K&A

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July 10, 1998

Mr. Paul Kozol, P.E.
Wisconsin Department of Natural Resources
3911 Fish Hatchery Road
Fitchburg, WI 53711

Re: Monthly Monitoring Report for the Oconomowoc Groundwater Treatment Facility

Dear Mr. Kozol:

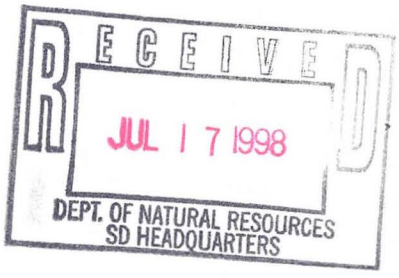
Attached is the Monthly Monitoring Report for June 1998 for the above referenced project. Questions regarding this report should be directed toward Syed Ihtheshamuddin at (414) 351-6668.

Thank you for your cooperation and assistance with this project.

Sincerely,

Syed Ihtheshamuddin

Syed Ihtheshamuddin, Project Manager
Kapur & Associates



cc: Arne Thomsen, USACE, St. Paul District
Steve Peterson, USACE, Omaha District
Randy Sitton, USACE
Tom Williams, USEPA
Mike Boehlar, Black and Veatch
David J. Brodzinski , WDNR

MONTHLY MONITORING REPORT
FOR THE
OCONOMOWOC ELECTROPLATING
GROUNDWATER TREATMENT FACILITY
ASHIPPUN, WISCONSIN

Prepared for:

U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
HASTINGS, MINNESOTA
CONTRACT DACW45-95-C-0064

Prepared by:

Kapur & Associates, Inc.
7711 North Port Washington Road
Milwaukee, Wisconsin 53217

July 10, 1998

1.0 Introduction

This report summarizes the monthly effluent monitoring results for the Oconomowoc Electroplating Groundwater Treatment Plant (OEGTP) for June1998. The OEGTP is located at the site of the former Oconomowoc Electroplating Company, in Ashippun, WI.

A summary of the laboratory results for the influent and effluent sampling is included in Table 1. Matt Hahm and Joe Fleischfresser, of Kapur & Associates, Inc. (K&A) conducted the plant sampling. En Chem, Inc., 802 Deming Way, Madison, Wisconsin 53707, provided laboratory analysis. All sampling and analyses were conducted in accordance with the Oconomowoc Electroplating Groundwater Treatment System's Chemical Data Acquisition Plan (CDAP). The parameters tested for, frequency of testing, sample type, and limits are set forth in the Final Discharge Limits, Table 1 of the Oconomowoc Electroplating Superfund Site Limits and Requirements for Discharge of Treated Groundwater, issued by the Wisconsin Department of Natural Resources (WDNR) on September 24, 1996. This report is submitted in accordance with the reporting requirements of the WDNR permit.

1.1 Site Background Review

The OEGTP is located at 2572 Oak Street in Ashippun, Wisconsin, in the NW ¼ of the SE ¼ of Section 30, Township 30 North, Range 17 East. The site consists of approximately 10 acres, which includes approximately 3.5 acres of the former electroplating facility. The site is bounded by Oak Street (Highway O) and Eva Street to the North, and Davey Creek and the Town of Ashippun's garage facilities to the South. The property directly across Oak Street is occupied by Thermogas, Inc. A residential area is located across Eva Street, and a wetland surrounds Davey Creek.

The contact person for the plant operation is Arne Thomsen of the U.S. Army Corps of Engineers (USACE). Mr. Thomson's phone number is (612) 438-3076, Fax (612) 438-2464. Kapur & Associates, Inc is contracted by the USACE to operate and maintain the treatment facilities. The contact person for K&A, is Syed Ihtheshamuddin. He can be reached at the K&A office in Milwaukee, Wisconsin at (414) 351-6668, Fax (414) 351-4117.

1.2 Project Objectives

The objective of this project is to prevent the spreading of any plume of contamination that may exist at the site. Contaminated groundwater is pumped from five extraction wells, treated for cyanide, metals, suspended solids, and volatile organic compounds (VOC's). The treated water is then transferred to a groundwater influent gallery, located south of Elm Street, near Davey Creek.

1.3 Effluent Monitoring

Weekly monitoring was conducted on June 3, 10, 17, and 24, and July 1,1998. The monthly 24-hour composite monitoring samples were collected on June 10, 1998. Results from the May 27 sampling are included in this report.

1.4 Monitoring Results

A summary of the results for the weekly influent and effluent monitoring for May 27, June 3, 10, 17, 24 and July 1 is shown in Table 1. This summary table shows the results of the effluent monitoring parameters listed in the Monitoring Requirements of the Oconomowoc Electroplating Superfund Site Substantive WPDES Permit Requirements Summary (9/96).

2.0.0 Plant Operation and Shut Down

During the month of June, the plant was shut down for a total of 17 hours. Three hours of the plant shut down was due to loss of power to the plant and the surrounding community on May 31 and June 1, 1998. The power shut down was due to a spring storm in the Southeastern Wisconsin. The plant was shut down for about 8 hours to weld and repair the Air Stripper (DAS-500).

2.1.1 Shut Down Due to Power Loss to the Plant

On the May 31, a severe storm passed through the Southeastern Wisconsin area and the plant was among about 150,000 Electric Company customers that lost power. The electric power to the treatment plant was shut down for a total of 25 hours including 3 hours on June 1, 1998.

2.1.2 Shut Down to Repair the Air Stripper (DAS-500)

On February 19, 1998, the air stripper was upgraded by addition of four trays to the existing system. Soon after this equipment modification, the sump started leaking. The sump leak got progressively worse with time. On June 17, the sump was repaired by welding from inside the tank and reinforcing the walls. The plant was shut down for a total of 8 hours for this repair and maintenance activity.

2.1.3 Plant Shut Down to Clean the Influent Flow Line

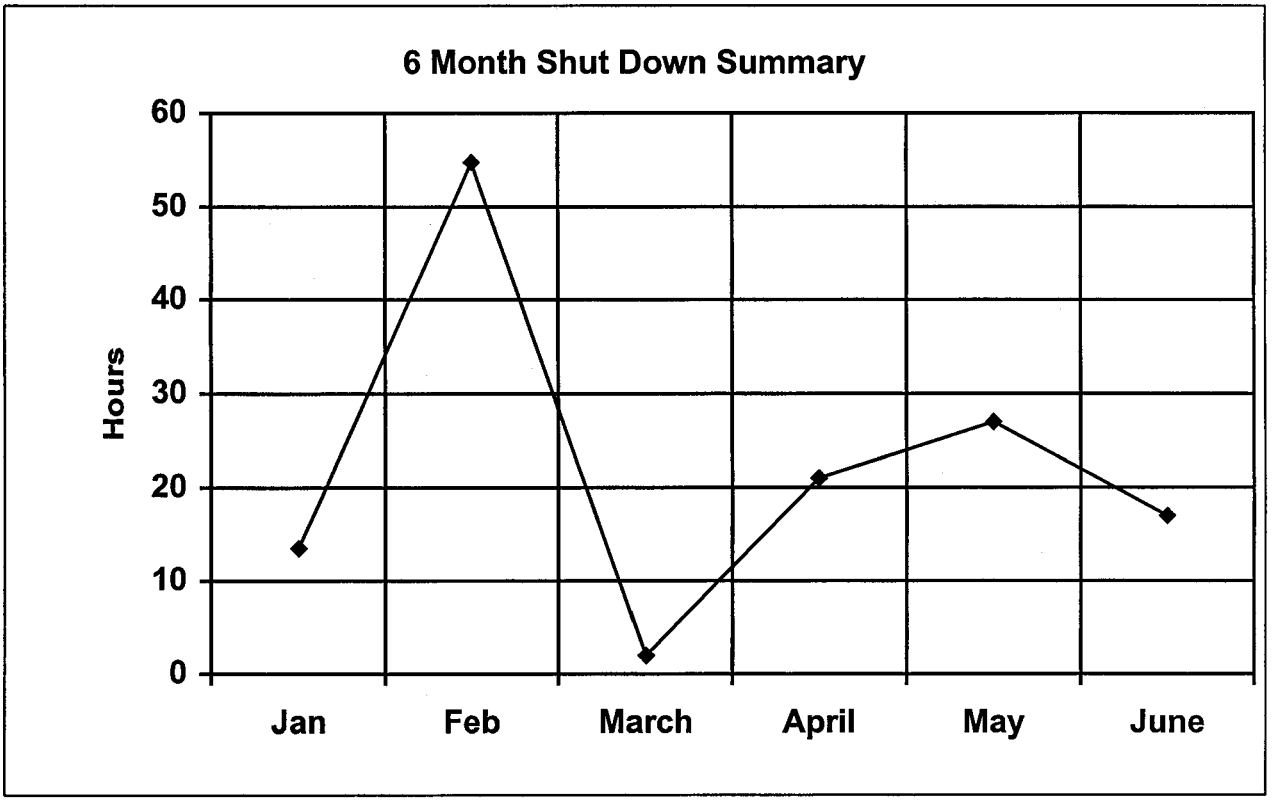
The plant operation was shut down on June 11 and June 25 for 1 hour each to clean the influent lines from the influent pumps to the Cyanide Metals Package. These lines get coated with sludge from the Equalization Tank (EQT-100) and need to be cleaned at least

once a month to restore the pipe capacity. The plant was shut down for a total of 2 hours during the month for this maintenance activity.

2.1.4 Shut Down Due to Leaking Sulfuric Acid Static Mixer

On June 22 and again on June 23, the static in-line mixer for sulfuric acid neutralization started leaking. The acid in-line static mixer had to be disassembled and repaired. The plant was shut down for a total of 4 hours for this repair activity.

Chart 1



3.0 Summary

Weekly influent and effluent sample monitoring for the Oconomowoc Groundwater Treatment Plant was conducted on June 3, 10, 17, 24 and July 1, 1998. The monthly 24-hour composite monitoring samples were collected on June 10, 1998. A summary of these laboratory results is included in Table 1. The effluent sampling results show that all contaminants, except the Lead effluent concentration from June 10 and July 01 sampling, comply with the effluent discharge permit limits listed in the Requirements of the Oconomowoc Electroplating Superfund Site Substantive WPDES Permit Requirements Summary (9/96). The Lead concentration in the effluent was 2.2 ug/l and 3.3 ug/l vs the discharge permit limit of 1.5 ug/l.

During the month of June 1998, a total of 495,762 gallons of water was extracted from the wells and treated. During the month of June, the plant was shut down for a total of 17 hours.

4.0 Steps Taken Toward Automation

Physical modifications to the plant process or equipment made during the month of May 1998.

- Granular Activated Pumps (GAC-650/651): The existing granular activated pumps (GAC 650 & 651) could not keep up with the flow from the tertiary filter (TF-600). During the month of June these pumps were upgraded to maintain the normal plant flow. The pump impellers were upgraded from the existing 4 7/16" diameter to 4 7/8" diameter, which will help the plant run more efficiently and keep up with the normal plant flow.

In addition, the following process and equipment modifications are being designed for optimization of the plant operation:

- Addition of a polymer dilution tank.
- Two-stage neutralization of the process stream.
- Modifications to the sulfuric acid feed system.
- Addition of sand in the sand filter.
- Modifications to the process PLC and instrumentation and control system.

All equipment operation and maintenance related issues are detailed in a separate report, entitled *"Monthly Operation and Maintenance Report for the Oconomowoc Electroplating Groundwater Treatment Facility."*

Table 1
Oconomowoc Ground Water Treatment Plant
Summary Result - Plant Influent & Effluent

	May 27		June 03		June 10		June 17		
Parameter	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	WDNR Permit
pH	10.00	7.10	10.00	6.90	9.00	6.90	9.00	6.50	Monitor
TSS	75.00	Monthly	76.00	Monthly	65.00	ND	56.00	Monthly	Monitor (mg/l)
Arsenic	ND	ND	ND	6.90	ND	ND	ND	ND	5
Barium	27.00	2.50	37.00	3.50	30.00	3.60	28.00	5.80	400
Cadmium	ND	ND	0.15	ND	ND	ND	ND	0.12	0.5
Cadmium Total Recove	NT	ND	NT	ND	NT	ND	NT	ND	Monitor
Chromium Total	ND	ND	2.50	ND	ND	1.30	ND	ND	10
Chromium +6	ND	ND	ND	ND	ND	ND	7.10	6.80	Monitor
Copper	8.50	12.00	8.80	3.70	7.10	6.00	8.90	15.00	Monitor
Iron	480.00	41.00	570.00	69.00	550.00	140.00	510.00	160.00	Monitor
Lead	ND	ND	3.30	ND	1.60	2.20	ND	ND	1.5
Manganese	41.00	1.40	45.00	3.80	42.00	5.90	39.00	6.00	Monitor
Mercury	ND	ND	ND	ND	ND	ND	0.10	0.11	0.2
Nickel	20.00	6.90	24.00	8.10	19.00	9.60	19.00	14.00	20
Selenium	ND	ND	ND	ND	ND	ND	ND	ND	10
Silver	ND	ND	ND	ND	ND	ND	ND	ND	10
Thallium	ND	ND	ND	ND	ND	ND	ND	ND	0.4
Zinc	ND	7.00	820.00	ND	5.80	7.90	4.10	4.60	Monitor
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	40
Cyanide Free	NT	ND	NT	ND	NT	ND	NT	ND	Monitor
1,1-dichloroethane	48.00	ND	28.00	ND	29.00	ND	30.00	ND	85
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.5
1,1-dichloroethene	ND	ND	ND	ND	3.70	ND	ND	ND	0.7
1,2-dichloroethene cis	56.00	ND	47.00	ND	48.00	ND	33.00	ND	7
1,2-dichloroethene tran	6.40	ND	4.30	ND	4.70	ND	3.70	ND	20
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	140
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	ND	0.5
Tetrachloroethene	2.80	ND	2.30	ND	2.30	ND	1.70	ND	0.5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	68
1,1,1-trichloroethane	ND	ND	80.00	ND	90.00	ND	96.00	ND	40
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.5
TCE	370.00	ND	320.00	ND	330.00	ND	300.00	ND	0.5
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Xylene Total	ND	ND	ND	ND	ND	ND	ND	ND	124
COD	NT	NT	NT	NT	NT	12.00	NT	NT	Monitor (mg/l)
Phosphorus total	NT	NT	NT	NT	NT	0.11	NT	NT	Monitor (mg/l)
Nitrate + Nitrite	NT	NT	NT	NT	NT	0.11	NT	NT	Monitor (mg/l)
Ammonia Nitrogen	NT	NT	NT	NT	NT	ND	NT	NT	Monitor (mg/l)

Table 1-a
Oconomowoc Ground Water Treatment Plant
Summary Result - Plant Influent & Effluent

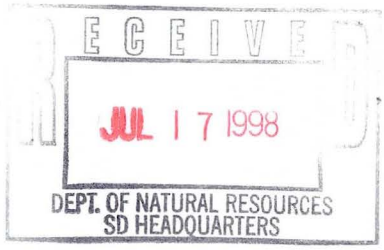
	June 24		July 01		
Parameter	Influent	Effluent	Influent	Effluent	WDNR Permit
pH	10.00	7.10	8.00	7.00	Monitor
TSS	100.00	Monthly	60.00	Monthly	Monitor (mg/l)
Arsenic	ND	ND	0.89	ND	5
Barium	64.00	8.80	26.00	5.40	400
Cadmium	0.08	0.16	ND	ND	0.5
Cadmium Total Recover	NT	ND	NT	ND	Monitor
Chromium Total	ND	ND	0.89	0.82	10
Chromium +6	ND	ND	ND	ND	Monitor
Copper	17.00	5.80	16.00	8.60	Monitor
Iron	770.00	74.00	400.00	90.00	Monitor
Lead	ND	ND	1.70	3.30	1.5
Manganese	59.00	3.50	30.00	1.60	Monitor
Mercury	0.08	0.08	ND	ND	0.2
Nickel	17.00	4.40	14.00	5.20	20
Selenium	ND	ND	ND	ND	10
Silver	ND	ND	ND	ND	10
Thallium	ND	ND	ND	ND	0.4
Zinc	47.00	6.70	ND	4.20	Monitor
Cyanide	ND	ND	ND	ND	40
Cyanide Free	NT	ND	NT	ND	Monitor
1,1-dichloroethane	28.00	ND	38.00	ND	85
1,2-dichloroethane	ND	ND	ND	ND	0.5
1,1-dichloroethene	2.70	ND	5.20	ND	0.7
1,2-dichloroethene cis	41.00	ND	66.00	ND	7
1,2-dichloroethene trans	4.10	ND	6.10	ND	20
Ethylbenzene	ND	ND	ND	ND	140
Methylene Chloride	ND	ND	ND	ND	0.5
Tetrachloroethene	1.80	ND	ND	ND	0.5
Toluene	ND	ND	ND	ND	68
1,1,1-trichloroethane	93.00	ND	ND	ND	40
1,1,2-trichloroethane	ND	ND	ND	ND	0.5
TCE	320.00	ND	380.00	ND	0.5
Vinyl Chloride	ND	ND	ND	ND	0.2
Xylene Total	ND	ND	ND	ND	124
COD	NT	NT	NT	NT	Monitor (mg/l)
Phosphorus total	NT	NT	NT	NT	Monitor (mg/l)
Nitrate + Nitrite	NT	NT	NT	NT	Monitor (mg/l)
Ammonia Nitrogen	NT	NT	NT	NT	Monitor (mg/l)

K&A

Kapur & Associates

Oconomowoc Electroplating GWTF ♦ P.O. Box 352 ♦ Ashippun, WI 53003
Phone 920-474-4529 ♦ Fax 920-474-4639

July 10, 1998



Mr. Arne Thomsen
USACE, St. Paul District
801 Pine Street, Suite B
Hastings, MN 55033

Re: Monthly O&M Report for the Oconomowoc Groundwater Treatment Facility

Dear Mr. Thomsen:

Attached is the Monthly O&M Report for June 1998, for the above referenced project. Questions regarding this report should be directed toward Syed Ihtheshamuddin at (414) 351-6668.

Thank you for your cooperation and assistance with this project.

Sincerely,

Syed Ihtheshamuddin

Syed Ihtheshamuddin, Project Manager
Kapur & Associates

cc: Steve Peterson, USACE, Omaha District
Randy Sitton, USACE
Tom Williams, USEPA
Paul Kozol, WDNR
David J. Brodzinski, WDNR
Mike Boehlar, Black and Veatch

MONTHLY OPERATIONS AND MAINTENANCE REPORT
FOR THE
OCONOMOWOC ELECTROPLATING
GROUNDWATER TREATMENT FACILITY

2572 Oak Street
ASHIPPUN, WISCONSIN

Prepared for:
U.S. ARMY CORPS OF ENGINEERS
ST. PAUL DISTRICT
HASTINGS, MINNESOTA
CONTRACT DACW45-95-C-0064

Prepared by:
Kapur & Associates, Inc.
7711 North Port Washington Road
Milwaukee, Wisconsin 53217

July 10, 1998

1.0 Introduction

This report is submitted to provide information concerning the equipment maintenance work completed, and operations and maintenance (O&M) problems encountered at the Oconomowoc Electroplating Groundwater Treatment Plant during the month of June 1998. O&M issues that led to plant shut down are discussed in the *Monthly Monitoring Report for the Oconomowoc Electroplating Groundwater Treatment Facility.*

Continuing O & M Issues from Previous Month include:

1. Tertiary Filter (TF-600):
   - Level of sand in the filter is below the recommended level.
2. Sulfuric Acid Feed System:
   - Corrosion of electrical conduits.
   - Leaking in-line static mixer.
3. Extraction Wells Pumping Capacity:
   - Pumping capacity remains low.

2.0.0 Process Difficulties

2.0.01 Continuing O&M Issues from Previous Months:

The O&M problems listed are repeated from the May O&M report. The sulfuric acid in-line static mixer led to plant shut down for 4 hours. None of the O&M difficulties contributed to exceedence of effluent permit limits. For other related information regarding plant shut down times, see the *Monthly Monitoring Report for the Oconomowoc Electroplating Groundwater Treatment Facility.*

The first two issues, level of sand in the tertiary filter, and corrosion of the sulfuric acid feed system, is being addressed by the design engineer as a part of the plant optimization process.

Extraction Wells Pumping Capacity:
The current individual pumping capacity for each extraction well is shown in Table 1. At this time, the combined pumping capacity of all five (5) wells into the plant is about 11.5 gpm.

Table 1 - Individual Extraction Well Pumping Capacity

Extraction Well	Pumping Capacity (GPM)
1	2.2
2	1
3	5.7
4	2.3
5	5.7

2.0.02 O&M Repairs Made during the Month of May:

The following O&M work was completed during the month:

Granular Activated Carbon Pumps (GAC-650 & 651) Impeller Replacement

The existing GAC pumps 650 and 651 could not keep up with the flow from the tertiary filter (TF-600). During the month of June, these pumps were upgraded to maintain the normal plant flow. The pump impellers were upgraded from the existing 4 7/16" diameter to 4 7/8" diameter.

Sludge Build Up On the Influent Pumps Impeller (TFT-110/111)

The plant influent, over a period of time, mixes with the sludge in the Equalization Tank (EQT-100) and coats the influent pump (TFP-110/111) impellers. This reduces the pumping capacity and eventually binds up and brings the pumps to a halt. The influent pump impellers were cleaned with dilute muriatic acid, each week during the month of May.

Cleaning of the Influent Line Between TFP Pumps and Cyanide Metals Package

The plant influent line between TFP pumps and the cyanide metals package gets coated with sludge from Equalization Tank (EQT-100) and reduces the pipe capacity. On May 18, the line was cleaned to restore the pipe capacity.

2.0.03 New O& M Issues:

There are no new O&M issues that need attention at this time.