which includes maintaining and monitoring effective ICs. To that end, the O&M Plan will be updated.

V. PROGRESS SINCE THE LAST FIVE-YEAR REVIEW

Protectiveness statement from last review - *The remedy is protective of human health and the environment in the short term. There are no current exposure pathways and the remedy appears to be functioning as designed. The removal of lagoon sludge, soils, debris and sediment to eliminate the source of contamination has achieved the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminants in soils and sediments.*

The other remaining components of the cleanup are groundwater containment and restoration by a pump and treat system. Operation and maintenance of the groundwater pump and treat system has, on the whole, been effective. However, EPA is currently in the process of evaluating opportunities for system optimization. In November 2001, work was initiated to conduct a more current capture zone analysis, delineate groundwater contamination, and make recommendations on appropriate well-field modifications. EPA anticipates implementing appropriate well-field modifications by summer 2003.

Also, there is some concern that a portion of the plume is present in the shallow aquifer below the nearby residences and their domestic wells. Furthermore, there is not convincing evidence that this area of contamination is captured by the extraction system.

Long-term protectiveness of the groundwater pump and treat portion of the remedial action will be verified by obtaining additional data/information on the well-field capture zone, delineation of groundwater contamination and implementing appropriate modifications to the well-field. The additional investigative work was initiated in November 2001 and is expected to be completed by early 2003. Implementation of appropriate well-field modifications is expected to occur in summer 2003. The groundwater pump and treat portion of the remedy will then be expected to be protective of human health and the environment upon attainment of groundwater cleanup goals.

Table 3 - Actions Taken Since the Last Five-Year Review

Issues from Previous Review	Recommendations and Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action

Issues from Previous Review	Recommendations and Follow-up Actions	Party Responsible	Milestone Date	Action Taken and Outcome	Date of Action
Cyanide and metals treatment processes shut down	1) Continue monitoring influent and effluent for WPDES exceedances 2) Maintain cyanide and metals treatment equipment in operating condition until all well-field modifications are completed	U.S. EPA / USACE	Fall 2003	The metals and cyanide concentrations were low enough that U.S. EPA / WDNR decided to discontinue the metal treatment at the groundwater extraction and treatment system.	Summer 2002
Capture zone analysis	1) Complete on-going capture zone analysis 2) Make appropriate well-field modifications to ensure protectiveness and decrease cleanup-up time	U.S. EPA / WDNR	Summer 2003	A capture zone analysis conducted and presented in *Hydro-geologic Investigation and Groundwater Extraction System Evaluation* (RMT)	February 2004
Inadequate data	1) Complete on-going delineation of groundwater contamination west of Eva Street in residential area with drinking water wells 2) Make modifications to well field that ensure capture of contamination in that area.	U.S. EPA / WDNR	Summer 2003	Both the Hydro-geologic Investigation and Groundwater Extraction System Evaluation and the Groundwater Management Plan (CH2MHill) address the monitoring and delineation of groundwater contamination	March 2005
Pump and Treat O&M	1) Continue operating pump and treat system until cleanup goals have been met 2) Continue to identify and implement opportunities to optimize operation of the groundwater pump and treatment system	U.S. EPA / WDNR/ USACE	Until cleanup goals are met	The groundwater extraction and treatment system was shut down	July 2004

Groundwater Extraction and Treatment System Shutdown - The second FYR recommended continued operation of the groundwater extraction and treatment system and continued groundwater monitoring. The recommendations also included follow up studies to optimize the system and better define the capture zone, and an optimization study was subsequently conducted by RMT, Inc of Madison, Wisconsin under contract with WDNR. During the ensuing two years, the groundwater extraction and treatment system was operated on a relatively consistent basis with intermittent shutdowns for system maintenance, adjustments, modifications to the remedy, iron bacteria fouling, and general malfunctions until it was shut down in July of 2004. Groundwater monitoring has occurred consistently over the last five years.

The environmental consulting firm RMT, Inc. was hired by WDNR in the fall of 2001. Under the direction of WDNR, and with input from U.S. EPA, RMT conducted a comprehensive groundwater flow investigation and an assessment of the groundwater extraction and treatment system at OECI. The results are included in a report entitled *Hydro-geologic Investigation and Groundwater Extraction System Evaluation – Former Oconomowoc Electroplating Company, Inc. Ashippun, Wisconsin* – February 2004. The cost of the study was $306,000.

The RMT study concluded that;

- The high organic carbon content of the silty sand in the aquifer creates a large reservoir of TCE that is sorbed to the soil, which limits both the migration of TCE away from the source area and the capacity of the groundwater extraction and treatment system to remediate the site

- The groundwater extraction and treatment system would need to operate for several hundred years to meet remedial standards under various pumping scenarios simulated by groundwater contaminant fate and transport modeling

- Chemically reducing conditions in the aquifer are generally favorable to bacteria that can degrade chlorinated solvents through reductive dechlorination, and, based on observed patterns of TCE, cis-1,2DCE, and vinyl chloride distribution, this degradation process appears to be occurring

Based on these conclusions, U.S. EPA, in consultation with WDNR, authorized the shutdown of the treatment system in July 2004. U.S. EPA chose not to prepare a ROD Amendment or an ESD to cover the plant shutdown, because, if MNA was not effective and it would be necessary to restart the extraction and treatment system, and a ROD Amendment or ESD would be unnecessary. If, however, MNA is demonstrated effective, a ROD Amendment or ESD will be prepared.

In the fall of 2004, U.S. EPA's Response Action Contract (RAC) consultant, CH2MHill, submitted a report detailing closure of the groundwater extraction and treatment systems *(Groundwater Treatment Facility Shutdown Plan – September 2004).* This report details the

steps taken to shut down the system and includes an appendix containing the extraction and treatment system operator's final shutdown status report.

A site groundwater management plan was finalized in spring of 2005 *(Groundwater Management Plan - Oconomowoc Electroplating – March 2005)*. This plan covers the groundwater MNA remedy as well as compliance monitoring at the OECI site.

Evaluation of MNA and Compliance Monitoring Programs - Monitored Natural Attenuation (MNA) refers to a remedy based on natural processes to achieve remedial objectives through reductions in the mass, toxicity, mobility, volume, and concentration of contaminants within a time frame that is reasonable. Natural attenuation processes acting on contaminants can include dilution, adsorption, advection and dispersion, volatilization, geochemical dynamics and chemical or biological transformation (microbial attenuation). Any of these processes individually or collectively can be significant and may affect the nature and distribution of the contaminants in the subsurface environment.

An initial natural attenuation sampling event was conducted in the fall of 2004 to verify site groundwater flow patterns and provide baseline natural attenuation field and analytical groundwater chemistry data for the unconsolidated aquifer. The Office of Solid Waste and Emergency Response (OSWER) Directive 9200.4-17 (1997) identifies three lines of evidence that can be used to demonstrate the occurrence of natural attenuation in chlorinated aliphatic hydrocarbons, including the following:

- Documented loss of contaminants at the field scale
- Documented presence and distribution of geochemical and biochemical indicators of natural attenuation
- Direct microbiological evidence

At the OECI site, sampling is being used to evaluate the first two lines of evidence. These two lines of evidence are often sufficient to determine if MNA is viable at the site, or if enhancements can be made (usually through the addition of electron donor) to accelerate clean-up at the site.

Monitoring wells were selected to assess the current natural attenuation conditions at the site. Two wells were selected up-gradient of the site to provide background levels, eight wells with organic contamination were selected to assess extent, and two down-gradient wells were selected to assess migration. The monitoring wells, MNA sampling parameters, and VOCs to be monitored in the MNA wells are listed in Table 4.

Table 4 – MNA Monitoring Wells, MNA Parameters, and VOCs

MNA monitoring wells	MNA Parameters	VOCs monitored in MNA Wells	
MW-001S	DO	Acetone	trans-1,2-dichloroethene
MW-014D	pH, temperature, and specific conductance	Benzene	1,2-dichloropropane
MW-012S	Oxidation/reduction potential (ORP)	*Bromodichloromethane*	cis-1,3-dichloropropene
MW-012D	Alkalinity	Bromoform	trans-1,3-dichloropropene
MW-015S	Total organic carbon (TOC)	Bromomethane	Ethylbenzene
MW-015D	Sulfide	2-butanone (MEK)	2-hexanone
MW-103S	Methane, Ethane, and Ethene	Carbon Disulfide	4-methyl-2-pentanone
MW-103D	Nitrate	Carbon Tetrachloride	Methylene Chloride
MW-105S	Sulfate	Chlorobenzene	Styrene
MW-105D	Total iron and dissolved iron	Chloroethane	1,1,2,2-tetrachloroethane
MW-013S	Dissolved manganese	Chloroform	Tetrachloroethene
MW-016S	Chloride	Chloromethane	Toluene
		Dibromochloromethane	1,1,1-trichloroethane
		1,1-dichloroethane	1,1,2-trichloroethane
		1,2-dichloroethane	Trichloroethene
		1,2-dichloroethene	Vinyl Chloride
		cis-1,2-dichloroethene	Xylenes (total)
		Methyl tert-butyl ether	Dichlorodifluoromethane
		Bromochloromethane	Isopropylbenzene
		1,2-dibromoethane	1,2-dibromo-3-chloropropane
		1,3-dichlorobenzene	1,4-dichlorobenzene
		1,2-dichlorobenzene	1,2,3-trichlorobenzene
		1,2,4-trichlorobenzene	Trichlorofluoromethane
		1,1,2-trichloro-1,2,2-trifluoroethane	Methyl Acetate
		1,1-dichloroethene	Cyclohexane
			Methylcyclohexane

Compliance monitoring In addition to the MNA monitoring program, a groundwater compliance monitoring program for the OECI site was included in the Groundwater Management Plan. For compliance, additional down gradient groundwater monitoring wells and private water supply wells were sampled to monitor compliance with state and federal water quality standards. VOCs to be monitored for the compliance program are the same as those listed above in the MNA remedy. Wells to be monitored are listed below. Compliance monitoring will take place on a semi-annual basis. A list of compliance monitoring wells is located in Table 5.

Table 5 - Compliance Monitoring Wells

Private Water Supply Wells		Monitoring wells*	
PW-01 (2551 Oak Street)	PW-05 (2602 Elm Street)	MW-4D	MW-101B
PW-02 (2574 Oak Street)	PW-07 (2603 Elm Street)	MW-5D	MW-102D
PW-03 (2601 Oak Street)	PW-09 (2606 Elm Street)	MW-12B	MW-105B
PW-04 (2605 Oak Street)	PW-10 (2607 Elm Street)	MW-13S	MW-106S
PW-05 (2611 Oak Street)	PW-11 (2612 Elm Street)	MW-15B	MW-106D
PW-06 (547 Eva Street)		MW-107S	MW-107D
		*Compliance data from these monitoring wells is supplemented by the data collected from monitoring wells that are part of the MNA remedy.	

Soil Gas Migration Also included in the Groundwater Monitoring Plan was a recommendation for a vapor intrusion evaluation. Subsequently, CH2MHill reviewed the remedial investigation conducted by Ebasco, Inc., to evaluate the soil gas work done previously and determine if any additional work was necessary. Ebasco's soil gas survey found no organic vapors at any off site locations. Based on this, no further soil gas evaluation was deemed necessary.

In October 2004, groundwater samples were collected from a subset of existing wells to assess current natural attenuation conditions at the site. Data collected consist of MNA parameters, VOCs, and field MNA parameters. Groundwater samples were analyzed for VOCs to determine their distribution relative to source areas, to assess the active degradation pathways, and to evaluate the extent of degradation. Groundwater samples were analyzed for dissolved hydrocarbon gases (ethene, ethane, and methane) to determine whether the dechlorination processes, if occurring, are proceeding to completion, and to identify the distribution of these compounds relative to the distribution of VOCs.

Analyses performed in October 2004 provide support for the natural attenuation of chlorinated VOCs (CVOCs) at the site. The indicators include:

- Detections of ethene and ethane, the end biodegradation products of TCE and 1,1,1-TCA. The detection of TCE and 1,1,1-TCA degradation products documents the loss of contaminants achieving the first line of evidence of MNA (U.S. EPA 1999)
- The general observance of DO concentrations less than 1 mg/L in the area of highest CVOC detections. The low concentrations observed for DO support the presence of anaerobic conditions appropriate for biodegradation of CVOCs and support the second line of evidence of MNA (U.S. EPA 1999).
- Detection of dissolved iron, dissolved manganese, and methane above background concentrations in the area of CVOCs indicates the presence of reducing conditions needed for biodegradation to occur. Nitrate was generally not detected or was below 1 mg/L, further supporting conditions appropriate for biodegradation. These geochemical and biochemical conditions are indicators of natural attenuation and support the second line of evidence of MNA (U.S. EPA 1999).

- The occurrence of chloride concentrations three to four times higher than background locations in the area of highest CVOC detections. During each step of the reductive de-chlorination process, chloride is released as a by-product. The chloride observations also support the second line of evidence of MNA (U.S. EPA 1999).

The CH2MHill report also provides the following observations and recommendations:

- October 2004 concentrations are similar to those measured when the system was in operation in April 2003, which suggests that the CVOC plume is currently stable despite the groundwater treatment system shutdown

- Groundwater chemistry data indicates natural attenuation of CVOCs near the down gradient portions of the CVOC plume

- Monitoring data suggest that, to date, significant natural attenuation is occurring at or near the wetland area on the south side of the site. Specifically, the data collected from well nests MW-12, MW-13, and MW-16 show that extensive anaerobic conditions exist that contribute to natural attenuation of CVOCs

- The migration of CVOCs appears to be limited to the un-consolidated zone groundwater onsite and down gradient from the site

- Natural attenuation in the wetland area, down gradient of the site, should minimize further migration and may meet remedial goals for the site

- Monitoring data collected over time can be used to verify that natural attenuation is sufficient to control CVOC migration such that MNA may be an appropriate stand-alone remedy

VI. FIVE-YEAR REVIEW PROCESS

Administrative Components – Members of the WDNR and USACE were notified of the initiation of the Five Year Review in the fall of 2006. The OECI team consisted of Ed Lynch of WDNR and Bill Ryan of U.S. EPA, RPM for the OECI site, from November, 2006 to March, 2007. The components of the review included:

- Community Notification
- Document Review
- Data Review
- Site Inspections
- Five-Year Review Report Development and Review

The effort extended through March 30, 2007.

Community Notification and Involvement – U.S. EPA initiated activities to involve the community in the FYR process in November of 2006 with a public notice ad published on November 27, 2006 in the local newspaper (Watertown Daily News) that a FYR was to be conducted. Since the notice was issued, no member of the community voiced any interest or opinion concerning the FYR process. A copy of the Public Notice ad is included in Attachment 5.

Document Review – This FYR consisted of a review of relevant documents including evaluation reports and monitoring data (See Attachment 3). Applicable groundwater cleanup standards, as listed in the 1990 ROD, were reviewed.

Data Review – Sampling data is provided for the MNA monitoring and compliance monitoring programs. For compliance monitoring, it is further broken down by monitoring wells and private wells. As mentioned previously, due to the limited effectiveness of the groundwater extraction and treatment system a decision was made to shut down the plant and to leave the equipment in the treatment building in case it was necessary to start it up again. Furthermore, due to the apparent favorable conditions for natural attenuation at the site, CH2MHill submitted, with concurrence of the U.S. EPA project manager, a proposal for monitored natural attenuation (MNA) at the OECI site.

No ROD Amendment or ESD changing the remedy was prepared so that if there was a need to return the plant to operation, there would be minimal administrative problems. During this shutdown phase, natural attenuation processes are being evaluated with quarterly monitoring, and compliance with groundwater standards is being monitored semiannually. After the treatment plant shutdown there was a temporary delay in groundwater monitoring, because the initial contract period between U.S. EPA and CH2MHill lapsed briefly before the new contract was approved. In the interim, CH2MHill was not able to conduct sampling, get data validated, or prepare reports. Monitoring is now occurring as scheduled.

MNA monitoring Wells sampled as part of the MNA remedy are identified in Table 5. The analytical results from the four sampling events that took place between October 2004 and January 2006 can be found in Attachments 8, 9, and 10. In addition, MNA parameters were collected in March of 2006 and January 2007, but the results were not available for this review. In February of 2006, CH2MHill submitted a report entitled *Groundwater Sampling Results and Natural Attenuation Evaluation,* which included an evaluation of natural attenuation at the OECI site. Much of the information below is from this report. The report concluded: 1) the CVOC plume appears to be stable based on the observation that October 2004 concentrations are similar to those measured when the system was in operation in April 2003; and, 2) that groundwater chemistry data provides evidence supporting natural attenuation of chlorinated VOCs (CVOCs) near the shallow down-gradient portions of the CVOC plume. Moreover, the MNA monitoring data suggest that, to date, significant natural attenuation is occurring at or near the wetland area located on the south side of the site. Specifically, the data collected from well nests MW-12, MW-13, and MW-16 show anaerobic conditions exist that are contributing to natural attenuation of CVOCs.

The migration of CVOCs appears to be occurring primarily in the unconsolidated aquifer onsite and south of the site. Natural attenuation in the wetland area south of the site should minimize further migration and appears to be meeting remedial goals. Recommendations in the report include:

- Continued collection of monitoring data to verify that natural attenuation is sufficient to control CVOC migration such that MNA may be an appropriate stand-alone remedy and that quarterly groundwater sampling events should be continued for 2 years to collect MNA data to properly evaluate seasonal trends in the biogeochemistry and NA.
- The MNA program be enhanced to monitor potential receptors and detect plume expansion through: 1) the completion of a nested monitoring well pair on the south side of Davy Creek, which will evaluate the flow between Davy Creek and the shallow and deep unconsolidated groundwater, and serve as sentinel wells to evaluate plume expansion *(Note this well nest has been installed)*, and 2) Re-sampling private wells to confirm the presence of low concentrations of chlorinated compounds detected during July 2005 sampling. Once results from these wells are validated and evaluated, an assessment should be made as to further sampling and or recommendations. If CVOCs are detected in the sentinel well nest (MW-107), or if plume expansion is documented for several consecutive quarters of monitoring, the implementation of a contingency plan will be evaluated. The contingency approach may consist of modifications to the monitoring program or remediation approach for the site. For example, if trends in groundwater data suggest an expanding plume, additional wells may be monitored or the frequency of monitoring may be increased. In the event that CVOCs are confirmed in private water-supply wells at concentrations above the MCLs, additional remedial activities should be considered. These may consist of point of service treatment or enhancement of NA through the addition of carbon substrates to the groundwater, respectively. A detailed design would be prepared, if deemed necessary, for U.S. EPA review and approval. *(Note: this sampling did take place, but the data is not yet available).*

Natural Attenuation Data Based upon groundwater monitoring data for three rounds in the shallow and deep unconsolidated zone, parent products in groundwater (TCE and 1,1,1-TCA) are being degraded by anaerobic reductive de-chlorination and other natural attenuation processes to transformation products (1,2-DCE, VC, 1,1-DCA, 1,1-DCE, chloroethane, and methane). Additionally, final and nontoxic degradation byproducts, ethene and ethane, were also detected at the site. The detection of ethene and ethane indicates that microorganisms currently present in the subsurface and down gradient of the site have the capacity to degrade parent products through each step of the de-chlorination process. Ethane can also be produced by plants during spring and summer vegetative growth phases, so any significant ethene or ethane data noted during fall or winter months suggest that the ethane / ethane is likely the result of CVOC reductive dechlorination and not derived from natural vegetation that may be present. Based on the data collected to date, the presence of ethane in the groundwater provides evidence that CVOCs are being de-chlorinated to environmentally-acceptable end products. Analytical results for sampling performed in

October 2004, July 2005, and October 2005 provide support for the occurrence of natural attenuation at and down gradient of the site, including:

- Detections of ethene and ethane, the end biodegradation products of TCE and 1,1,1-TCA
- The detection of TCE and 1,1,1-TCA degradation products documents the loss of contaminants achieving the first line of evidence of natural attenuation (U.S. EPA, 1999)
- Detection of dissolved iron, alkalinity, and methane above background concentrations in the area of CVOC detections indicating the presence of reducing conditions needed for biodegradation to occur. Nitrate was generally not detected or was below 1 mg/L, further supporting conditions appropriate for biodegradation. These geochemical and biochemical conditions are indicators of natural attenuation and support the second line of evidence of natural attenuation (U.S. EPA, 1999)
- The observance of chloride concentrations three to four times higher than background in the area of highest CVOC detections

Data for the MNA remedy has been collected three times since the above report was written. Of these three sampling events, only data from the first event is available. That data, from January of 2006, is consistent with the data previously collected on MNA. Once the other data are available, from March of 2006 and January 2007, CH2MHill will conduct another evaluation of the MNA remedy at the OECI.

Compliance monitoring Both private water supply wells and monitoring wells are covered by the compliance monitoring program. The purpose of the compliance monitoring program is to provide a means to monitor groundwater on and off the OECI site in relation to groundwater quality standards. These standards are found in Ch. NR 140, Wisconsin Administrative Code for Preventative Action Limits (PAL) and Enforcement Standard (ES) for respective compounds. WDNR ES values typically correspond to U.S. EPA's maximum concentration limits (MCLs). PALs values are generally 10 to 50 percent of the ES values. For groundwater quality standards for substances that are of public health concern, the PAL is 10 percent of the ES value for carcinogenic, mutagenic or teratogenic substances and 20 percent for other public health substances. For substances of public health concern, the PAL is 50 percent of the ES value.

Wells and parameters sampled as part of the compliance monitoring program are identified in Table 4 and Table 5. The analytical results are from the compliance sampling events that took place from October 2004 through January 2006. Samples for the compliance monitoring program were also collected in March of 2006 and January 2007, but the results were not available for this Five year review.

Private Water supply wells. The results from monitoring private water supply wells from July 2005 and January 2006 are listed below. The results show that some VOCs were detected in low concentrations in some of the private wells in both rounds of sampling. While some of

these exceeded the PAL value, all were below the WDNR ES value. The wells with PAL exceedances and their respective estimated VOC concentrations are as follows:

Private Well	Sampling Event	VOC	Sample * Value (µg /L)	PAL (µg /L)	ES (µg /L)
PW-04	Jan '06	Vinyl Chloride	0.069	0.02	0.2
PW-05	Jan '06	Vinyl Chloride	0.042	0.02	0.2
PW-07	July '05	Vinyl Chloride	0.042	0.02	0.2
	Jan '06	Vinyl Chloride	0.056	0.02	0.2
PW-09	July '05	Vinyl Chloride	0.050	0.02	0.2
	Jan '06	Vinyl Chloride	0.061	0.02	0.2
	Jan '06	Chloromethane	0.56	0.3	3.0

** Estimated value – This value was between the method detection limit and the limit of quantitation and, therefore, is estimated*

In June of 2006, U.S. EPA notified the property owners of the results of the sampling that took place in July of 2005 and June of 2006. In the letter, U.S. EPA indicated their water was currently safe to drink, and that they would be informed of subsequent sampling results. U.S. EPA also increased the monitoring frequency from semiannually to quarterly. The WDNR water supply program was notified of these exceedances and provided copies of the letters.

Monitoring wells The results from the OECI site monitoring wells from July 2005 and January 2006 are included in Attachment 10. While some of these exceeded the PAL value, all were below the WDNR ES. During these sampling events, the following compounds were detected at or above their respective ES in at least one monitoring well location:

Chloride	iron	manganese
Sulfate	bromodichloromethane	cis-1,2-DCE
1,1 DCE	methylene chloride	1,1,1-trichloroethane (1,1,1-TCA)
1,1,2-TCA	TCE	vinyl chloride

These following compounds were detected above their respective PAL:

Nitrate	1,1-DCA	1,2-DCA
Benzene	chloromethane	tetrachloroethene

PAL and ES exceedances of organic compounds were generally observed in the near source well nest (MW-103) or at well nests (shallow and deep locations) near downgradient Davy Creek south-southwest of the site (MW-12, MW-13, MW-15, MW-16, and MW-105). The exception includes the manganese exceedances observed at MW-14D (up gradient well) and the total iron exceedances at MW-001S. There were no bedrock monitoring wells with ES exceedances. The only bedrock monitoring well with a PAL exceedance was MW-105B with

vinyl chloride concentration of 0.059 and 0.092 µg /L, versus the PAL of 0.02 µg /L (ES = 0.2 µg /L). This well is located immediately down gradient of the onsite source area.

Site Inspection – An inspection at the OECI site was conducted on November 20, 2006. In attendance at the meeting was Ed Lynch of the WDNR, Bill Ryan of the U.S. EPA, and Matt Boekenhauer of CH2MHill, the U.S. EPA RAC contractor for the site. The purpose was to inspect the site, verify the integrity of fencing to restrict access to the treatment system, and view various wells on the site. The effort did not include evaluation of the wetland as this was conducted and found to be satisfactory at the time of the last Five year review.

During the inspection, the perimeter of the site and the perimeter of the site fencing were walked, the treatment building's interior was inspected, one of the extraction well head enclosures was opened and inspected, and certain monitoring wells were inspected. These were found to be in satisfactory condition. There was no evidence of anyone trying to enter the fenced area or the building and the extraction well covers were closed and locked. Concerning the inspection, there were no significant issues have been identified regarding the integrity of fencing to restrict access to the treatment building or extraction well protection. The site inspection checklist appears in Attachment 6.

Interviews – Interviews with individuals beyond the FYR project team were not conducted. Since the newspaper ad was placed, no community member or other individual voiced any interest in conducting an interview related top the FYR.

VII. TECHNICAL ASSESSMENT

Question A: Is the remedy functioning as intended by the decision documents?

Yes - The review of documents, applicable or relevant and appropriate requirements (ARARs), risk assumptions, and the results of the site inspection indicates that the remedy has functioned as intended by the ROD, as modified by the ESDs. The removal of lagoon sludge, soils, debris and sediment to eliminate the source of contamination has achieved the remedial objectives to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminants in soils and sediments.

Operation and maintenance of the groundwater extraction and treatment system was, on the whole, effective for the eight years it operated. U.S. EPA and WDNR oversaw an evaluation of the groundwater system, which concluded that while the groundwater extraction and treatment system had reduced contaminant concentrations in the groundwater, its effectiveness was becoming limited as the concentrations of non-aqueous phase liquids (NAPL) in the soil leveled off. U.S. EPA and WDNR subsequently authorized shutdown of the system in the summer of 2004.

U.S. EPA's contractor, CH2MHill, has found conditions at the site are favorable for natural attenuation of chlorinated compounds. U.S. EPA anticipates modifying the remedy once the effectiveness of MNA is firmly established.

U.S. EPA will continue to monitor groundwater for both natural attenuation and compliance monitoring proposes. At this time it is unclear if vinyl chloride concentrations in private wells above the PAL are a short-term "rebound effect" from turning of the OECI site groundwater extraction and treatment system. Should VOC concentrations in nearby private wells approach risk-based standards, contingency actions will be implemented to reduce human exposure.

Question B: Are the exposure assumptions, toxicity data, cleanup levels, and remedial action objectives (RAOs) used at the time of the remedy selection still valid?

Yes - The exposure assumptions used to develop the Human Health Risk Assessment included both current exposures and potential future exposures. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to these assumptions or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

Changes in Standards and To be Considered

As the remedial work has been completed, most ARARs for sediment, soil and debris contamination cited in the ROD have been met. ARARs that still must be met at this time and that have been evaluated include: The Safe Drinking Water Act (SDWA)(40 CFR 141.11-141.16) and the state of Wisconsin groundwater quality standards (Ch. NR 140, WAC. Chapter 160, Wis. Stats.) from which many of the groundwater cleanup levels were derived - [Maximum Contaminant Levels (MCLs), MCL Goals (MCLGs), and NR 140 Preventative Action Limits (PALs)]. ARARs are included in Attachment 4. There have been no changes in these ARARs and no new standards or to be considered (TBCs) affecting the protectiveness of the remedy.

Changes in Exposure Pathways, Toxicity, and Other Contaminant Characteristics

The exposure assumptions used to develop the Human Health Risk Assessment included exposure to contaminated groundwater and soils from a possible future ingestion pathway, and exposure to contaminated soils from a possible future dermal contact pathway. The exposure assumptions used to develop the ecological assessment for Davy Creek and the adjacent wetlands area included high toxicity to various aquatic species from high metal concentrations. Toxicity tests confirmed these expectations.

There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment. These assumptions are considered to be conservative and reasonable in evaluating risk and developing risk-based cleanup levels. No change to

these assumptions or the cleanup levels developed from them is warranted. There has been no change to the standardized risk assessment methodology that could affect the protectiveness of the remedy. The groundwater remedy is not progressing as expected and it is no longer expected that all groundwater cleanup levels will be met within 30 years, as specified in the ROD. Based on the study completed in 2004, it was determined that the groundwater extraction and treatment system was no longer effective and that a monitored natural recovery program should be implemented. There are currently concerns about the vinyl chloride detects at certain private water supply wells that exceed PALs levels.

Question C: Has any other information come to light that could call into question the protectiveness of the remedy?

Yes - Compliance monitoring results from private water supply from July 2005 and January 2006 show that vinyl chloride was detected in low concentrations. While some of these exceeded the PAL value, all were below the WDNR ES value. The wells with PAL exceedances and their respective estimated VOC concentrations are:

Private Well	Sampling Event	VOC	Sample Value (µg /L)	PAL (µg /L)	ES (µg /L)
PW-04	Jan '06	Vinyl Chloride	0.069	0.02	0.2
PW-05	Jan '06	Vinyl Chloride	0.042	0.02	0.2
PW-07	July '05 Jan '06	Vinyl Chloride	0.042 0.056	0.02	0.2
PW-09	July '05 Jan '06	Vinyl Chloride	0.050 0.061	0.02	0.2

** Estimated value – This value was between the method detection limit and the limit of quantitation and, therefore, is estimated*

In June of 2006, all the property owners where the private water supply wells are located were notified in writing by U.S. EPA of the results of the sampling that took place in July of 2005 and June of 2006. In that correspondence, U.S. EPA notified the owners their water was safe to drink, they would be informed of subsequent sampling results, and that the monitoring frequency was being increased from semiannually to quarterly. The WDNR water supply program has been notified of these exceedances and provided copies of the letters. As part of the site Groundwater Management Plan, monitoring will continue and a decision may be necessary on the need for future action as mentioned in the response to question A, above

Furthermore, ICs, which are neither required by the ROD nor currently in-place, appear to be required to protect the integrity of the remedy. This will be explored further through IC evaluation activities and an IC Plan conducted by U.S. EPA.

Technical Assessment Summary

According to the data reviewed and the site inspections, the remedy has functioned as intended by the ROD, as modified by the ESDs. However, with the shutdown of the groundwater extraction and treatment system, there have been changes to the operation of the remedy. If the private water supply wells with the detections of vinyl chloride prove to be more than an initial rebound due to the shut down of the groundwater extraction and treatment system, then further action may be warranted. This would be the only information available that calls into question the protectiveness of the remedy. If the shutdown of the extraction and treatment system remains permanent, or further actions are necessary to address private water supply issues, a ROD amendment or ESD would need to be signed.

As stated in the second Five-Year Review ARARs for soil and sediment contamination cited in the ROD and ESDs have been met. There have been no changes in the toxicity factors for the contaminants of concern that were used in the baseline risk assessment, and there have been no changes to the standardized risk assessment methodology that could affect the protectiveness of the remedy.

VIII. ISSUES

Table 6 - Issues

Issue	Currently Affects Protectiveness (Y/N)	Affects Future Protectiveness (Y/N)
Vinyl chloride detects in private water supply wells	N	Y
MNA Evaluation	N	Y
ROD Amendment or ESD	N	Y
Institutional Controls	N	Y

IX. Recommendations and Follow-Up Actions

Table 7 - Recommendations and Follow-Up Actions

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Vinyl chloride detects in private water supply wells.	Continue to monitor private water supply wells adjacent to the OECI site for vinyl chloride as well as other volatile organic compounds. Should vinyl chloride concentrations exceed risk-based standards, implement contingency actions to limit human exposure	U.S. EPA	U.S. EPA / WDNR	Fall of 2007	N	Y
Effectiveness of MNA and need for any future actions.	Evaluate the effectiveness of MNA and plan for potential enhancements to the MNA remedy and/or the need to restart the Groundwater extraction and treatment system.	U.S. EPA	U.S. EPA / WDNR	Fall of 2007	N	Y
ROD Amendment or ESD	Prepare an amendment to the existing ROD or an ESD to document the decisions made concerning the shut down of the groundwater extraction system at the OECI site as well as the need for future actions.	U.S. EPA	U.S. EPA / WDNR	Fall of 2007	N	Y

Issue	Recommendations/ Follow-up Actions	Party Responsible	Oversight Agency	Milestone Date	Affects Protectiveness? (Y/N)	
					Current	Future
Effective Institutional Controls must be implemented, maintained and monitored	An IC plan will be developed by U.S. U.S. EPA within 6 months of the Five Year Review completion. The IC plan will incorporate the results of the evaluation activities and plan for additional IC activities as needed, including planning for long-term stewardship.	U.S. EPA	U.S. EPA / WDNR	12/12/07	N	Y

X. Protectiveness Statement(s)

The remedy is currently protective of human health and the environment in the short term. The removal of lagoon sludge, soils, debris and sediment to eliminate the source of contamination has achieved the remedial action objectives, which were to minimize the migration of contaminants to groundwater and surface water and prevent direct contact with, or ingestion of, contaminated soils and sediments.

However, in order for the remedy to be protective in the long-term, an assessment is necessary to determine the future effects of shutting down the groundwater extraction and treatment system, and institutional controls need to be implemented to ensure long-term protectiveness. The effects of shutting down the treatment system are currently being evaluated in conjunction with the efficacy of natural attenuation. Should VOC concentrations in nearby private wells approach risk-based standards, contingency actions will be implemented to reduce human exposure. The remedy will achieve long-term protectiveness when the groundwater cleanup standards are attained throughout the plume. Additionally, given that areas of Site do not allow for unlimited use/unrestricted exposure, Institutional Controls (ICs) will be needed to assure protectiveness of the remedy.

XI. Next Review

The next FYR for the OECI site is required within five years of the signature date of this review.

Attachment 1 - Site Location Map

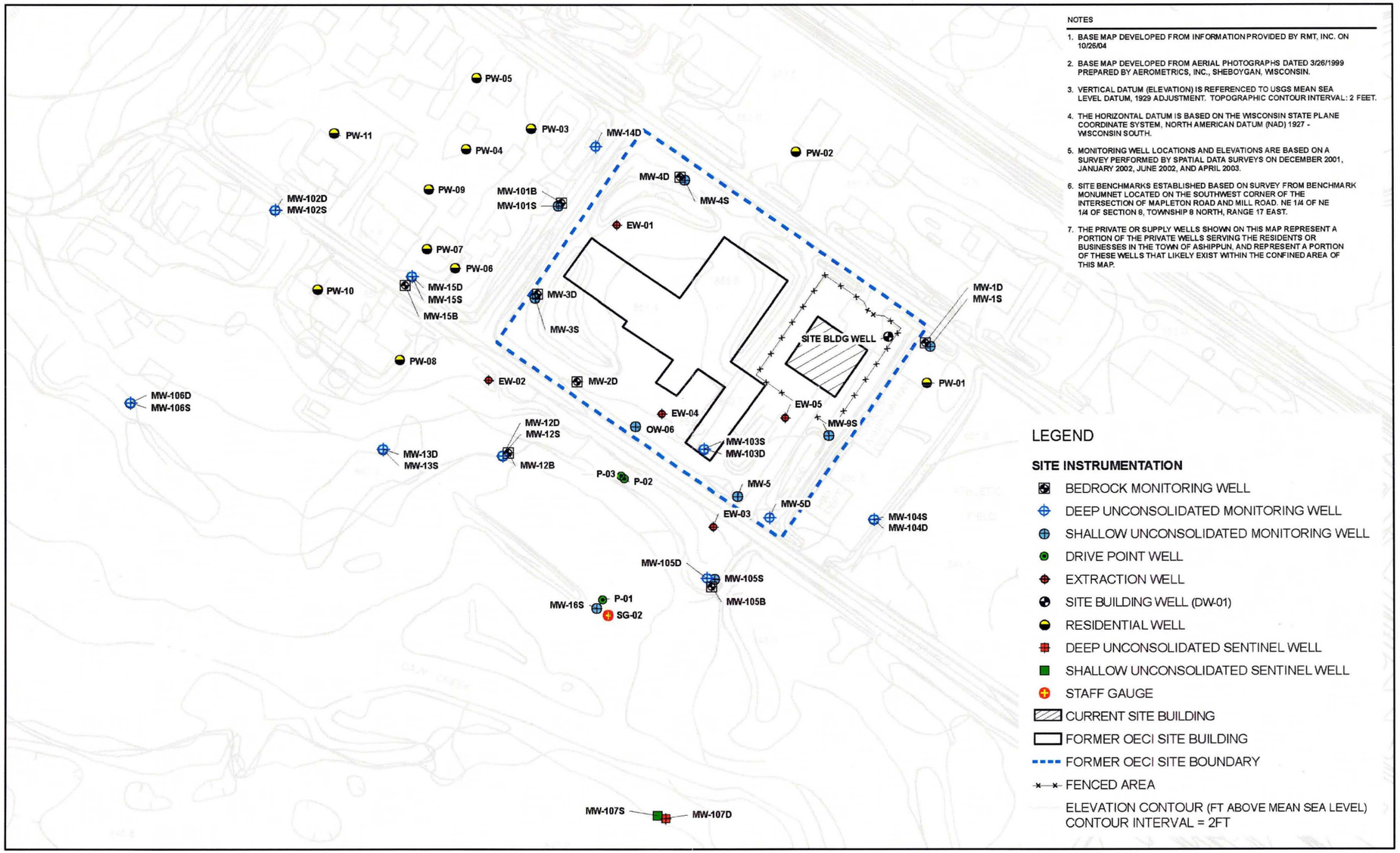
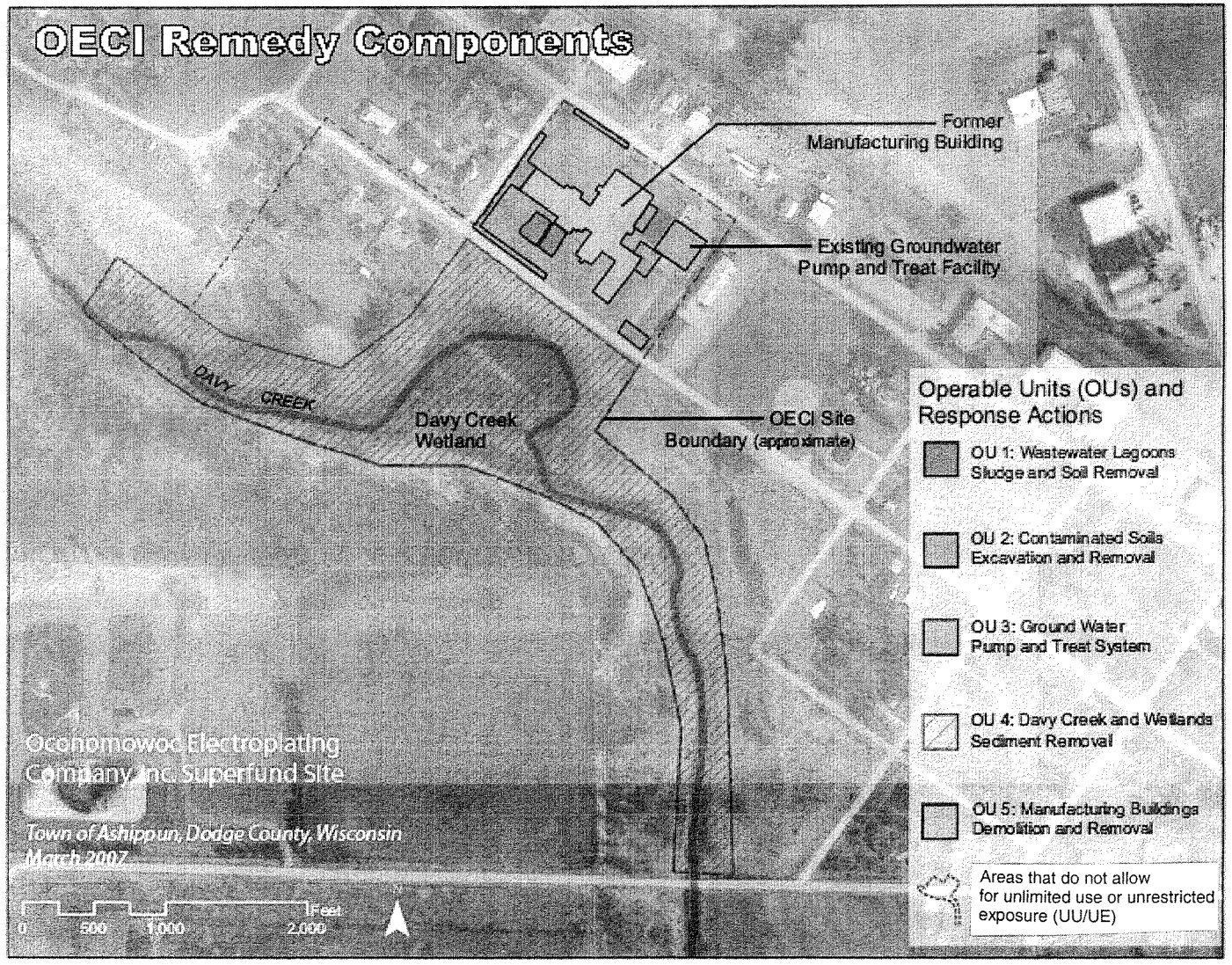


FIGURE 2
Site Monitoring Well Locations
2007 Annual Groundwater Report and Evaluation of Monitored Natural Attenuation
OECI Site

ES052007001CVO-OECI_Site_MonitoringWellLocations

CH2MHILL

Attachment 2 Aerial photograph indicating where there are areas that do not allow for unlimited use or unrestricted exposure (UU/UE)



Attachment 3 - List of Documents Reviewed

Record of Decision	September, 1990
Explanation of Significant Difference	September, 1991
Explanation of Significant Difference	March, 1994
First Five-Year Review	September, 1997
Report of the Remediation System Evaluation, Site Visit Conducted at the Oconomowoc Site 14-15 March, 2000	August, 2000
Second Five-Year Review	July 12, 2002
Hydro geologic Investigation and Groundwater Extraction System Evaluation – RMT, Inc.	February 2004
Groundwater Treatment Facility Shutdown Plan – RAC V - CH2M HILL	September 2004
Draft Natural Attenuation Sampling and Analysis Plan – RAC V - CH2M HILL	September 2004
Natural Attenuation Sampling and Analysis Plan – RAC V - CH2M HILL	October 2004
Recommended Groundwater Monitoring Program Technical Memorandum – RAC V - CH2M HILL	February, 2005
Soil Gas Survey Historical Results – RAC V –CH2MHill	February, 2005
Groundwater Management Plan – RAC V - CH2M HILL	March 2005
Final Sampling and Analysis Plan – RAC V - CH2M HILL	June 2005
Groundwater Sampling Results (July 2005) – RAC V - CH2M HILL,	November 2005
Groundwater Sampling Results and Natural Attenuation Evaluation (October 2005) – RAC V - CH2M HILL	February 2006
Groundwater Sampling Results (January 2006) – RAC V - CH2M HILL	April 2006
Draft QAPP Addendum –RAC2 - CH2M HILL	September, 2006
Draft Updated FSP – RAC2 - CH2M HILL	October, 2006
Town of Ashippun, Wisconsin: Oconomowoc Electroplating Company Inc. Superfund Site Summary Memo - E2 Inc.	November 2006

Attachment 4 - Applicable or Relevant and Appropriate Requirements (ARARs)

[ARARs Discussion from the RECORD OF DECISION SELECTED REMEDIAL ALTERNATIVE FOR THE OCONCMCWOC ELECTROPLATING COMPANY, INC. SITE - ASHIPPUN, WISCONSIN September,1990]
[This was the ARARs Attachment 4 in the last Second Five Year Review]

X. Statutory Determinations *(Beginning on page 34 of the September, 1990 ROD)*
The selected remedy must satisfy the requirements of Section 121(a-e) of CERCLA to:
A. Protect human health and the environment;
B. Comply with ARARs;
C. Be cost-effective;
D. Utilize permanent solutions and alternate treatment technologies to the maximum extent practicable; and,
E. Satisfy a preference for treatment as a principle element of the remedy.

The implementation of Alternatives LI, SI, 6W2, and DW1 at the OEC site satisfies the requirements of CERCLA as detailed below:

With regard to the community and onsite workers, all alternatives will pose potential risks from dust and air emissions generated during excavation activities because all alternatives require some excavation. Perimeter air monitoring would be needed during remedial activities to determine if steps are needed to protect the community from adverse air emissions. Workers will be required to wear the proper protective health and safety equipment to protect their safety.

With regard to the time until remedial objectives are met, all alternatives with the exception of GWl and GW2 should take a few weeks to a few months to implement. Alternatives GWl and GW2 could take up to 30 years to achieve the cleanup goals. With regard to environmental impacts, alternatives GWl and GW2 may result in a change in groundwater flow and will have to be monitored so that no adverse impacts result to the wetlands. Alternatives DW1 and DW2 will have environmental impacts to the wetlands and Davy Creek and a plan to mitigate these impacts (e.g. restricting vehicle traffic in the wetland) will be developed.

(Top of page 35 of 9/90 ROD)

A. Protection of Human Health and the Environment
Implementation of the selected alternatives will reduce and control potential risks to human health posed by exposure to contaminated soil, sediment, and groundwater . Lagoon cleanup will be to RCRA clean closure 40 CFR Part 264 Subpart 6 levels, or the appropriate State RCRA requirements. Extraction and treatment of contaminated groundwater will be conducted to meet federal and state Ground-Water Cleanup Standards. Soil and debris at the site (i.e., the non-RCRA lagoon soils) will be excavated and backfilled so that the direct contact exposure risk will be reduced to 10~6 and migration of contaminants to groundwater will be mitigated to standards, consistent with EPA's guidelines on hybrid clean closure. Cleanup levels in the wetlands and Davy Creek have not been established pending the results of the bioassay work. The selected remedy also protects the environment by reducing the potential risks posed by site chemicals discharging to surface water (Davy Creek) and the wetlands.

With regard to the community and onsite workers, all alternatives will pose potential risks from dust and air emissions generated during excavation activities. Perimeter air monitoring will be needed during remedial activities to determine if steps are needed to protect the community from adverse air emissions. Workers will be required to wear the proper protective health and safety equipment to protect their safety. None of these short term

risks will result in unacceptable exposures to human health or the environment.

B. Compliance with ARARS
The remedies selected for operable units 1, 2, and 3, will comply with the federal, and state standards where more stringent, of applicable or relevant and appropriate requirements (ARARs). The selected, interim remedy for Operable Unit 4 will comply with those ARARs that are pertinent, given the limited scope of this action. The ARARs for the four operable units are listed below.

B.I Chemical-specific ARARS – Chemical-specific ARARs regulate the release to the environment of specific substances having certain chemical characteristics. Chemical-specific ARARs typically determine the extent of cleanup at a site.

B.I.a Soils
The soil clean-up standards for the OEC site will be based on the State's clean closure requirements (for the lagoons) and on EPA's hybrid closure guidelines for the contaminated soil and debris at the site.

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B.l.b Sediments
The removal criteria for the sediments in the wetlands, and potentially Davy Creek, will be based on existing sediment studies, as well as any additional information collected during remedial design and action.

B.l.c Groundwater
i. Federal ARARs – Maximum Contaminant Levels (MCLs), and the non-zero Maximum Contaminant Level Goals (MCLGs), the Federal drinking water standards promulgated under the Safe Drinking Water Act (SDWA), are applicable to municipal water supplies servicing 25 or more people. At the OEC site, MCLs and MCLGs are not applicable, but are relevant and appropriate, since the sand and gravel aquifer is a Class IIA source which could potentially be used for drinking in the area of concern (the contaminant plume). MCLGs are relevant and appropriate when the standard is set at a level greater than zero (for non-carcinogens), otherwise, MCLs are relevant and appropriate. The point of compliance for groundwater standards will be attained throughout the plume within a reasonable period of time, once all sources on site have been addressed.

ii. State ARARs – The State of Wisconsin is authorized to administer the implementation of the Federal SDWA. The State has also promulgated ground-water quality standards in Ch. NR 140, WAC. Chapter 160, Wis. Stats., directs the WDNR to take action to prevent the continuing release of contaminants at levels exceeding standards at the point of standards application. Ground-water quality standards established pursuant to Ch. NR 140, WAC, will be preventive action limits (PALs), where economically and technically feasible or alternative concentration limits (ACLs) not to exceed the State's ES. Preventive action limits (PALs) and enforcement standards (ESs) contained in section NR 140.10, WAC, for the Chemicals of Concern are listed in Table 2-13. PALs (and ESs) are generally more stringent than corresponding Federal standards. The State's groundwater law and code is a ARAR for this site, since those laws were created to address groundwater quality in general. The implementation of the selected remedy at the OEC site will be in compliance with Ch. NR 140, WAC, in that preventive action limits (PALs) will be the clean-up standard for Groundwater . The effectiveness of the groundwater system in achieving that goal will be reviewed periodically to determine if achieving the PAL is technically and economically feasible, based on site-specific

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information collected during remedial action. The initial review of the groundwater system shall occur within the first five years of implementing the Groundwater remediation system. Alternative concentration limits (ACLS), pursuant to the criteria in section NR 140.28, WAC, will be established if it is determined that attaining the PALs is infeasible, at any point in the remedial action process.

[Surface Water]
i. Federal ARARs – Surface water quality standards for human health and aquatic life protection were developed under the Clean Water Act (CWA) Section 304. The Federal Ambient Water Quality Criteria (AWQC) are non-enforceable guidelines that set pollutant concentration limits to protect surface waters that are applicable to point source discharges, such as from industrial or municipal wastewater streams. At a Superfund site, the Federal AQWC would not be applicable except for pretreatment requirements for discharge of treated water to a Publicly Operated Treatment Works (POTW). CERCLA (Section 121(d)(l)) requires the U.S. EPA to consider whether AWQC would be relevant and appropriate under the circumstances of a release or threatened release, depending on the designated or potential use of Groundwater or surface water, the environmental media affected by the releases or potential releases, and upon the latest information available. Since the aquifer is a current and potential source of drinking water, and treated water will be discharged to Davy Creek, AWQC adopted for drinking water and AWQC for protection of freshwater aquatic organisms are relevant and appropriate to the point source discharge of the treated water into Davy Creek.

ii. State ARARs – Section 303 of the CWA requires the State to promulgate state water quality standards for surface water bodies, based on the designated uses of the surface water bodies. CERCLA remedial actions involving surface water bodies must ensure that applicable or relevant and appropriate state water quality standards are met. The standards established pursuant to NR 105 and 106, WAC, would be ARARs for this site. In addition Ch. NR 102, WAC establishes an anti-degradation policy for all waters of the State and it establishes water quality standards for use qualifications. Chapter NR 102, WAC would be applicable to actions that involve discharges to Davy Creek in that discharges must meet water quality standards, as set forth in Section B.3.ii, below.

B.2 Location-specific ARARS – Location-specific ARARs are those requirements that relate to the geographical position of a site. These include:

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i. Federal ARARs – Executive Order 11990 - Protection of Wetlands is an applicable requirement to protect against the loss or degradation of wetlands. As discussed above, Alternative^GW2 should be designed not to have an adverse effect on the Davy Creek wetlands.

ii. State ARARs – Section 29.415, Wisconsin Statutes, and Chapter NR 27, WAC, are State Endangered and Threatened Species laws which prohibit the "taking" or harming of endangered or threatened wildlife resources in the area. Since it is possible that endangered species inhabit the wetlands, these statutes would be ARARs for the site in that the poisoning of endangered or threatened species by site contaminants could be considered by the WDNR to be a "taking."

B.3 Action-specific ARARs – Action-specific ARARs are requirements that define acceptable treatment and disposal procedures for hazardous substances.

i. Federal and State RCRA ARARs – Since the OEC was and is still operating a RCRA hazardous waste site, the State's RCRA Subtitle C requirements are applicable. The State's NR 181 requirements for clean closure of surface impoundments would be applicable to the OEC lagoons since these are regulated units pursuant to RCRA.

The RCRA Subtitle C standards are not applicable to the site's contaminated soil and debris. However, since it is soil and debris contaminated with an FOO6 hazardous waste, the RCRA closure requirements would be relevant and appropriate. As established in the NCP, the EPA may utilize the EPA's hybrid closure guidelines for remediating the contaminated soil and debris, where RCRA is determined to be relevant and appropriate. The EPA and WDNR have agreed to use the hybrid closure guidelines when remediating the soil and debris at OEC.

The substantive requirements of RCRA waste generation and temporary storage regulations under 40 CFR Part 262 will be followed when managing the treatment residuals from the groundwater system (e.g., ion exchange resins). Additional Federal action-specific ARARs are found in the FS.

ii. State ARARs – The State is authorized to implement the National Pollutant Discharge Elimination System (NPDES) program. The

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substantive requirements of a Wisconsin Pollutant Discharge Elimination System (WPDES) permit, under Ch. NR 220, WAC, would be applied to the discharge of the treated water into Davy Creek. A permit is not required since the discharge point is considered to be on-site. Subject to the approval of the U.S. EPA, effluent limits for surface water discharge will be established by the WDNR. Ch. NR 220, WAC requires that the effluent limits be based on the application of best available treatment technology (BAT) prior to discharge.

Chapter 147, Wisconsin Statutes, is also applicable to treated water to be discharged to Davy Creek. These regulations state that no discharge shall contain quantities of listed pollutants greater than that would remain after subjecting the water to best available technology economically achievable (BATEA). Chapter NR 445, WAC regulates air emissions from treatment technologies and is applicable to point source emissions from industrial facilities. Since air strippers may emit hazardous substances in the form of VOCs, section NR 445.04, WAC is relevant and appropriate for the remedy. The need for emission control technology shall be evaluated based on requirements of Ch. NR 445, WAC. If air stripper emissions are projected to exceed standards at the OEC property boundary, the point of compliance, then vapor control technology such as vapor phase activated carbon will be included in the treatment system to bring air emissions into compliance.

Attachment 5
Public Notice Advertisement

EPA To Review
Oconomowoc Electroplating Cleanup
Ashippun, Wisconsin

U.S. Environmental Protection Agency (EPA) is conducting a Five-Year Review of the Oconomowoc Electroplating Company, Inc. Superfund site, in Ashippun, Wisconsin. The Superfund law requires regular reviews of sites (at least every 5 years) where construction of the selected remedy is complete, but hazardous waste remains at the site.

The selected remedy for the Oconomowoc site included a groundwater extraction system designed to remove contamination. The treatment system, which had been pumping and treating contaminated groundwater since 1997, was shut down in 2004 after a study, commissioned by EPA, determined that continued operation was no longer effective. An amendment to the Record of Decision changing the remedy to Monitored Natural Attenuation is planned.

The last Five-Year Review (July 2002) indicated the remedy is protective of human health and the environment in the short term. This review is required to ensure that the remedy continues to protect human health and the environment, and will be completed by July 10, 2007.

Further information can be obtained by contacting:

Susan Pastor
Community Involvement Coordinator
(312) 353-1325
pastor.susan@epa.gov

Bill Ryan
Remedial Project Manager
(312) 353-4374
ryan.williamj@epa.gov

(800) 621-8431, 9 a.m. – 4:30 p.m., weekdays

Site-related documents are available for review at Associated Bank, N533 Highway 67, Ashippun.

Attachment 6
Site Inspection Checklist

I. SITE INFORMATION	
Site name: Oconomowoc Electroplating Company, Inc. Site	**Date of inspection:** November 20, 2006
Location and Region: Ashippun, WI / Region 5	**EPA ID:** WID006100275
Agency, office, or company leading the Five-Year Review: EPA/WDNR	**Weather/temperature:** Seasonable

Remedy Includes: (Check all that apply)

- ☐ Landfill cover/containment
- ☑ Access controls
- ☐ Institutional controls
- ☑ Groundwater pump and treatment
- ☐ Surface water collection and treatment
- ☐ Other_____
- ☐ Monitored natural attenuation
- ☐ Groundwater containment
- ☐ Vertical barrier walls

Attachments: ☐ Inspection team roster attached ☐ Site map attached

II. INTERVIEWS (Check all that apply)

1. **O&M site manager** Matt Boekenhauer (Name) Site Manager (Title) 11/20/06 (Date)
   Interviewed ☑ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

2. **O&M staff** _____ (Name) _____ (Title) _____ (Date)
   Interviewed ☐ at site ☐ at office ☐ by phone Phone no. _____
   Problems, suggestions; ☐ Report attached _____

3. **Local regulatory authorities and response agencies** (i.e., State and Tribal offices, emergency response office, police department, office of public health or environmental health, zoning office, recorder of deeds, or other city and county offices, etc.) Fill in all that apply.

Agency _____
Contact _____ _____ _____ _____
Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

Agency _____
Contact _____ _____ _____ _____
Title Date Phone no.
Problems; suggestions; ☐ Report attached _____
_____

4. **Other interviews** (optional) ☐ Report attached.

III. ON-SITE DOCUMENTS & RECORDS VERIFIED (Check all that apply)

1. **O&M Documents**

☐ O&M manual	☐ Readily available	☐ Up to date	☑ N/A
☐ As-built drawings	☑ Readily available	☐ Up to date	☐ N/A
☐ Maintenance logs	☐ Readily available	☐ Up to date	☑ N/A

Remarks: Treatment plant shut down in July 2004

2. **Site-Specific Health and Safety Plan** ☐ Readily available ☐ Up to date ☑ N/A
☐ Contingency plan/emergency response plan ☐ Readily available ☐ Up to date ☑ N/A
Remarks_____

3. **O&M and OSHA Training Records** ☐ Readily available ☐ Up to date ☑ N/A
Remarks_____

4.	**Permits and Service Agreements**			
	☐ Air discharge permit	☐ Readily available	☐ Up to date	☑ N/A
	☐ Effluent discharge	☐ Readily available	☐ Up to date	☑ N/A
	☐ Waste disposal, POTW	☐ Readily available	☐ Up to date	☑ N/A
	☐ Other permits_____	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			
5.	**Gas Generation Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			
6.	**Settlement Monument Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			
7.	**Groundwater Monitoring Records**	☑ Readily available	☐ Up to date	☐ N/A
	Remarks_____			
8.	**Leachate Extraction Records**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			
9.	**Discharge Compliance Records**			
	☐ Air	☐ Readily available	☐ Up to date	☑ N/A
	☐ Water (effluent)	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			
10.	**Daily Access/Security Logs**	☐ Readily available	☐ Up to date	☑ N/A
	Remarks_____			

IV. O&M COSTS

1.	**O&M Organization**	
	☐ State in-house	☐ Contractor for State
	☐ PRP in-house	☐ Contractor for PRP
	☐ Federal Facility in-house	☐ Contractor for Federal Facility
	☑ Other: Fund lead site oversight under federal contract	

2. **O&M Cost Records**

☐ Readily available ☐ Up to date

☐ Funding mechanism/agreement in place

Original O&M cost estimate_____ ☐ Breakdown attached

Total annual cost by year for review period if available

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

From_____ To_____ _____ ☐ Breakdown attached
Date Date Total cost

3. **Unanticipated or Unusually High O&M Costs During Review Period**

Describe costs and reasons: _____

_____

_____

_____

_____

_____

V. ACCESS AND INSTITUTIONAL CONTROLS ☑ Applicable ☐ N/A

A. Fencing

1. **Fencing damaged** ☐ Location shown on site map ☑ Gates secured ☐ N/A

Remarks_____

_____

B. Other Access Restrictions

1. **Signs and other security measures** ☐ Location shown on site map ☑ N/A

Remarks_____

_____

C. Institutional Controls (ICs)

1. **Implementation and enforcement**

Site conditions imply ICs not properly implemented ☐ Yes ☐ No ☐ N/A
Site conditions imply ICs not being fully enforced ☐ Yes ☐ No ☐ N/A

Type of monitoring (*e.g.*, self-reporting, drive by) _____
Frequency _____
Responsible party/agency _____
Contact _____ _____ _____ _____
Name Title Date Phone no.

Reporting is up-to-date ☐ Yes ☐ No ☐ N/A
Reports are verified by the lead agency ☐ Yes ☐ No ☐ N/A

Specific requirements in deed or decision documents have been met ☐ Yes ☐ No ☐ N/A
Violations have been reported ☐ Yes ☐ No ☐ N/A
Other problems or suggestions: ☐ Report attached

Remarks: *IC Study/Plan to be conducted/developed after Five-Year Review is completed.*

2. **Adequacy** ☐ ICs are adequate ☐ ICs are inadequate ☐ N/A

Remarks: *Unknown until IC Study/Plan conducted/developed*

D. General

1. **Vandalism/trespassing** ☐ Location shown on site map ☑ No vandalism evident
Remarks_____

2. **Land use changes on site** ☑ N/A
Remarks_____

3. **Land use changes off site** ☑ N/A
Remarks_____

VI. GENERAL SITE CONDITIONS

A. Roads ☐ Applicable ☑ N/A

1. **Roads damaged** ☐ Location shown on site map ☐ Roads adequate ☑ N/A
Remarks_____

B. Other Site Conditions

Remarks: *Physical conditions at the site are adequate.*

VII. LANDFILL COVERS ☐ Applicable ☑ N/A

A. Landfill Surface

1. **Settlement** (Low spots) ☐ Location shown on site map ☑ Settlement not evident
   Areal extent_____ Depth_____
   Remarks_____

2. **Cracks** ☐ Location shown on site map ☑ Cracking not evident
   Lengths_____ Widths_____ Depths_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
   Areal extent_____ Depth_____
   Remarks_____

4. **Holes** ☐ Location shown on site map ☑ Holes not evident
   Areal extent_____ Depth_____
   Remarks_____

5. **Vegetative Cover** ☐ Grass ☐ Cover properly established ☑ No signs of stress
   ☐ Trees/Shrubs (indicate size and locations on a diagram)
   Remarks_____

6. **Alternative Cover (armored rock, concrete, etc.)** ☑ N/A
   Remarks_____

7. **Bulges** ☐ Location shown on site map ☑ Bulges not evident
   Areal extent_____ Height_____
   Remarks_____

8. **Wet Areas/Water Damage** ☑ Wet areas/water damage not evident
   ☐ Wet areas ☐ Location shown on site map Areal extent_____
   ☐ Ponding ☐ Location shown on site map Areal extent_____
   ☐ Seeps ☐ Location shown on site map Areal extent_____
   ☐ Soft subgrade ☐ Location shown on site map Areal extent_____
   Remarks_____

9. **Slope Instability** ☐ Slides ☐ Location shown on site map ☐ No evidence of slope instability
   Areal extent_____
   Remarks: *There is evidence that off-road vehicles are using the slopes outside the fenced area, but there is currently no sign that this has affected the cap. EPA and PRPs are investigating.*

B. Benches ☐ Applicable ☑ N/A

(Horizontally constructed mounds of earth placed across a steep landfill side slope to interrupt the slope in order to slow down the velocity of surface runoff and intercept and convey the runoff to a lined channel.)

1. **Flows Bypass Bench** ☐ Location shown on site map ☐ N/A or okay
   Remarks_____

2. **Bench Breached** ☐ Location shown on site map ☑ N/A or okay
   Remarks_____

3. **Bench Overtopped** ☐ Location shown on site map ☑ N/A or okay
   Remarks_____

C. Letdown Channels ☐ Applicable ☑ N/A

(Channel lined with erosion control mats, riprap, grout bags, or gabions that descend down the steep side slope of the cover and will allow the runoff water collected by the benches to move off of the landfill cover without creating erosion gullies.)

1. **Settlement** ☐ Location shown on site map ☑ No evidence of settlement
   Areal extent_____ Depth_____
   Remarks_____

2. **Material Degradation** ☐ Location shown on site map ☑ No evidence of degradation
   Material type_____ Areal extent_____
   Remarks_____

3. **Erosion** ☐ Location shown on site map ☑ No evidence of erosion
   Areal extent_____ Depth_____
   Remarks_____

4. **Undercutting** ☐ Location shown on site map ☑ No evidence of undercutting
   Areal extent_____ Depth_____
   Remarks_____

5. **Obstructions** Type_____ ☑ No obstructions
   ☐ Location shown on site map Areal extent_____
   Size_____
   Remarks_____

6. **Excessive Vegetative Growth** Type_____
☐ No evidence of excessive growth
☑ Vegetation in channels does not obstruct flow
☐ Location shown on site map Areal extent_____
Remarks_____

D. Cover Penetrations ☐ Applicable ☑ N/A

1. **Gas Vents** ☐ Active ☐ Passive
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance
☑ N/A
Remarks_____

2. **Gas Monitoring Probes**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A
Remarks_____

3. **Monitoring Wells** (within surface area of landfill)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A
Remarks_____

4. **Leachate Extraction Wells**
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ Evidence of leakage at penetration ☐ Needs Maintenance ☑ N/A
Remarks_____

5. **Settlement Monuments** ☐ Located ☐ Routinely surveyed ☑ N/A
Remarks_____

E. Gas Collection and Treatment ☐ Applicable ☑ N/A

1. **Gas Treatment Facilities**
☐ Flaring ☐ Thermal destruction ☐ Collection for reuse
☐ Good condition ☐ Needs Maintenance
Remarks_____

2. **Gas Collection Wells, Manifolds and Piping**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Gas Monitoring Facilities** (*e.g.*, gas monitoring of adjacent homes or buildings)
☐ Good condition ☐ Needs Maintenance ☐ N/A
Remarks_____

F. Cover Drainage Layer ☐ Applicable ☑ N/A

1. **Outlet Pipes Inspected** ☐ Functioning ☐ N/A
Remarks_____

2. **Outlet Rock Inspected** ☐ Functioning ☐ N/A
Remarks_____

G. Detention/Sedimentation Ponds ☐ Applicable ☑ N/A

1. **Siltation** Areal extent_____ Depth_____ ☐ N/A
☐ Siltation not evident
Remarks_____

2. **Erosion** Areal extent_____ Depth_____
☐ Erosion not evident
Remarks_____

3. **Outlet Works** ☐ Functioning ☐ N/A
Remarks_____

4. **Dam** ☐ Functioning ☐ N/A
Remarks_____

H. Retaining Walls ☐ Applicable ☑ N/A

1. **Deformations** ☐ Location shown on site map ☐ Deformation not evident
Horizontal displacement_____ Vertical displacement_____
Rotational displacement_____
Remarks_____

2. **Degradation** ☐ Location shown on site map ☐ Degradation not evident
Remarks_____

I. Perimeter Ditches/Off-Site Discharge ☑ Applicable ☐ N/A

1. **Siltation** ☐ Location shown on site map ☑ Siltation not evident
Areal extent_____ Depth_____
Remarks_____

2. **Vegetative Growth** ☐ Location shown on site map ☐ N/A
☑ Vegetation does not impede flow
Areal extent_____ Type_____
Remarks_____

3. **Erosion** ☐ Location shown on site map ☑ Erosion not evident
Areal extent_____ Depth_____
Remarks: Discharge is to a nearby creek.

4. **Discharge Structure** ☐ Functioning ☑ N/A
Remarks_____

VIII. VERTICAL BARRIER WALLS ☐ Applicable ☑ N/A

1. **Settlement** ☐ Location shown on site map ☐ Settlement not evident
Areal extent_____ Depth_____
Remarks_____

2. **Performance Monitoring** Type of monitoring_____
☐ Performance not monitored
Frequency_____ ☐ Evidence of breaching
Head differential_____
Remarks_____

IX. GROUNDWATER/SURFACE WATER REMEDIES ☐ Applicable ☑ N/A

A. Groundwater Extraction Wells, Pumps, and Pipelines ☐ Applicable ☑ N/A

1. **Pumps, Wellhead Plumbing, and Electrical**
☐ Good condition ☐ All required wells properly operating ☐ Needs Maintenance ☑ N/A
Remarks: Treatment system shut down in July 2004

2. **Extraction System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☐ Readily available ☑ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks_____

B. Surface Water Collection Structures, Pumps, and Pipelines ☐ Applicable ☑ N/A

1. **Collection Structures, Pumps, and Electrical**
☐ Good condition ☐ Needs Maintenance
Remarks_____

2. **Surface Water Collection System Pipelines, Valves, Valve Boxes, and Other Appurtenances**
☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Spare Parts and Equipment**
☐ Readily available ☐ Good condition ☐ Requires upgrade ☐ Needs to be provided
Remarks_____

C. Treatment System ☐ Applicable ☑ N/A

1. **Treatment Train** (Check components that apply)
☐ Metals removal ☐ Oil/water separation ☐ Bioremediation
☐ Air stripping ☐ Carbon adsorbers
☐ Filters_____
☐ Additive (*e.g.*, chelation agent, flocculent)_____
☐ Others_____
☐ Good condition ☐ Needs Maintenance
☐ Sampling ports properly marked and functional
☐ Sampling/maintenance log displayed and up to date
☐ Equipment properly identified
☐ Quantity of groundwater treated annually_____
☐ Quantity of surface water treated annually_____
Remarks: Treatment system shut down in July 2004.

2. **Electrical Enclosures and Panels** (properly rated and functional)
☑ N/A ☐ Good condition ☐ Needs Maintenance
Remarks_____

3. **Tanks, Vaults, Storage Vessels**
☑ N/A ☐ Good condition ☐ Proper secondary containment ☐ Needs Maintenance
Remarks_____

4. **Discharge Structure and Appurtenances**
☑ N/A ☐ Good condition ☐ Needs Maintenance
Remarks_____

5. **Treatment Building(s)**
☐ N/A ☑ Good condition (esp. roof and doorways) ☐ Needs repair
☐ Chemicals and equipment properly stored
Remarks: Treatment system shut down in July 2004, but facility maintained by federal contractor

6. **Monitoring Wells** (pump and treatment remedy)
☑ Properly secured/locked ☑ Functioning ☑ Routinely sampled ☑ Good condition
☑ All required wells located ☐ Needs Maintenance ☐ N/A
Remarks_____

D. Monitoring Data

X. Monitoring Data
☑ Is routinely submitted on time ☑ Is of acceptable quality

XI. Monitoring data suggests:
☐ Groundwater plume is effectively contained ☑ Contaminant concentrations are declining

D. Monitored Natural Attenuation

1. **Monitoring Wells** (natural attenuation remedy)
☐ Properly secured/locked ☐ Functioning ☐ Routinely sampled ☐ Good condition
☐ All required wells located ☐ Needs Maintenance ☑ N/A
Remarks_____

X. OTHER REMEDIES

If there are remedies applied at the site which are not covered above, attach an inspection sheet describing the physical nature and condition of any facility associated with the remedy. An example would be soil vapor extraction.

☑ N/A

XI. OVERALL OBSERVATIONS

A. Implementation of the Remedy

Describe issues and observations relating to whether the remedy is effective and functioning as designed. Begin with a brief statement of what the remedy is to accomplish (i.e., to contain contaminant plume, minimize infiltration and gas emission, etc.).

B. Adequacy of O&M

Describe issues and observations related to the implementation and scope of O&M procedures. In particular, discuss their relationship to the current and long-term protectiveness of the remedy.

C. Early Indicators of Potential Remedy Problems

Describe issues and observations such as unexpected changes in the cost or scope of O&M or a high frequency of unscheduled repairs that suggest that the protectiveness of the remedy may be compromised in the future.

D.	**Opportunities for Optimization**
	Describe possible opportunities for optimization in monitoring tasks or the operation of the remedy.

Attachment 7 – OECI Screen shot from WI Department of Financial Institutions web site.

Wisconsin Department of Financial Institutions
Strengthening Wisconsin's Financial Future

Oconomow oc Electroplating, Inc. | Search Records

Search by: ☐ Alphasort ◉ Exact Name ☐ Old Names

Corporate Records — Result of lookup for **1O02069**. (**0.23** seconds)

OCONOMOWOC ELECTROPLATING CO., INC.

You can: File an Annual Report | Request a Certificate of Status | Update Registered Agent Information

Vital Statistics

Entity ID	1O02069
Registered Effective Date	8/6/1957
Period of Existence	PER
Status	Administratively Dissolved
Status Date	12/28/1991
Entity Type	Domestic Business
Annual Report Requirements	Business Corporations are required to file an Annual Report under s.180.1622 WI Statutes.

Addresses

Registered Agent Office	JAMES H. DURNFORD *N/A* *ASHIPPUN, WI 53003* Update Registered Agent Information »
Principal Office	*W2573 OAK ST.* *ASHIPPUN, WI 53003 United States of America*

Historical Information

	Year	Reel	Image
Annual Reports	1989	019	1230
	1988	018	2219
	1987	018	1653
	1986	017	0031
	1985	013	0249
	1983	019	0337

Certificates of Newly-elected Officers/Directors: None

Old Names: None

Chronology

Effective Date	Transaction	Filed Date	Description
8/6/1957	Incorporated / Qualified / Registered	8/6/1957	
3/10/1958	Amendment	3/10/1958	STOCK INCREASE
7/1/1985	In Bad Standing	7/1/1985	
8/2/1985	Restored to Good Standing	8/2/1985	
7/1/1991	Delinquent	7/1/1991	
10/23/1991	Notice of Administrative Dissolution	10/23/1991	912022316
12/28/1991	Administratively dissolved	12/28/1991	912032391

Attachment 8 - Field and Analytical Results—MNA Groundwater Sampling

Table 5 - Field and Analytical Results—MNR Groundwater Sampling - Oconomowoc Electroplating
October 2004, July 2005, October 2005, January 2006

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-001S				MW-012S				MW-012D				MW-013D				MW-014D			
				05CA05-01, 02 Oct 04	05CA49-88, 89 Jul 05	06CA01-26, 27 Oct 05	06CD09-26, 27 Jan 06	05CA05-07, 08 Oct 04	05CA49-46, 47 Jul 05	06CA01-07, 08 Oct 05	06CD09-36, 37 Jan 06	05CA05-05, 06 Oct 04	05CA49-44, 45 Jul 05	06CA01-05, 06 Oct 05	06CD09-30, 31 Jan 06	05CA05-09, 10 Oct 04	05CA49-22, 23 Jul 05	06CA01-32, 33 Oct 05	06CD09-59, 60 Jan 06	05CA05-11, 12 Oct 04	05CA49-16, 17 Jul 05	06CA01-09, 10 Oct 05	06CD09-28, 29 Jan 06
Field Parameters																							
Dissolved Oxygen (DO)	mg/L			1.82	28.8%	0.53	2.53	0.34	6.5%	1.32	0.47	0.18	7.6%	3.51	0.77	0.31	7.1%	0.36	0.76	0.45	1.24	0.59	1.47
Oxidation Reduction Potential (ORP)	millivolts			73.5	214.6	135.1	179.4	14.6	68.7	324	204.9	-81.6	-71.7	-43.5	-54.8	-85.7	-69.2	-35.7	-18.3	43.4	15.1	117.5	165.6
pH	pH units			6.93	6.51	6.64	7.04	7.26	7.15	4.62	7.19	7.33	7.08	6.37	7.56	7.16	7.12	6.43	7.08	7.28	7.02	6.87	7.33
Specific Conductivity	m			0.956	0.668	0.857	1.369	1.522	1.180	1.297	1.367	1.587	1.522	1.636	1.712	2.081	1.394	1.856	1.278	0.947	0.883	1.189	1.212
Temperature	deg c			16.34	15.88	17.78	9.54	12.84	13.76	15.15	6.77	11.05	13.52	12.28	7.55	12.35	11.99	11.86	9.81	13.20	11.99	14.64	9.93
Depth to water	feet			8.56	8.24	9.66	7.93	5.47	5.69	6.43	4.63	4.39	4.80	5.66	3.65	6.12	6.38	7.30	5.43	5.88	5.64	7.42	6.10
Natural Attenuation Parameters																							
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	370	350	360	340	391	370	400	380	392	400	450	420	475	390	480	390	347	350	370	340
Chloride (as Cl)	mg/L	125	250	65.9	24	98	**230**	**207**	**140**	**180**	**210**	**224**	**230**	**280**	**240**	**271**	**180**	**290**	**210**	82.9	45	**180**	**150**
Ethane	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	0.5 U	2.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Ethene	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.82 J	0.5 U	0.5 U	0.5 U	1.4 J	0.5 U	1.5	2	2.5 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	**281 J**	**468**	**377**	**253**	**499**	**300**	**264**	**626**	**2,060**	**1,210**	**1,050**	**1,020**	**2,180**	**983**	**2,210**	**1,230 J**	7 U	25.6 J	25 U	25 U
Iron, dissolved	µg/L	150	300	14 U	25 U	25 U	25 U	19.4 J	25 U	25 U	25 U	**1,010**	**993**	**875**	**984**	**2,180**	**820**	**2,030**	**1,340 J**	14 U	25 U	25 U	25 U
Manganese, total	µg/L	25	50		15.2	11.9	14.2		**114**	**121**	**128**		**31.5**	**28.2**	**30 J**		**48.3**	**58.8**	**47.7**		**81.6**	**105**	**97.5**
Manganese, dissolved	µg/L	25	50	14.6	1.2 U	2 J	5.1	**123**	**109**	**115**	**115**	**42.5**	**29.7**	**26.7**	**29.5 J**	**65.5**	**45.1**	**57.1**	**47.7**	**67**	**69.2**	**88.9**	**87.1**
Methane	µg/L	N/A	N/A	2.3 J	0.5 U	1.4 J	1.1 J	130	32	1.4 J	2	31	43	87	27	66	17	34	38	14	4.3	2.3	2.5
Nitrogen, nitrate (as N)	mg/L	2	10	0.4 J	1	0.18	0.4	0.06 U	0.06 J	0.048 J	1.6	0.06 U	0.04 U	0.04 U	0.04 U	0.06 U	0.28	0.06 J	0.04 U	0.97 J	1.6	1.7	**2.8**
Sulfate (as SO4)	mg/L	125	250	47.2	24	35	54	60	**220**	62	**180**	85.2	93	84	100	**225**	93	**190**	110	32.4	40	45	45
Sulfide	mg/L	N/A	N/A	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 J	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 R
Total Organic Carbon	mg/L	N/A	N/A	1.6 J	1.1 J	2.2 J	0.91 J	4.7	3.3	3.5	3.3	4.6	4.1	5.6	3.9	4.9	2.2 J	4.2	3.4	2.7 J	1.4 J	1.8 J	1.5 J

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-015S				MW-015D				MW-016S				MW-103S				MW-103D			
				05CA05-01, 02 Oct 04	05CA49-88, 89 Jul 05	06CA01-26, 27 Oct 05	06CD09-26, 27 Jan 06	05CA05-07, 08 Oct 04	05CA49-46, 47 Jul 05	06CA01-07, 08 Oct 05	06CD09-36, 37 Jan 06	05CA05-05, 06 Oct 04	05CA49-44, 45 Jul 05	06CA01-05, 06 Oct 05	06CD09-30, 31 Jan 06	05CA05-09, 10 Oct 04	05CA49-22, 23 Jul 05	06CA01-32, 33 Oct 05	06CD09-59, 60 Jan 06	05CA05-11, 12 Oct 04	05CA49-16, 17 Jul 05	06CA01-09, 10 Oct 05	06CD09-28, 29 Jan 06
Field Parameters																							
Dissolved Oxygen (DO)	mg/L			8.47	93.9%	5.33	5.82	0.43	0.79	1.46	0.72	3.33	5.6%	0.17	0.34	0.38	0.96	0.77	1.61	0.35	6.5%	1.59	0.57
Oxidation Reduction Potential (ORP)	millivolts			72.0	28.1	105.8	126.2	60.5	258.2	171	22	-157.8	75.1	-58.3	-118.7	197.7	205.3	173	241.5	24.8	98.2	221.0	128.4
pH	pH units			7.46	7.24	7.02	7.16	7.12	6.27	6.46	7.37	7.03	6.69	6.23	6.87	6.95	6.44	6.63	7.08	7.12	7.04	5.95	6.94
Specific Conductivity	m			0.480	0.621	0.831	0.708	1.832	1.447	1.354	2.644	3.293	3.459	3.623	3.154	1.249	1.462	1.381	2.807	1.565	1.373	1.100	1.163
Temperature	deg c			15.83	14.97	16.7	10.98	14.20	13.95	14.33	10.79	12.87	15.14	14.02	8.22	16.17	14.39	18.14	8.31	14.35	13.41	16.84	10.41
Depth to water	feet			10.43	10.21	11.73	10.41	11.31	11.62	12.74	10.98	4.17	4.93	5.25	3.30	7.60	7.56	8.68	6.74	7.73	7.67	8.80	6.89
Natural Attenuation Parameters																							
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	229	300	330	300	422	370	400	390	930	840	930	910	445	450	450	460	452	410	440	420
Chloride (as Cl)	mg/L	125	250	9.86 J	32	90	66	**291**	**200**	**220**	21	**155**	**170**	**220**	**220**	**218**	**160**	**190**	**150**	**200**	**170**	**180**	**180**
Ethane	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	1.8 J	1.3 J	0.56 J	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.6 J	0.5 U	0.5 U	0.5 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	12	4.1	4.3	6.1	0.5 U	0.5 U	0.5 U	0.5 U	0.96 J	0.5 U	0.5 U	0.5 U
Iron, total	µg/L	150	300	**224 J**	59.7 J	95.3	30.6 J	7.2 J	25 UJ	**170 J**	73.5 J	**6,450**	**8,260**	**6,590**	**4,790**	**154**	69.9 J	39.8 J	**226**	29.6	25 U	25 U	28.4 J
Iron, dissolved	µg/L	150	300	14 U	25 U	25 U	25 U	14 U	25 U	25 U	47.5 J	**5,830**	**7,420**	**6,130**	**4,470**	139	43.6 J	30.4 J	123	14 U	25 U	25 U	25 U
Manganese, total	µg/L	25	50		8.2	**28.2**	16.7		**276**	**257**	**220 J**		**78.1**	**85**	**85.5**		**395**	**351**	**267**		**284**	**254 J**	**278**
Manganese, dissolved	µg/L	25	50	9.6	1.2 U	7.7	5.5	**314**	**250**	**254**	**227 J**	**81.5**	**71.2**	**79.2**	**81.4**	**402**	**375**	**354**	**247**	**283**	**272**	**255 J**	**258**
Methane	µg/L	N/A	N/A	1 J	0.5 U	0.84 J	0.5 U	4.6 J	1.4 J	1.8 J	22	680	530	180	440	7.5 J	62	24	24	72	73	79	60
Nitrogen, nitrate (as N)	mg/L	2	10	**4.65 J**	0.8	0.92	1.1	0.16 J	0.18	0.29	0.04 U	0.06 U	0.052 J	0.08 J	0.12 J	0.19 J	0.28	0.05 J	**2.2**	0.06 UJ	0.04 U	0.05 J	0.04 U
Sulfate (as SO4)	mg/L	125	250	13.1 J	15	22	46	43.8	43	49	8.6	**941 J**	**1,000**	**1,300**	**1,400**	**128**	74	72	89	60	47	45	48
Sulfide	mg/L	N/A	N/A	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	1 U	1 U	1 U	1 UJ	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	2 J	1.9 J	1 J	3.3	2.5 J	2.4 J	2.1 J	5	3.9	3.7	3.8	6.6	6.1	5.8	5.2	5.3	3.7	4.1	3.2

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-103D				MW-105S				MW-105D				SW-01	SW-03
				05CA05-01, 02 Oct 04	05CA49-88, 89 Jul 05	06CA01-26, 27 Oct 05	06CD09-26, 27 Jan 06	05CA05-07, 08 Oct 04	05CA49-46, 47 Jul 05	06CA01-07, 08 Oct 05	06CD09-36, 37 Jan 06	05CA05-05, 06 Oct 04	05CA49-44, 45 Jul 05	06CA01-05, 06 Oct 05	06CD09-30, 31 Jan 06	06CD09-28, 29 Jan 06	06CD09-28, 29 Jan 06
Field Parameters																	
Dissolved Oxygen (DO)	mg/L			0.35	6.5%	1.59	0.57	0.19	11.9%	5.27	0.70	6.09	1.04	0.48	0.93		
Oxidation Reduction Potential (ORP)	millivolts			24.8	98.2	221.0	128.4	-32.8	-50.1	70.2	-11.8	-56.3	-15.3	-67.1	-16.0		
pH	pH units			7.12	7.04	5.95	6.94	7.31	7.02	6.21	7.31	7.34	5.86	6.69	6.89		
Specific Conductivity	m			1.565	1.373	1.100	1.163	1.620	1.714	1.414	1.368	1.299	1.411	1.472	1.290		
Temperature	deg c			14.35	13.41	16.84	10.41	12.98	12.71	14.86	8.11	12.10	11.08	13.93	8.50		
Depth to water	feet			7.73	7.67	8.80	6.89	5.16	5.55	6.18	4.20	5.01	5.51	6.27	4.20		
Natural Attenuation Parameters																	
Alkalinity, total (as CaCO3)	mg/L	N/A	N/A	452	410	440	420	367	370	390	310	362	400	420	400	210	210
Chloride (as Cl)	mg/L	125	250	**200**	**170**	**180**	**180**	**281**	**290**	**250**	**150**	**159**	**200**	**250**	**230**	48	53
Ethane	µg/L	N/A	N/A	0.6 J	0.5 U	0.5 U	0.5 U	1.4 J	0.5 U	0.5 U	0.5 U	0.82 J	0.5 U	1.4 J	1.4 J	0.5 U	0.5 U
Ethene	µg/L	N/A	N/A	0.96 J	0.5 U	0.5 U	0.5 U	0.61 J	0.5 U	0.5 U	0.5 U	0.8 J	0.5 U	1.5	1.1 J	0.5 U	0.5 U
Iron, total	µg/L	150	300	29.6	25 U	25 U	28.4 J	**384**	**930**	**540**	**366**	**845 J**	**1,090**	**1,050**	**1,760**	42.6 J	33.7 J
Iron, dissolved	µg/L	150	300	14 U	25 U	25 U	25 U	**338**	**557**	**287**	**213**	**863 J**	**984**	**974**	**1,510**	25 U	25 U
Manganese, total	µg/L	25	50		**284**	**254 J**	**278**		**241**	**198**	**202**		**69.5**	**81.6 J**	**89.2**	**25.2**	12.8
Manganese, dissolved	µg/L	25	50	**283**	**272**	**255 J**	**258**	**227**	**229**	**197**	**190**	**67.5**	**66.4**	**82.2 J**	**82.2**	21.3	11
Methane	µg/L	N/A	N/A	72	73	79	60	110	42	0.59 J	7.3	1,900	170	150	270	0.68 J	0.5 U
Nitrogen, nitrate (as N)	mg/L	2	10	0.06 UJ	0.04 U	0.05 J	0.04 U	0.06 UJ	0.04 U	0.048 J	0.04 U	0.06 UJ	0.05 J	0.04 U	0.04 U	**7.2**	**7.4**
Sulfate (as SO4)	mg/L	125	250	60	47	45	48	77.5	68	66	61	75.9	58	74	68	**190**	**210**
Sulfide	mg/L	N/A	N/A	1 UJ	1 U	1 U	1 U	1 UJ	1.3 J	1 J	1 U	1 UJ	1 J	1 U	1 U	1 U	1 U
Total Organic Carbon	mg/L	N/A	N/A	5.3	3.7	4.1	3.2	3.5	2.6 J	4.1	2.9	4.1	3.7	3.5	1.7 J	13	13

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.
R indicates that the initial calibration report associated with this SDG contained relative response factors (RRFs) lower than 0.05 for acetone, 2-Butanone and 1,2-dibromo-3-chloropropane. Non-detected concentrations were qualified and flagged "R" as rejected.
UB indicates that the constituent 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 Preventative Action Limit (PAL).
Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES).

Attachment 9 - Field and Analytical Results— Private Water Supply Wells

Table 6 - Field and Analytical Results— Private Water Supply Wells - Oconomowoc Electroplating
July 2005 and January 2006

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	PW-01		PW-02		PW-03		PW-04		PW-05		PW-07		PW-08		PW-09		PW-10		PW-11	
				Jul 05 05CA040-48	Jan 06 06CD009-41	Jul 05 05CA040-49	Jan 06 06CD009-67	Jul 05 05CA040-56	Jan 06 06CD009-62	Jul 05 05CA040-50	Jan 06 06CD009-39	Jul 05 05CA040-51	Jan 06 06CD009-52	Jul 05 05CA040-52	Jan 06 06CD009-68	Jul 05 05CA040-57	Jan 06 06CD009-43	Jul 05 05CA040-53	Jan 06 06CD009-40	Jul 05 05CA040-54	Jan 06 06CD009-54	Jul 05 05CA040-58	Jan 06 06CD009-53
Field Parameters																							
Dissolved Oxygen (DO)	mg/L			4.5		2.94		5.51		9.2		4.69		2.79		3.41		6.27		6.22		3.29	
Oxidation Reduction Potential (ORP)	millivolts			-80.8		-77.2		-101.8		-82.7		-62.1		-90		-70.9		-82.6		-32.6		-74.4	
pH	pH units			6.8		6.77		7.02		7.28		7.16		6.92		6.73		6.97		6.76		6.62	
Specific Conductivity	mmhos/cm			0.674		0.64		0.985		1.033		0.962		1.237		1.243		1.101		1.069		0.989	
Temperature	deg c			14.36		15.66		12.89		13.75		12.98		14.09		13.79		14.33		15.61		13.63	
Depth to water	feet																						
VOCs																							
1,1,1-Trichloroethane	µg/L	40	200	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	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	0.07 U	0.07 U	0.07 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 UJ	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 UJ	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,1-Dichloroethane	µg/L	85	850	0.039	0.041 J	0.031 U	0.031 U	0.031 U	0.031 UJ	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U
1,1-Dichloroethene	µg/L	0.7	7	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	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	0.06 U	0.06 U	0.06 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	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	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 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 UJ	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	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 UJ**	**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**	**0.026 U**	**0.026 U**	**0.026 U**
1,2-Dibromoethane	µg/L	0.5	5	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	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U
1,2-Dichlorobenzene	µg/L	60	600	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 UJ	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	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	µg/L	0.5	5	0.13 J	0.21	0.04 U	0.04 U	0.04 U	0.04 UJ	0.04 U	0.05 J	0.04 U	0.083 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	0.04 U
1,2-Dichloropropane	µg/L	0.5	5	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	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	0.06 U	0.06 U	0.06 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 UJ	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	0.04 U	0.04 U	0.04 U
1,4-Dichlorobenzene	µg/L	15	75	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
2-Butanone	µg/L	N/A	N/A	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 R
2-Hexanone	µg/L	N/A	N/A	0.5 UJ	0.5 R	0.5 U	0.5 U	0.5 U	0.5 UJ	0.5 U	0.5 R	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 R	0.5 U	0.5 R	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.6 UJ	0.6 R	0.6 U	0.6 U	0.6 U	0.6 UJ	0.6 U	0.6 R	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 R	0.6 U	0.6 R	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	µg/L	200	1,000	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	3.8 J	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R	1.5 R
Benzene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
Bromodichloromethane	µg/L	0.06	0.6	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 UJ	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	0.04 U	0.04 U	0.04 U
Bromoform	µg/L	0.44	4.4	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Bromomethane	µg/L	1	10	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 UJ	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Carbon disulfide	µg/L	200	1,000	0.1 U	0.1 U	0.21 J	0.1 U	0.1 U	0.1 UJ	0.13 J	0.1 UJ	0.11 J	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Carbon tetrachloride	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 U
Chlorobenzene	µg/L	N/A	N/A	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
Chloroethane	µg/L	80	400	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Chloroform	µg/L	0.6	6	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.18 J	0.17 J	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	0.07 U
Chloromethane	µg/L	0.3	3	0.05 U	0.07 J	0.05 U	0.05 U	0.064 J	0.17 J	0.05 U	0.081 J	0.05 U	0.05 U	0.05 U	0.13 J	0.05 U	0.19	0.05 U	**0.56 J**	0.05 U	0.05 U	0.05 U	0.05 U
cis-1,2-Dichloroethene	µg/L	7	70	0.06 U	0.06 U	0.06 U	0.06 U	0.58 J	0.54 J	0.97 J	3.2	1.4	2.5	2.3	1.4	1.3	0.7	4.4	2.5	0.06 U	0.06 U	0.41 J	0.62
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 UJ	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
Dibromochloromethane	µg/L	6	60	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 UJ	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Dichlorodifluoromethane	µg/L	200	1,000	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 UJ	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	0.06 U	0.06 U	0.06 U
Ethylbenzene	µg/L	140	700	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
Isopropylbenzene	µg/L	N/A	N/A	0.03 U	0.03 U	0.19 J	0.03 U	0.03 U	0.03 UJ	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	0.03 U	0.03 U	0.03 U
m,p-Xylene (sum of isomers)	µg/L	1,000	10,000	0.12 U	0.12 U	1.3 J	0.12 U	0.12 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Methyl tert-butyl ether	µg/L	12	60	0.05 U	0.05 U	0.05 U	0.05 U	0.64	0.48 J	0.6	0.47	1	1.1	0.57	0.57	0.6	0.25	0.74	0.55	0.13 J	0.087 J	0.74	0.64
Methylene chloride	µg/L	0.5	5	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 R	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 R	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ
o-Xylene	µg/L	N/A	N/A	0.04 U	0.04 U	1.6 J	0.04 U	0.04 U	0.04 UJ	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	0.04 U	0.04 U	0.04 U
Styrene	µg/L	10	100	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 UJ	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	0.04 U	0.04 U	0.04 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 UJ	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	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	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	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
trans-1,2-Dichloroethene	µg/L	20	100	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.062 J	0.075 J	0.21	0.12 J	0.21	0.19 J	0.13 J	0.078 J	0.052 J	0.36 J	0.15	0.04 U	0.04 U	0.043 J	0.063 J
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Trichloroethene	µg/L	0.5	5	0.03 U	0.03 U	0.03 U	0.03 U	0.42	0.36 J	0.03 U	0.052 J	0.11 J	0.1 J	0.03 U	0.041 J	0.17 J	0.11 J	0.064 J	0.051 J	0.03 U	0.03 U	0.03 U	0.03 U
Vinyl chloride	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 UJ	0.018 U	**0.069**	0.018 U	**0.042 J**	**0.042 J**	**0.056 J**	0.018 U	0.018 U	**0.05 J**	**0.061**	0.018 U	0.018 U	0.018 U	0.018 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.
R indicates that the initial calibration report associated with this SDG contained relative response factors (RRFs) lower than 0.05 for acetone, 2-Butanone and 1,2-dibromo-3-chloropropane.
Non-detected concentrations were qualified and flagged "R" as rejected.
UB indicates that the constituent 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 Preventative Action Limit (PAL).
Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES).

Attachment 10 - Field and Analytical Results for Compliance Monitoring Wells

Table 7 - Monitoring Wells - Field and Analytical Results for Groundwater Sampling - Oconomowoc Electroplating
October 2004, July 2005, October 2005, January 2006

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-001S				MW-004D		MW-005D		MW-012B		MW-012S				MW-012D				MW-013S		MW-013D			
				05GA05-01,02 Oct 04	05GA40-00,09 Jul 05	05GA01-26,27 Oct 05	06CD09-26,27 Jan 06	05GA40-13 Jul 05	06CD09-35 Jan 06	05GA40-10 Jul 05	06CD09-49 Jan 06	05GA40-43 Jul 05	06CD09-38 Jan 06	05GA05-07,08 Oct 04	05GA40-45,47 Jul 05	06GA01-07,08 Oct 05	06CD09-35,37 Jan 06	05GA05-05,06 Oct 04	05GA40-44,45 Jul 05	06GA01-05,06 Oct 05	06CD09-30,31 Jan 06	05GA40-38 Jul 05	06CD09-51 Jan 06	05GA05-09,10 Oct 04	05GA40-22,23 Jul 05	06GA01-32,33 Oct 05	06CD09-50,60 Jan 06
Field Parameters																											
Dissolved Oxygen (DO)	mg/L			1.82	28.8%	0.53	2.53	0.92	0.51	10.9%	-0.21	10.2%	0.59	0.34	6.5%	1.32	0.47	0.18	7.6%	3.51	0.77	3.19	1.84	0.31	7.1%	0.36	0.76
Oxidation Reduction Potential (ORP)	millivolts			73.5	214.6	135.1	179.4	-55.7	-77.9	28.6	-25.4	29.8	25.6	14.6	68.7	324	204.9	-81.6	-71.7	-43.5	-54.8	241.4	83.5	-85.7	-69.2	-35.7	-18.3
pH	pH units			6.93	6.51	6.64	7.04	7.81	7.02	6.51	7.12	7.77	7.46	7.26	7.15	4.62	7.19	7.33	7.08	6.37	7.56	6.42	7.06	7.16	7.12	6.43	7.08
Specific Conductivity	m			0.956	0.668	0.857	1.369	0.955	0.959	2.364	2.208	1.116	0.933	1.522	1.180	1.297	1.367	1.587	1.522	1.636	1.712	0.972	1.139	2.081	1.394	1.856	1.278
Temperature	deg c			16.34	15.88	17.78	9.54	11.97	9.64	13.53	10.26	17.40	8.18	12.84	13.76	15.15	6.77	11.05	13.52	12.28	7.55	12.39	8.30	12.35	11.99	11.86	9.81
Depth to water	feet			8.56	8.24	9.66	7.93	9.78	10.19	5.05	3.90	5.69	4.73	5.47	5.69	6.43	4.63	4.39	4.80	5.66	3.65	7.02	6.39	6.12	6.38	7.30	5.43
VOCs																											
1,1,1-Trichloroethane	µg/L	40	200	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	4.7 J	0.07 U	0.07 U	**66**	**74 J**	**57 J**	19	25	12 J	**43**	**40 J**	0.18 J	0.77	0.07 U	0.07 U	0.07 U	0.07 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	**0.9 U**	0.018 U	0.018 U	0.018 U	**0.36 U**	**0.36 U**	**0.36 U**	0.018 U	**0.09 U**	**0.45 U**	**0.45 U**	0.018 UJ	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U
1,1,2-Trichloroethane	µg/L	0.5	5	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.08 U	0.09 U	**4.5 U**	0.09 U	0.09 U	0.09 U	**1.8 U**	**1.8 U**	**1.8 U**	0.09 U	0.45 U	**2.3 U**	**2.3 U**	0.09 UJ	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
1,1-Dichloroethane	µg/L	85	850	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	17 J	16	0.031 U	0.031 U	43	25	31 J	22	46	34	**140**	**130**	0.062 J	0.47	0.031 U	0.031 U	0.031 U	0.031 U
1,1-Dichloroethene	µg/L	0.7	7	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	**3**	**6.9 J**	0.06 U	0.06 U	**7.1**	**5 J**	**6.4 J**	**3.4 J**	**3.9**	**1.1 J**	**18**	**20**	0.06 UJ	0.11 J	0.06 U	0.06 U	0.06 U	0.06 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	4 U	0.08 U	0.08 U	0.08 U	1.6 U	1.6 U	1.6 U	0.08 U	0.4 U	2 U	2 U	0.08 UJ	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	0.06 U	0.06 U	1.2 U	1.2 U	1.2 U	0.06 U	0.3 U	1.5 U	1.5 U	0.06 UJ	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	**0.026 U**	**0.026 R**	**0.026 UJ**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**1.3 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.52 U**	**0.52 UJ**	**0.52 U**	**0.026 U**	**0.13 U**	**0.65 UJ**	**0.65 U**	**0.026 UJ**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 UJ**	**0.026 U**
1,2-Dibromoethane	µg/L	0.5	5	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	**1.2 U**	0.023 U	0.023 U	0.023 U	0.46 U	0.46 U	0.46 U	0.023 U	0.12 U	**0.58 U**	**0.58 U**	0.023 UJ	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U
1,2-Dichlorobenzene	µg/L	60	600	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	0.04 U	0.04 U	0.04 U	0.8 U	0.8 U	0.8 U	0.04 U	0.2 U	1 U	1 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	µg/L	0.5	5	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	**1.3**	**2 U**	0.04 U	0.04 U	0.04 U	**0.8 U**	**0.8 U**	**0.8 U**	0.27	0.2 U	**1 U**	**1 U**	0.04 UJ	0.22	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloropropane	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	**3 U**	0.06 U	0.06 U	0.06 U	**1.2 U**	**1.2 U**	**1.2 U**	0.06 U	0.3 U	**1.5 U**	**1.5 U**	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	0.04 U	0.04 U	0.04 U	0.8 U	0.8 U	0.8 U	0.04 U	0.2 U	1 U	1 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
1,4-Dichlorobenzene	µg/L	15	75	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.25 U	1.3 U	1.3 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Butanone	µg/L	N/A	N/A	0.4 UJ	0.4 R	0.4 UJ	0.4 U	0.4 R	0.4 R	0.4 R	20 R	0.4 R	0.4 R	0.4 UJ	8 R	8 UJ	8 R	0.4 UJ	2 R	10 UJ	10 R	0.4 R	0.4 R	0.4 UJ	0.4 R	0.4 UJ	0.4 R
2-Hexanone	µg/L	N/A	N/A	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 R	0.5 U	25 U	0.5 UJ	0.5 R	0.5 U	10 UJ	10 U	10 R	0.5 U	2.5 UJ	13 U	13 R	0.5 UJ	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U	0.6 R	0.6 U	30 U	0.6 UJ	0.6 R	0.6 U	12 UJ	12 U	12 R	0.6 U	3 UJ	15 U	15 R	0.6 UJ	0.6 U	0.6 U	0.6 U	0.6 U	0.6 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 R	1.5 UJ	1.5 U	1.5 R	1.5 R	1.5 R	75 R	1.5 R	1.5 R	1.5 UJ	30 R	30 UJ	30 R	1.5 UJ	7.5 R	38 UJ	38 R	1.5 R	1.5 R	1.5 UJ	1.5 R	2.2 J	3 J
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	**2.5 U**	0.05 U	0.05 U	0.085 UB	**1 U**	**1 U**	**1 U**	0.069 UB	0.25 U	**1.3 U**	**1.3 U**	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.25 U	1.3 U	1.3 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromodichloromethane	µg/L	0.06	0.6	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	**2 U**	0.04 U	0.04 U	0.04 U	**0.8 U**	**1.6 J**	**0.8 U**	0.04 U	**0.2 U**	**1.7 J**	**1 U**	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Bromoform	µg/L	0.44	4.4	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 UJ	0.07 U	**3.5 U**	0.07 U	0.07 UJ	0.07 U	**1.4 U**	**1.4 U**	**1.4 UJ**	0.07 U	0.35 U	**1.8 U**	**1.8 UJ**	0.07 UJ	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Bromomethane	µg/L	1	10	0.06 U	0.06 UJ	0.06 UJ	0.06 U	0.06 UJ	0.06 UJ	0.06 UJ	**3 U**	0.06 U	0.06 UJ	0.06 U	**1.2 U**	**1.2 U**	**1.2 UJ**	0.06 U	0.3 U	**1.5 U**	**1.5 UJ**	0.06 UJ	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U
Carbon disulfide	µg/L	200	1,000	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 UJ	0.1 U	5 U	0.1 U	0.1 UJ	0.1 U	2 U	2 U	2 UJ	0.1 U	0.5 U	2.5 U	2.5 UJ	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Carbon tetrachloride	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	**2.5 U**	0.05 U	0.05 U	0.05 U	**1 U**	**1 U**	**1 UJ**	0.05 U	0.25 U	**1.3 U**	**1.3 UJ**	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chlorobenzene	µg/L	N/A	N/A	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.25 U	1.3 U	1.3 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroethane	µg/L	80	400	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	2.2 J	3 U	0.06 U	0.06 U	0.6 J	1.2 U	1.2 U	1.2 UJ	0.16 J	0.3 U	1.5 U	1.5 UJ	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Chloroform	µg/L	0.6	6	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	**3.5 U**	0.07 U	0.07 U	0.1 UB	**1.7 J**	**1.4 U**	**1.4 U**	0.07 U	0.35 U	**1.8 U**	**1.8 U**	0.07 UJ	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U
Chloromethane	µg/L	0.3	3	0.05 U	0.05 UJ	0.22 UB	0.05 U	0.05 UJ	0.05 UJ	0.05 UJ	**2.5 U**	0.05 U	0.05 UJ	0.05 U	**1 U**	**1 U**	**1 U**	0.05 U	0.25 U	**1.3 U**	**1.3 U**	0.05 UJ	0.05 U	0.05 U	0.24	**0.48**	0.2
cis-1,2-Dichloroethene	µg/L	7	70	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	**250**	**310**	0.06 U	0.06 U	**29**	**17 J**	**64 J**	**80**	**13**	**7.1**	**30**	**31**	0.14 J	3.4	0.21 J	0.26	0.38	2.1
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	**0.8 U**	0.016 U	0.016 U	0.016 U	**0.32 U**	**0.32 U**	**0.32 U**	0.016 U	**0.08 U**	**0.4 U**	**0.4 U**	0.016 UJ	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U
Dibromochloromethane	µg/L	6	60	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	4.5 U	0.09 U	0.09 U	0.09 U	1.8 U	1.8 U	1.8 U	0.09 U	0.45 U	2.3 U	2.3 U	0.09 UJ	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U
Dichlorodifluoromethane	µg/L	200	1,000	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 U	0.06 U	0.06 U	0.06 U	1.2 U	1.2 U	1.2 U	0.06 U	0.3 U	1.5 U	1.5 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U
Ethylbenzene	µg/L	140	700	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.25 U	1.3 U	1.3 U	0.05 UJ	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U
Isopropylbenzene	µg/L	N/A	N/A	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	1.5 U	0.03 U	0.03 U	0.03 U	0.6 U	0.6 U	0.6 U	0.03 U	0.15 U	0.75 U	0.75 U	0.03 UJ	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U
m,p-Xylene (sum of isomers)	µg/L	1,000	10,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	6 U	0.12 U	0.12 U	0.12 U	2.4 U	2.4 U	2.4 U	0.12 U	0.6 U	3 U	3 U	0.12 UJ	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U
Methyl tert-butyl ether	µg/L	12	60	0.15 J	0.05 U	0.14 J	0.17	0.05 U	1.6	0.22 J	2.5 U	0.05 U	0.05 U	0.05 U	1 U	1 U	1 U	0.05 U	0.25 U	1.3 U	1.3 U	0.05 UJ	0.16 J	0.05 U	0.28	0.16 J	0.18
Methylene chloride	µg/L	0.5	5	0.11 UJ	0.11 UJ	**1.8 J**	0.11 U	0.11 UJ	0.11 R	0.11 UJ	**14 J**	0.11 UJ	0.11 R	0.11 UJ	**2.2 UJ**	**70 J**	**2.2 R**	0.11 UJ	**0.55 UJ**	**77 J**	**2.8 R**	0.11 UJ	0.11 UJ	0.11 UJ	0.11 UJ	**2.1 J**	0.11 UJ
o-Xylene	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	2 U	0.04 U	0.04 U	0.04 U	0.8 U	0.8 U	0.8 U	0.04 U	0.2 U	1 U	1 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U
Styrene	µg/L	10	100	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	0.04 U	0.04 U	0.04 U	0.8 U	0.8 U	0.8 U	0.04 U	0.2 U	1 U	1 U	0.04 UJ	0.04 U	0.04 U	0.04 U	0.04 U	0.04 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	**2.5 U**	0.05 U	0.091 J	0.051 J	**1 U**	**1 U**	**1 U**	0.05 U	0.25 U	**1.3 U**	**1.3 U**	0.097 J	0.055 J	0.05 U	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	4 U	0.08 U	0.08 U	0.08 U	1.6 U	1.6 U	1.6 U	0.08 U	0.4 U	2 U	2 U	0.08 UJ	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U
trans-1,2-Dichloroethene	µg/L	20	100	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	9.7 J	9.9	0.04 U	0.04 U	16 J	16 J	**20 J**	7.4	3.2	1.6 J	10	11	0.04 UJ	0.25	0.04 U	0.04 U	0.04 U	0.075 J
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	**0.75 U**	0.015 U	0.015 U	0.015 U	**0.3 U**	**0.3 U**	**0.3 U**	0.015 U	**0.075 U**	**0.38 U**	**0.38 U**	0.015 UJ	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U
Trichloroethene	µg/L	0.5	5	0.07 J	0.03 U	0.031 J	0.03 U	0.03 U	0.03 U	**180**	**190**	0.03 U	0.03 U	**120**	**100**	**100 J**	**19**	**10**	**3.8**	**27**	**25**	0.33 J	**2.8**	0.03 U	0.03 U	0.03 U	0.03 U
Vinyl chloride	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	**0.11**	**3.8**	**4.6**	0.018 U	0.018 U	**0.38**	**0.36 U**	**4.4 J**	**8.8**	**3**	**2.4 J**	**5.7**	**15**	0.018 UJ	**0.047 J**	**0.23**	**0.028**	**0.2**	**0.97**

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.
R indicates that the initial calibration report associated with this SDG contained relative response factors (RRFs) lower than 0.05 for acetone, 2-Butanone and 1,2-dibromo-3-chloropropane.
Non-detected concentrations were qualified and flagged "R" as rejected.
UB indicates that the constituent 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 Preventative Action Limit (PAL).
Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES).

Attachment 10 (Cont.) - Field and Analytical Results for Compliance Monitoring Wells

Table 7 - Monitoring Wells - Field and Analy
October 2004, July 2005, October 2005, Jan

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-014D				MW-015B		MW-015S				MW-015D				MW-016S				MW-101B		MW-102D		MW-103S			
				05SA05-11,12 Oct 04	05SA49-15,17 Jul 05	06SA01-09,10 Oct 05	06CD09-28,29 Jan 06	05SA49-01 Jul 05	06CD09-10 Jan 06	05SA05-15,16 Oct 04	05SA49-04,05 Jul 05	06SA01-11,12 Oct 05	06CD09-08,09 Jan 06	05SA05-13,14 Oct 04	05SA40-02,03 Jul 05	06SA01-15,16 Oct 05	06CD09-17,18 Jan 06	05SA05-17,18 Oct 04	05SA49-35,36 Jul 05	06SA01-28,29 Oct 05	06CD09-50,51 Jan 06	05SA49-14 Jul 05	06CD09-47 Jan 06	05SA49-15 Jul 05	06CD09-19 Jan 06	05SA05-21,22 Oct 04	05SA49-26,27 Jul 05	06SA01-03,04 Oct 05	06CD09-03,04 Jan 06
Field Parameters																													
Dissolved Oxygen (DO)	mg/L			0.45	1.24	0.59	1.47	9.7%	0.76	8.47	93.9%	5.33	5.82	0.43	0.79	1.46	0.72	3.33	5.6%	0.17	0.34	0.58	0.37	8.1%	1.02	0.38	0.96	0.77	1.61
Oxidation Reduction Potential (ORP)	millivolts			43.4	15.1	117.5	165.6	-43.9	-54.2	72.0	28.1	105.8	126.2	60.5	258.2	171	22	-157.8	75.1	-58.3	-118.7	-35.7	128.2	23.6	-59.6	197.7	205.3	173	241.5
pH	pH units			7.28	7.02	6.87	7.33	6.86	6.85	7.46	7.24	7.02	7.16	7.12	6.27	6.46	7.37	7.03	6.69	6.23	6.87	7.02	6.97	6.88	7.40	6.95	6.44	6.63	7.08
Specific Conductivity	m			0.947	0.883	1.189	1.212	0.898	0.776	0.480	0.621	0.831	0.708	1.832	1.447	1.354	2.644	3.293	3.459	3.623	3.154	1.167	0.925	1.470	2.453	1.249	1.462	1.381	2.807
Temperature	deg c			13.20	11.99	14.64	9.93	14.96	10.85	15.83	14.97	16.7	10.98	14.20	13.95	14.33	10.79	12.87	15.14	14.02	8.22	13.23	11.80	13.79	10.01	16.17	14.39	18.14	8.31
Depth to water	feet			5.88	5.64	7.42	6.10	9.34	12.90	10.43	10.21	11.73	10.41	11.31	11.62	12.74	10.98	4.17	4.93	5.25	3.30	7.14	6.61	9.83	9.55	7.60	7.56	8.68	6.74
VOCs																													
1,1,1-Trichloroethane	µg/L	40	200	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	1.1	0.39 J	1.5	1.3	0.07 U	0.35 U	0.35 U	0.35 U	0.07 U	1.8 U	3.5 U	7 U	0.07 U	0.07 U	0.07 UJ	0.07 U	**140**	**150**	**200**	**110**
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	**0.09 U**	**0.09 U**	**0.09 U**	0.018 U	**0.45 U**	**0.9 U**	**1.8 U**	0.018 U	0.018 U	0.018 UJ	0.018 U	0.018 U	**0.9 U**	**0.9 U**	**0.36 U**
1,1,2-Trichloroethane	µg/L	0.5	5	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.45 U	0.45 U	0.45 U	0.09 U	**2.3 U**	**4.5 U**	**9 U**	0.09 U	0.09 U	0.09 UJ	0.09 U	0.09 U	**4.5 U**	**4.5 U**	**1.8 U**
1,1-Dichloroethane	µg/L	85	850	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U	0.13 J	0.16 U	0.16 U	0.16 U	0.067 J	0.78 U	1.6 U	3.1 U	0.031 U	0.031 U	0.031 UJ	0.031 U	7.6	16 J	22	17
1,1-Dichloroethene	µg/L	0.7	7	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	0.3	0.3 U	0.3 U	0.3 U	0.12 J	**1.5 U**	**3 U**	**6 U**	0.06 U	0.06 U	0.06 UJ	0.12 J	**3.5**	**6.9 J**	**10**	**7.2 J**
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.4 U	0.4 U	0.4 U	0.08 U	2 U	4 U	8 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	4 UJ	4 U	1.6 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	0.06 UJ	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	0.3 U	0.3 U	0.3 U	0.06 U	1.5 U	3 U	6 U	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U	3 UJ	3 U	1.2 UJ
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.026 U**	**0.026 R**	**0.026 UJ**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.13 U**	**0.13 UJ**	**0.13 U**	**0.026 U**	**0.65 U**	**1.3 UJ**	**2.6 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**1.3 R**	**1.3 UJ**	**0.52 U**
1,2-Dibromoethane	µg/L	0.5	5	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	0.12 U	0.12 U	0.12 U	0.023 U	**0.58 U**	**1.2 U**	**2.3 U**	0.023 U	0.023 U	0.023 U	0.023 U	0.023 U	**1.2 U**	**1.2 U**	0.46 U
1,2-Dichlorobenzene	µg/L	60	600	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	0.2 U	0.2 U	0.2 U	0.04 U	1 U	2 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	2 U	0.8 U
1,2-Dichloroethane	µg/L	0.5	5	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	0.16 J	0.2 U	0.2 U	0.2 U	**0.54**	**1 U**	**2 U**	**4 U**	0.04 U	0.04 U	0.04 U	0.071 J	0.26	**2 U**	**2 U**	**0.8 U**
1,2-Dichloropropane	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	0.3 U	0.3 U	0.3 U	0.06 U	**1.5 U**	**3 U**	**6 U**	0.06 U	0.06 U	0.06 UJ	0.06 U	0.06 U	**3 U**	**3 U**	**1.2 U**
1,3-Dichlorobenzene	µg/L	125	1,250	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	0.2 U	0.2 U	0.2 U	0.04 U	1 U	2 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	2 U	0.8 U
1,4-Dichlorobenzene	µg/L	15	75	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	0.25 U	0.25 U	0.25 U	0.05 U	1.3 U	2.5 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	2.5 U	1 U
2-Butanone	µg/L	N/A	N/A	0.4 UJ	0.4 R	0.4 UJ	0.4 U	0.4 R	0.4 U	0.4 UJ	0.4 R	0.4 U	0.4 R	0.4 UJ	2 R	2 UJ	2 R	0.4 UJ	10 R	20 UJ	40 R	0.4 R	0.4 R	0.4 R	0.4 R	0.4 UJ	20 R	20 UJ	8 U
2-Hexanone	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 R	0.5 U	2.5 U	2.5 U	2.5 R	0.5 U	13 U	25 U	50 U	0.5 U	0.5 U	0.5 UJ	0.5 R	0.5 U	25 U	25 J	10 U
4-Methyl-2-pentanone	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 R	0.6 U	3 U	3 U	3 R	0.6 U	15 U	30 U	60 U	0.6 U	0.6 U	0.6 UJ	0.6 R	0.6 U	30 U	30 U	12 U
Acetone	µg/L	200	1,000	1.5 UJ	1.5 R	1.5 J	1.5 U	1.5 R	1.5 U	1.5 UJ	1.5 R	1.5 U	1.5 R	1.5 UJ	7.5 R	7.5 UJ	7.5 R	1.5 UJ	38 R	75 UJ	190 J	1.5 R	1.5 R	1.5 R	2.1 J	1.5 UJ	75 R	75 UJ	61 J
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	0.11 UB	0.25 U	0.25 U	0.25 U	0.05 U	**1.3 U**	**2.5 U**	**5 U**	0.05 U	0.05 U	0.05 U	0.05 U	0.096 UB	**2.5 U**	**2.5 U**	**1.1 J**
Bromochloromethane	µg/L	N/A	N/A	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	0.25 U	0.25 U	0.25 U	0.05 U	1.3 U	2.5 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.05 U	2.5 U	2.5 U	1 U
Bromodichloromethane	µg/L	0.06	0.6	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	**0.2 U**	**0.2 U**	**0.2 U**	0.04 U	**1.1 J**	**2.1 J**	**4 U**	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	**2 U**	**2.5 J**	**0.8 U**
Bromoform	µg/L	0.44	4.4	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	0.07 U	0.07 U	0.07 U	0.07 U	0.35 U	0.35 U	0.35 UJ	0.07 U	**1.8 UJ**	**3.5 U**	**7 U**	0.07 U	0.07 U	0.07 U	0.07 UJ	0.07 U	**3.5 UJ**	**3.5 U**	**1.4 UJ**
Bromomethane	µg/L	1	10	0.06 U	0.06 UJ	0.06 U	0.06 U	0.06 U	0.06 UJ	0.06 UJ	0.06 U	0.06 UJ	0.06 U	0.06 UJ	0.3 UJ	0.3 U	0.3 UJ	0.06 U	**1.5 U**	**3 U**	**6 U**	0.06 UJ	0.06 U	0.06 UJ	0.06 UJ	0.06 U	**3 UJ**	**3 U**	**1.2 UJ**
Carbon disulfide	µg/L	200	1,000	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.1 U	0.1 U	0.1 U	0.1 U	0.1 UJ	0.5 U	0.5 U	0.5 UJ	0.1 U	2.5 U	5 U	10 U	0.13 UB	0.1 U	0.1 U	0.1 UJ	0.1 U	5 U	5 U	2 UJ
Carbon tetrachloride	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	0.25 U	0.25 U	0.25 UJ	0.05 U	**1.3 U**	**2.5 U**	**5 U**	0.05 U	0.05 U	0.05 UJ	0.05 UJ	0.05 U	**2.5 U**	**2.5 U**	**1 U**
Chlorobenzene	µg/L	N/A	N/A	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	4.1	3.3	4	3.2	0.05 U	1.3 U	2.5 U	5 U	0.05 U	0.05 U	0.05 UJ	0.05 U	3.5	3 J	5.7 J	2.3 J
Chloroethane	µg/L	80	400	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	0.3 U	0.3 U	0.3 UJ	0.06 U	1.5 U	3 U	6 U	0.06 U	0.06 U	0.06 UJ	0.06 UJ	0.37 J	3 U	3 U	1.2 U
Chloroform	µg/L	0.6	6	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	0.35 U	0.35 U	0.35 U	0.07 U	**1.8 U**	**3.5 U**	**7 U**	0.07 U	0.07 U	0.07 UJ	0.07 U	0.24 UB	**3.5 U**	**3.5 U**	**1.4 U**
Chloromethane	µg/L	0.3	3	0.05 U	0.05 UJ	**0.38 UB**	0.05 UJ	0.05 UJ	0.05 U	0.05 U	0.05 U	**0.32**	0.05 UJ	0.05 U	0.25 U	**0.5 J**	0.25 U	0.05 U	**1.3 U**	**2.5 U**	**5 U**	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	**2.5 U**	**2.5 U**	**1 U**
cis-1,2-Dichloroethene	µg/L	7	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	6	2.5 J	4.3	4.3	**190**	**330**	**790**	**570**	0.18 J	0.15 J	**12 J**	**7.6**	**21**	**47 J**	**59**	**58**
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	0.016 U	**0.08 U**	**0.08 U**	**0.08 U**	0.016 U	**0.4 U**	**0.8 U**	**1.6 U**	0.016 U	0.016 U	0.016 UJ	0.016 U	0.016 U	**0.8 U**	**0.8 U**	**0.32 U**
Dibromochloromethane	µg/L	6	60	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.09 U	0.45 U	0.45 U	0.45 U	0.09 U	2.3 U	4.5 U	**9 U**	0.09 U	0.09 U	0.09 UJ	0.09 U	0.09 U	4.5 U	4.5 U	1.8 U
Dichlorodifluoromethane	µg/L	200	1,000	0.06 U	0.06 UJ	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	0.3 U	0.3 U	0.3 U	0.06 U	1.5 U	3 U	6 U	0.06 U	0.06 U	0.06 U	0.06 U	0.06 U	3 UJ	3 U	1.2 U
Ethylbenzene	µg/L	140	700	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	0.25 U	0.25 U	0.25 U	0.05 U	1.3 U	2.5 U	5 U	0.05 U	0.05 U	0.05 UJ	0.05 U	0.05 U	2.5 U	2.5 U	1 U
Isopropylbenzene	µg/L	N/A	N/A	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	0.15 U	0.15 U	0.15 U	0.03 U	0.75 U	1.5 U	3 U	0.03 U	0.03 U	0.03 U	0.03 U	0.03 U	1.5 U	1.5 U	0.6 U
m,p-Xylene (sum of isomers)	µg/L	1,000	10,000	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.6 U	0.6 U	0.6 U	0.12 U	3 U	6 U	12 U	0.12 U	0.12 U	0.12 U	0.12 U	0.12 U	6 U	6 U	2.4 U
Methyl tert-butyl ether	µg/L	12	60	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	0.25 U	0.4 J	0.45 J	0.05 U	1.3 U	2.5 U	5 U	0.29 J	0.24	0.45 J	0.23	0.05 U	2.5 U	2.5 U	1 U
Methylene chloride	µg/L	0.5	5	0.11 UJ	0.11 UJ	**2.1 J**	0.11 UJ	0.11 UJ	0.11 R	0.11 UJ	0.11 UJ	**2.1**	0.11 R	0.11 UJ	**0.55 UJ**	**15 J**	**0.55 R**	0.11 UJ	**2.8 UJ**	**130 J**	**200 J**	0.11 UJ	0.11 UJ	0.11 UJ	0.11 R	0.11 UJ	**5.5 UJ**	**120 J**	**2.2 UJ**
o-Xylene	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	0.2 U	0.2 U	0.2 U	0.04 U	1 U	2 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.04 U	2 U	2 U	0.8 U
Styrene	µg/L	10	100	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	0.2 U	0.2 U	0.2 U	0.04 U	1 U	2 U	4 U	0.04 U	0.04 U	0.04 UJ	0.04 U	0.04 U	2 U	2 U	0.8 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	0.085 J	0.25 U	0.25 U	0.25 U	0.05 U	**1.3 U**	**2.5 U**	**5 U**	0.05 U	0.05 U	0.05 UJ	0.05 U	**1.4**	**2.5 U**	**2.5 U**	**1.7 J**
Toluene	µg/L	200	1,000	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.08 U	0.4 U	0.4 U	0.4 U	0.08 U	2 U	4 U	8 U	0.08 U	0.08 U	0.08 UJ	0.08 U	0.08 U	4 U	4 U	1.6 U
trans-1,2-Dichloroethene	µg/L	20	100	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	0.6 J	0.3	0.4 J	0.41 J	5	6.2 J	7.9	6.8 J	0.04 U	0.04 U	0.6 J	0.51	0.35 J	2 U	2 U	1.3 J
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	0.015 U	**0.075 U**	**0.075 U**	**0.075 U**	0.015 U	**0.38 U**	**0.75 U**	**1.5 U**	0.015 U	0.015 U	0.015 UJ	0.015 U	0.015 U	**0.75 U**	**0.75 U**	**0.3 U**
Trichloroethene	µg/L	0.5	5	0.03 U	0.041 J	0.062 J	0.066 J	0.03 U	0.03 U	0.15 J	0.03 U	0.03 U	**0.61**	**41**	**30**	**40**	**35**	0.03 U	**0.75 J**	**1.5 U**	**3 U**	0.03 U	0.046 J	**0.76 J**	**0.63**	**200**	**230**	**340**	**130**
Vinyl chloride	µg/L	0.02	0.2	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	0.018 U	**0.074**	**0.09 U**	**0.09 U**	**0.09 U**	**0.09 U**	**85**	**58**	**170**	**260**	0.018 U	**0.036 J**	0.018 U	0.018 U	**0.4**	**0.9 U**	**1.2 J**	**0.36 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.
R indicates that the initial calibration report associated with this SDG contained relative response factors (RRFs) lower than 0.05 for acetone, 2-Butanone and 1,2-dibromo-3-chloropropane. Non-detected concentrations were qualified and flagged "R" as rejected.
UB indicates that the constituent 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 Preventative Action Limit (PAL).
Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES).

Attachment 10 (Cont.) - Field and Analytical Results for Compliance Monitoring Wells

Table 7 - Monitoring Wells - Field and Analy
October 2004, July 2005, October 2005, Jan

Constituent	Units	WAC NR 140 PAL	WAC NR 140 ES	MW-103D				MW-105B		MW-105S				MW-105D				MW-106S		MW-106D	
				09CA05-19,20 Oct 04	09CA40-24,25 Jul 05	09CA01-01,02 Oct 05	09CD09-01,02 Jan 06	09CA40-32 Jul 05	09CD09-14 Jan 06	09CA05-25,26 Oct 04	09CA40-20,21 Jul 05	09CA01-19,20 Oct 05	09CD09-21,22 Jan 06	09CA05-23,24 Oct 04	04CA40-33,34 Jul 05	09CA01-17,18 Oct 05	09CD09-12,13 Jan 06	09CA40-07 Jul 05	09CD09-23 Jan 06	09CA40-12 Jul 05	09CD09-15 Jan 06
Field Parameters																					
Dissolved Oxygen (DO)	mg/L			0.35	6.5%	1.59	0.57	0.86	0.98	0.19	11.9%	5.27	0.70	6.09	1.04	0.48	0.93	10.1%	1.54	0.97	0.49
Oxidation Reduction Potential (ORP)	millivolts			24.8	98.2	221.0	128.4	-51.8	-52.2	-32.8	-50.1	70.2	-11.8	-56.3	-15.3	-67.1	-16.0	23.1	87.0	-66.7	48.9
pH	pH units			7.12	7.04	5.95	6.94	6.45	6.89	7.31	7.02	6.21	7.31	7.34	5.86	6.69	6.89	6.79	7.59	7.09	7.24
Specific Conductivity	m			1.565	1.373	1.100	1.163	1.105	0.916	1.620	1.714	1.414	1.368	1.299	1.411	1.472	1.290	0.960	1.444	1.231	0.765
Temperature	deg c			14.35	13.41	16.84	10.41	12.90	8.17	12.98	12.71	14.86	8.11	12.10	11.08	13.93	8.50	11.81	7.04	10.94	8.48
Depth to water	feet			7.73	7.67	8.80	6.89	5.08	4.39	5.16	5.55	6.18	4.20	5.01	5.51	6.27	4.20	5.80	4.51	5.40	4.45
VOCs																					
1,1,1-Trichloroethane	µg/L	40	200	**480**	**450 J**	**460**	**520**	0.07 UJ	0.07 U	0.64 J	0.45 J	1.1 J	1.8 U	0.5 J	1.4 U	1.4 U	7 U	0.07 U	0.07 U	0.07 U	0.07 U
1,1,2,2-Tetrachloroethane	µg/L	0.02	0.2	0.018 U	**9 U**	**1.8 U**	**1.8 U**	0.018 UJ	0.018 U	0.018 U	0.018 U	**0.18 U**	**0.45 U**	0.018 U	**0.36 U**	**0.36 U**	**1.8 U**	0.018 U	0.018 U	0.018 U	0.018 U
1,1,2-Trichloroethane	µg/L	0.5	5	**0.7**	**45 U**	**9 U**	**9 U**	0.09 U	0.09 U	0.09 U	0.09 U	**0.9 U**	**2.3 U**	0.09 U	**1.8 U**	**1.8 U**	**9 U**	0.09 U	0.09 U	0.09 U	0.09 U
1,1-Dichloroethane	µg/L	85	850	**120**	**89 J**	76	59	0.095 J	0.077 J	4.8	6.5	14	11	15	15 J	**140**	**180**	0.031 U	0.031 U	0.031 U	0.031 U
1,1-Dichloroethene	µg/L	0.7	7	**80**	**85 J**	**73**	**83 J**	0.06 U	0.06 U	**0.94**	0.52	**2**	**2.4 J**	**2.6**	**2.4 J**	**14**	**36**	0.06 U	0.06 U	0.06 U	0.06 U
1,2,3-Trichlorobenzene	µg/L	N/A	N/A	0.08 U	40 UJ	8 U	8 U	0.08 U	0.08 U	0.08 U	0.08 U	0.8 U	2 U	0.08 U	1.6 U	1.6 U	8 U	0.08 U	0.08 U	0.08 U	0.08 U
1,2,4-Trichlorobenzene	µg/L	14	70	0.06 U	**30 UJ**	6 U	6 UJ	0.06 U	0.06 U	0.06 U	0.06 U	0.6 U	1.5 U	0.06 U	1.2 U	1.2 U	6 U	0.06 U	0.06 U	0.06 U	0.06 U
1,2-Dibromo-3-chloropropane	µg/L	0.02	0.2	**0.026 U**	**13 R**	**2.6 UJ**	**2.6 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.26 UJ**	**0.65 U**	**0.026 U**	**0.52 U**	**0.52 UJ**	**2.6 U**	**0.026 U**	**0.026 U**	**0.026 U**	**0.026 U**
1,2-Dibromoethane	µg/L	0.5	5	0.023 U	**12 U**	**2.3 U**	**2.3 U**	0.023 UJ	0.023 U	0.023 U	0.023 U	0.23 U	**0.58 U**	0.023 U	0.46 U	0.46 U	**2.3 U**	0.023 U	0.023 U	0.023 U	0.023 U
1,2-Dichlorobenzene	µg/L	60	600	0.04 U	20 U	4 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.4 U	1 U	0.04 U	0.8 U	0.8 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloroethane	µg/L	0.5	5	**0.75**	**20 U**	**4 U**	**4 U**	0.04 UJ	0.04 U	0.04 U	0.04 U	0.4 U	**1 U**	0.17 J	**0.8 U**	**0.8 U**	**4 U**	0.04 U	0.04 U	0.04 U	0.04 U
1,2-Dichloropropane	µg/L	0.5	5	0.06 U	**30 U**	**6 U**	**6 U**	0.06 UJ	0.06 U	0.06 U	0.06 U	**0.6 U**	**1.5 U**	0.06 U	**1.2 U**	**1.2 U**	**6 U**	0.06 U	0.06 U	0.06 U	0.06 U
1,3-Dichlorobenzene	µg/L	125	1,250	0.04 U	20 U	4 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.4 U	1 U	0.04 U	0.8 U	0.8 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U
1,4-Dichlorobenzene	µg/L	15	75	0.05 U	**25 U**	5 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	1.3 U	0.05 U	1 U	1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U
2-Butanone	µg/L	N/A	N/A	0.4 UJ	200 R	40 UJ	40 U	0.4 R	0.4 R	0.4 UJ	0.4 R	4 UJ	10 R	0.4 UJ	8 R	8 UJ	40 R	0.4 R	0.4 R	0.4 R	0.4 R
2-Hexanone	µg/L	N/A	N/A	0.5 U	250 U	50 U	50 U	0.5 UJ	0.5 R	0.5 U	0.5 U	5 U	13 R	0.5 U	10 U	10 U	50 R	0.5 U	0.5 R	0.5 U	0.5 R
4-Methyl-2-pentanone	µg/L	N/A	N/A	0.6 U	300 U	60 U	60 U	0.6 UJ	0.6 R	0.6 U	0.6 U	6 U	15 R	0.6 U	12 U	12 U	60 R	0.6 U	0.6 R	0.6 U	0.6 R
Acetone	µg/L	200	1,000	1.5 UJ	**750 R**	150 UJ	150 U	1.5 R	1.5 R	1.5 UJ	1.5 R	15 UJ	38 R	1.5 UJ	30 R	30 UJ	150 R	1.5 R	1.5 R	3.4 J	1.5 R
Benzene	µg/L	0.5	5	0.18 UB	**25 U**	**5 U**	**5 U**	0.05 U	0.05 U	0.056 UB	0.05 U	**0.5 U**	**1.3 U**	0.05 U	**1 U**	**1 U**	**5 U**	0.05 U	0.05 U	0.05 U	0.05 U
Bromochloromethane	µg/L	N/A	N/A	0.05 U	25 U	5 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	1.3 U	0.05 U	1 U	1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U
Bromodichloromethane	µg/L	0.06	0.6	0.04 U	**34 J**	**4.9 J**	**4 U**	0.04 U	0.04 U	0.04 U	0.04 U	**0.4 U**	**1 U**	0.04 U	**0.8 U**	**1.1 J**	**4 U**	0.04 U	0.04 U	0.04 U	0.04 U
Bromoform	µg/L	0.44	4.4	0.07 U	**35 UJ**	**7 U**	**7 UJ**	0.07 UJ	0.07 U	0.07 U	0.07 UJ	**0.7 U**	**1.8 UJ**	0.07 U	**1.4 UJ**	**1.4 U**	**7 UJ**	0.07 U	0.07 UJ	0.07 U	0.07 UJ
Bromomethane	µg/L	1	10	0.06 U	**30 UJ**	**6 U**	**6 UJ**	0.06 UJ	0.06 UJ	0.06 U	0.06 U	0.6 U	**1.5 UJ**	0.06 U	**1.2 U**	**1.2 U**	**6 UJ**	0.06 UJ	0.06 UJ	0.06 UJ	0.06 UJ
Carbon disulfide	µg/L	200	1,000	0.1 U	50 U	10 U	10 UJ	0.12 J	0.1 U	0.1 U	0.1 U	1 U	2.5 UJ	0.1 U	2 U	2 U	10 UJ	0.1 U	0.1 UJ	0.1 U	0.1 UJ
Carbon tetrachloride	µg/L	0.5	5	0.05 U	**25 U**	**5 U**	**5 U**	0.05 UJ	0.05 U	0.05 U	0.05 U	**0.5 U**	**1.3 UJ**	0.05 U	**1 U**	**1 U**	**5 UJ**	0.05 U	0.05 U	0.05 U	0.05 UJ
Chlorobenzene	µg/L	N/A	N/A	0.073 J	25 U	5 U	5 U	0.05 U	0.05 U	0.6	0.58	0.98 J	1.3 U	0.05 U	1 U	1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U
Chloroethane	µg/L	80	400	0.98 J	30 U	6 U	6 U	0.06 UJ	0.066 J	0.06 U	0.06 U	0.6 U	1.5 UJ	0.06 U	1.2 U	1.7 J	6 UJ	0.06 U	0.06 U	0.06 U	0.06 UJ
Chloroform	µg/L	0.6	6	**1.2 UB**	**35 U**	**7 U**	**7 U**	0.07 U	0.07 U	0.07 U	0.07 U	**0.7 U**	**1.8 U**	0.07 U	**1.4 U**	**1.4 U**	**7 U**	0.07 U	0.07 U	0.07 U	0.07 U
Chloromethane	µg/L	0.3	3	0.05 U	**25 U**	**5 U**	**5 U**	0.05 U	0.05 UJ	0.05 U	0.05 U	**0.5 U**	**1.3 U**	0.05 U	**1 U**	**1 U**	**5 U**	0.05 U	0.05 UJ	0.05 UJ	0.086 J
cis-1,2-Dichloroethene	µg/L	7	70	**360**	**280 J**	**270**	**220**	0.18 J	0.23	**58**	**69**	**160**	**130**	**56**	**29**	**350**	**460**	0.06 U	0.06 U	0.06 U	0.06 U
cis-1,3-Dichloropropene	µg/L	0.02	0.2	0.016 U	**8 U**	**1.6 U**	**1.6 U**	0.016 U	0.016 U	0.016 U	0.016 U	**0.16 U**	**0.4 U**	0.016 U	**0.32 U**	**0.32 U**	**1.6 U**	0.016 U	0.016 U	0.016 U	0.016 U
Dibromochloromethane	µg/L	6	60	0.09 U	**45 U**	**9 U**	**9 U**	0.09 U	0.09 U	0.09 U	0.09 U	0.9 U	2.3 U	0.09 U	1.8 U	1.8 U	**9 U**	0.09 U	0.09 U	0.09 U	0.09 U
Dichlorodifluoromethane	µg/L	200	1,000	0.06 U	30 UJ	6 U	6 U	0.06 U	0.06 U	0.06 U	0.06 U	0.6 U	1.5 U	0.06 U	1.2 U	1.2 U	6 U	0.06 U	0.06 U	0.06 U	0.06 U
Ethylbenzene	µg/L	140	700	0.05 U	25 U	5 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U	0.5 U	1.3 U	0.05 U	1 U	1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U
Isopropylbenzene	µg/L	N/A	N/A	0.03 U	15 U	3 U	3 U	0.03 U	0.03 U	0.03 U	0.03 U	0.3 U	0.75 U	0.03 U	0.6 U	0.6 U	3 U	0.03 U	0.03 U	0.03 U	0.03 U
m,p-Xylene (sum of isomers)	µg/L	1,000	10,000	0.12 U	60 U	12 U	12 U	0.12 U	0.12 U	0.12 U	0.12 U	1.2 U	3 U	0.12 U	2.4 U	2.4 U	12 U	0.12 U	0.12 U	0.12 U	0.12 U
Methyl tert-butyl ether	µg/L	12	60	0.05 U	**25 U**	5 U	5 U	0.05 U	0.05 U	0.17 J	0.33 J	0.5 U	1.3 U	0.05 U	1 U	1 U	5 U	0.05 U	0.05 U	0.05 U	0.05 U
Methylene chloride	µg/L	0.5	5	0.11 UJ	**55 UJ**	**270 J**	**11 UJ**	0.11 UJ	0.11 R	0.11 UJ	0.11 UJ	**31 J**	**2.8 R**	0.11 UJ	**2.2 UJ**	**52 J**	**11 R**	0.11 UJ	0.11 R	0.11 UJ	0.11 R
o-Xylene	µg/L	N/A	N/A	0.04 U	20 U	4 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U	0.4 U	1 U	0.04 U	0.8 U	0.8 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U
Styrene	µg/L	10	100	0.04 U	**20 U**	4 U	4 U	0.04 U	0.04 UJ	0.04 U	0.04 U	0.4 U	1 U	0.04 U	0.8 U	0.8 U	4 U	0.04 U	0.04 U	0.04 U	0.04 U
Tetrachloroethene	µg/L	0.5	5	0.05 U	**25 U**	**5 U**	**5 U**	0.05 U	0.05 U	0.05 U	0.05 U	**0.5 U**	**1.3 U**	0.05 U	**1 U**	**1 U**	**5 U**	0.05 U	0.05 U	0.05 U	0.05 U
Toluene	µg/L	200	1,000	0.08 U	40 U	8 U	8 U	0.08 U	0.08 U	0.08 U	0.08 U	0.8 U	2 U	0.08 U	1.6 U	1.6 U	8 U	0.08 U	0.08 U	0.08 U	0.08 U
trans-1,2-Dichloroethene	µg/L	20	100	5.5	**20 U**	4 U	4 U	0.04 U	0.04 U	0.71 J	1.6	1.8	1 U	2.6	1	11	15	0.04 U	0.04 U	0.04 U	0.04 U
trans-1,3-Dichloropropene	µg/L	0.02	0.2	0.015 U	**7.5 U**	**1.5 U**	**1.5 U**	0.015 U	0.015 U	0.015 U	0.015 U	**0.15 U**	**0.38 U**	0.015 U	**0.3 UJ**	**0.3 U**	**1.5 U**	0.015 U	0.015 U	0.015 U	0.015 U
Trichloroethene	µg/L	0.5	5	**2,200**	**2,000**	**2,200**	**1,900**	0.09 J	0.069 J	**63**	**76**	**41**	**18**	**240**	**130**	**470**	**2,100**	0.03 U	0.03 U	0.03 U	0.039 J
Vinyl chloride	µg/L	0.02	0.2	**2.9**	**9 U**	**4.1 J**	**1.8 U**	**0.059**	**0.092 J**	**2.3**	**2.3**	**3.7**	**3.2**	**1.5**	**1.1**	**9.2**	**21**	0.018 U	0.018 U	0.018 U	0.018 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.
R indicates that the initial calibration report associated with this SDG contained relative response factors (RRFs) lower than 0.05 for acetone, 2-Butanone and 1,2-dibromo-3-chloropropane.
Non-detected concentrations were qualified and flagged "R" as rejected.
UB indicates that the constituent 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 Preventative Action Limit (PAL).
Shaded values indicate attainment or exceedance of the Wisconsin Administrative Code (WAC) NR 140 Enforcement Standard (ES).