

**K&A**

43

**Kapur & Associates**

Oconomowoc Electroplating GWTF ♦ P.O. Box 352 ♦ Ashippun, WI 53003-0352

Phone 920-474-4529 ♦ Fax 920-474-4639

March 31, 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 March 1998 for the above referenced project. Questions regarding this report should be directed toward Syed Ihteshamuddin at the treatment plant. The phone number at the treatment plant is (920) 474-4529.

Thank you for your continued cooperation and assistance with this project.

Sincerely,

*Syed Ihteshamuddin*

Syed Ihteshamuddin, 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

**March 31, 1998**

## **1.0 Introduction**

This report summarizes the monthly effluent monitoring results for the Oconomowoc Electroplating Groundwater Treatment Plant (OEGTP) for March 1998. The OEGTP is located at the site of the former Oconomowoc Electroplating Company, in Ashippun, WI.

A summary of the laboratory results for our influent and effluent sampling is included in Table 1. Matt Hahm, 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  $\frac{1}{4}$  of the SE  $\frac{1}{4}$  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 plant. The contact person for K&A, is Syed Itheshamuddin. He can be reached at the plant at (920) 474-4529, Fax (920) 474 4639, or 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 March 4, 11, 18, and 25, 1998. The monthly 24-hour composite monitoring samples were collected on March 11, 1998. En Chem, Inc tested all samples.

### **1.4 Monitoring Results**

A summary of the results from the weekly influent and effluent monitoring from March 4, 11, 18, and 25 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). The results for the March 04 weekly effluent monitoring tests showed Lead at a concentration of 4.30 µg/l, which exceeded the 1.5 µg/l limit of the WDNR effluent discharge permit. The March 25 weekly effluent monitoring tests showed Thallium at a concentration of 3.00 µg/l, which exceeded the 0.4 µg/l limit and Methylene Chloride at a concentration of 0.80 µg/l, which exceeded the 0.5 µg/l, limit of the WDNR effluent discharge permit. None of the other effluent parameters exceeded the WDNR permit limits.

### **2.0.0 Plant Operation and Shut Down**

During the month of March, the plant was shut down for a total of 2 hours.

The airlift line for the Tertiary Filter (TF-600) became clogged with sand and was removed and cleaned.

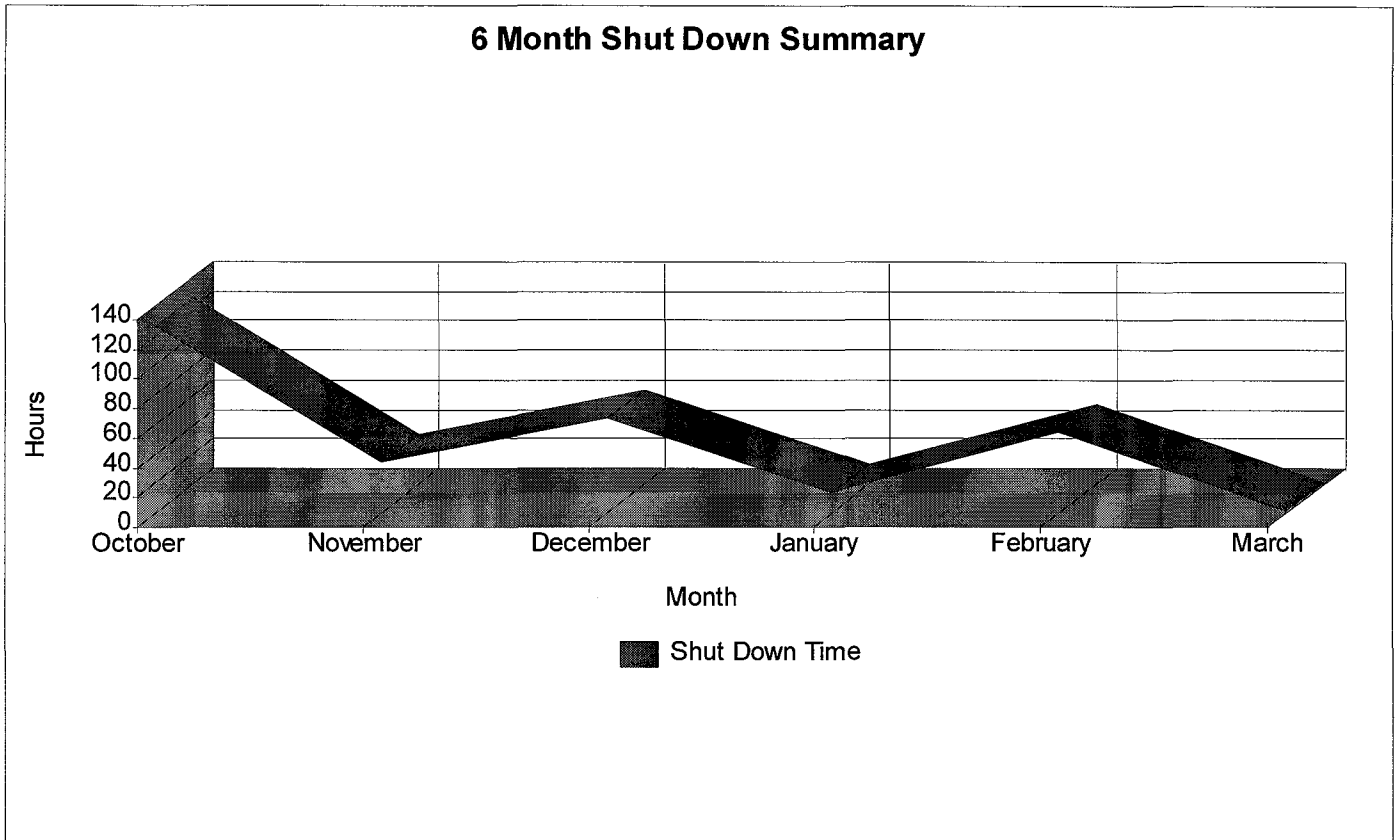
Chart 1, 6 Month Shut Down Summary, displays the shut down times for the last six months.

There were no process or equipment modifications or major equipment maintenance activities during the month. Cleaning of sludge from the cyanide metals package reactors is planned for the next month. This activity will require plant shut down for 24 hours.

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

Parameter	March 04		March 11		March 18		March 25		WDNR Permit
	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	
pH	7.80	7.30	7.20	7.80	7.80	7.10	9.00	7.30	Monitor
TSS	54.00	Monthly	30.00	3.00	91.00	Monthly	101.00	Monthly	Monitor (mg/l)
Arsenic	ND	ND	ND	ND	ND	ND	ND	ND	5
Barium	26.00	13.00	28.00	11.00	46.00	1.70	51.30	2.10	400
Cadmium	ND	0.078	ND	ND	ND	ND	6.00	ND	0.5
Cadmium Total Recove	NT	ND	ND	ND	NT	ND	NT	ND	Monitor
Chromium Total	1.00	ND	0.97	ND	0.84	ND	ND	ND	10
Chromium +6	ND	ND	ND	ND	ND	ND	6.00	ND	Monitor
Copper	6.80	10.00	8.20	5.50	4.90	4.50	ND	1.00	Monitor
Iron	390.00	99.00	300.00	210.00	510.00	140.00	540.00	41.00	Monitor
Lead	1.20	4.30	ND	1.10	ND	ND	ND	ND	1.5
Manganese	47.00	0.97	17.00	2.60	57.00	1.60	54.80	0.50	Monitor
Mercury	ND	ND	ND	ND	0.13	ND	ND	ND	0.2
Nickel	24.00	16.00	19.00	ND	25.00	4.50	25.00	7.00	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	3.00	0.4
Zinc	10.00	180.00	4.90	12.00	ND	6.40	2.00	3.00	Monitor
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND	40
Cyanide Free	NT	ND	NT	ND	NT	0.0033	NT	ND	Monitor
1,1-dichloroethane	37.00	1.40	29.00	ND	39.00	ND	60.00	ND	85
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.5
1,1-dichloroethene	6.30	ND	4.00	ND	ND	ND	0.30	ND	0.7
1,2-dichloroethene cis	55.00	ND	47.00	ND	46.00	ND	86.00	ND	7
1,2-dichloroethene tran	8.20	ND	7.20	ND	8.70	ND	8.20	ND	20
Ethylbenzene	ND	ND	ND	ND	ND	ND	ND	ND	140
Methylene Chloride	ND	ND	ND	ND	ND	ND	ND	0.80	0.5
Tetrachloroethene	4.00	ND	3.90	ND	4.20	ND	4.50	ND	0.5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	68
1,1,1-trichloroethane	140.00	1.40	120.00	ND	150.00	ND	220.00	ND	40
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	0.60	ND	0.5
TCE	450.00	ND	400.00	ND	420.00	ND	740.00	0.30	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	33.00	NT	NT	NT	NT	Monitor (mg/l)
Phosphorus total	NT	NT	NT	0.076	NT	NT	NT	NT	Monitor (mg/l)
Nitrate + Nitrite	NT	NT	NT	0.20	NT	NT	NT	NT	Monitor (mg/l)
Ammonia Nitrogen	NT	NT	NT	ND	NT	NT	NT	NT	Monitor (mg/l)

CHART 1



### 3.0 Summary

Treatment plant influent and effluent monitoring were conducted on March 4, 11, 18, and 25, 1998. Monthly monitoring samples were collected on March 11, 1998. A summary of these laboratory results is included in Table 1. The effluent sampling results show all contaminants listed in the Requirements of the Oconomowoc Electroplating Superfund Site Substantive WPDES Permit Requirements Summary (9/96), except for Lead in the March 04 samples, and Thallium and Methylene Chloride in the March 25 samples, comply with the permit limits.

The reason for the higher metals concentration in the effluent was due to low ORP values in the cyanide-metals reactors. The sodium hypochlorite in the chemical storage tank was stored beyond the recommended shelf life of the chemical and the inert ingredients were unable to maintain the required ORP levels. Mr. Paul Kozol of the WDNR was notified of the higher effluent metals concentration and he concurred with the steps being taken to rectify the situation.

During the month of March 1998, a total of 466,599 gallons of water were extracted from the wells and treated. During the month of March, the plant was shut down for a total of 2 hours, a decrease of 53.75 hours from the previous month.

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.”*

**K&A**

**Kapur & Associates**

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

March 31, 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 March 1998, for the above referenced project. Questions regarding this report should be directed toward Syed Ihteshamuddin at the treatment plant. The phone number at the treatment plant is (920) 474-4529.

Thank you for your continued cooperation and assistance with this project.

Sincerely,  
*Syed Ihteshamuddin*  
Syed Ihteshamuddin, 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

**March 31, 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 March 1998. Any O&M problems that led to the 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. Sodium Hypochlorite Feed System:
  - The Rosemount Level Element at the sodium hypochlorite tank (SCT-250) is corroding and continues to leak.
2. Tertiary Filter (TF-600):
  - Level of sand in the filter is below the recommended level.
3. NPDES Station (NMS-740):
  - Measuring probes need to be calibrated.
4. All sampling ports provide evidence of corrosion of the process piping (iron pipes).
5. Sulfuric Acid Feed System:
  - Corrosion of electrical conduits.
6. Spare Parts on site for all mechanical equipment.
7. Extraction Wells Pumping Capacity:
  - Pumping capacity remains low.
8. Air Stripper (DAS-500) Leaking

## **2.0.0 Process Difficulties**

### **2.0.01 Continuing O&M Issues from Previous Months:**

The O&M problems listed are repeated from the February O&M report. 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 following O & M issues should be addressed immediately before the plant operation is affected:

1. Sodium Hypochlorite Feed System (SCT-250):
  - Supplier of the Rosemount Level element has agreed to replace the tank level-measuring device when the level in the tank is sufficiently

low for making the change. This work is scheduled for early April 1998.

2. Sand Filter (TF-600):  
The sand in the filter is below the manufacturer's recommended level. The low level of sand causes the effluent nozzles to be exposed to the precipitate in the filter influent. The nozzles become coated with the precipitate, reducing the efficiency of the filter. An additional 1000 pounds of sand is needed to help make the filter operation more efficient.
3. NPDES Station (NMS-740)  
The pH probe at the NPDES station is calibrated monthly. The temperature and the conductivity probes need to be calibrated by a certified technician.
4. Sampling Ports  
All sampling ports continue to show evidence of corrosion when opened every week for sampling. The iron concentration in the plant effluent also continues to be high.
5. Sulfuric Acid Feed System:  
The areas surrounding the sulfuric acid feed system, including the electrical conduits, have severe corrosion problems. This is a hazardous situation and immediate measures should be taken to correct the situation.
6. Spare Parts  
It is necessary to supply the plant with spare parts for all of the equipment, to prevent unnecessary down time for ordering parts.
7. 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 down to 12.5 gpm.

**Table 1 - Individual Extraction Well Pumping Capacity**

<u>Extraction Well</u>	<u>Pumping Capacity (GPM)</u>
1	2.2
2	1
3	5.7
4	2.3
5	5.7

8. **Air Stripper (DAS-500) Continues to Leak**  
After the modification #P00031 was completed, the Air Stripper (DAS-500) started to leak from both corners in the front of the sump. These leaks have been progressively getting worse, and a third leak has started. The contractor and the manufacture were notified and negotiations are underway for repair of the leaks.
9. **Static Mixer (SM-401) Leaking.**  
The Static Mixer continues to leak sulfuric acid. This leak is at the point where the injection quill is connected to the static mixer. At this time, the leak does not appear to interfere with the operation of the treatment plant, but maintains a hazardous situation.

#### **2.0.02 O&M Repairs Made during the Month of March:**

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

##### **Sodium Hydroxide Pump (SHP-361)**

On March 12, the Sodium Hydroxide Pumps (SHP-261/262) were taken apart and new parts replaced the plastic connectors that were worn out and leaking.

##### **Air Compressors (AC-950) Line Leaking**

On March 13, the airline following the air-drying unit started to leak. A section of the pipe was replaced on March 16. After observation of the cracked section, it appeared the pipe was tightened too much initially, and cracked. The crack progressed over time until the air leaking out was noticeable.

##### **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 for the month of March, which prevented further down time.

#### **2.0.03 New O& M Issues:**

##### **Sludge Build Up in the Cyanide Metals Package Reactors**

The weirs in the cyanide metals package (C 400) reactors appear to be clogged with precipitate. This creates additional resistance to the mixers and restricts flow into the downstream reactors. The reactors need to be emptied into the equalization tank (EQT 100) via the sump and cleaned. The extra sludge from the EQT 100 also should be transferred into the sludge holding using a vacuum truck and processed.