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Oconomowoc Electroplating GWTF ♦ P.O. Box 352 ♦ Ashippun, WI 53003-0352
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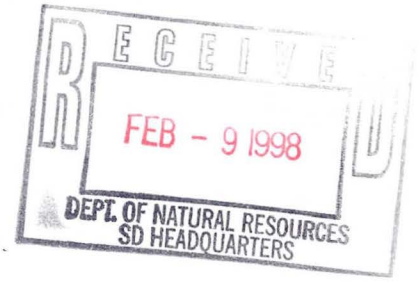
January 31, 1998



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 January 1998 for the above referenced project. Question regarding this report should be directed toward Matthew Hahm 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,

Matthew Hahm , Project Engineer
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
Marilyn and Rick Warrington, Warrington Builders, Inc.

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

January 31, 1998

1.0 Introduction

This report summarizes the monthly effluent monitoring results for the Oconomowoc Electroplating Groundwater Treatment Plant (OEGTP) for January 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. The plant sampling was conducted by Syed Ihtheshamuddin and Matt Hahm, of Kapur & Associates, Inc. (K&A). Laboratory analysis was provided by En Chem, Inc., 802 Deming Way, Madison, Wisconsin 53707. 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 1/4 of the SE 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. Thomsen's phone number is (612) 438-3076, Fax (612) 438-2464. Kapur & Associates, Inc. supplies the treatment plant operators for Warrington Builders, who were contracted by the USACE to operate and maintain the plant. The contact person for K&A, for the month of February, is Matthew Hahm. 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 December 31, January 7, 14, and 21. The monthly 24-hour composite monitoring samples were collected on January 14. All samples were tested by En Chem, Inc.

1.4 Monitoring Results

A summary of the results from the weekly influent and effluent monitoring for December 31, January 7, 14, and 21 is shown in Table 1. The results from the January 28 influent and effluent monitoring will be included in the February Report. 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 December 31 weekly effluent monitoring tests showed Lead at a concentration of 1.6 µg/l, which exceeded the 1.5 µg/l limit of the WDNR effluent discharge permit. The January 21 weekly effluent monitoring tests showed Thallium at a concentration of 1.60 µg/l, which exceeded the 0.4 µg/l limit of the WDNR effluent discharge permit. None of the other effluent parameters exceeded the WDNR permit limits. Iron concentration in the plant effluent continues to be high as mentioned in the previous reports.

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

Parameter	December 31		January 07		January 14		January 21		WDNR Permit
	Influent	Effluent	Influent	Effluent	Influent	Effluent	Influent	Effluent	
pH	NT	7.90	7.60	7.00	7.60	7.00	NT	7.30	Monitor
TSS	14.00	Monthly	37.00	Monthly	31.00	ND	41.00	Monthly	Monitor (mg/l)
Arsenic	ND	0.89	ND	ND	ND	ND	ND	ND	5
Barium	79.00	23.00	76.00	65.00	84.00	57.00	84.00	62.00	400
Cadmium	0.11	ND	ND	ND	1.50	ND	ND	ND	0.5
Cadmium Total Recove	NT	ND	NT	ND	NT	1.900	NT	ND	Monitor
Chromium Total	1.70	2.70	ND	ND	1.50	1.90	1.50	1.50	10
Chromium +6	8.10	7.30	ND	ND	14.00	7.40	ND	ND	Monitor
Copper	6.40	17.00	11.00	4.40	22.00	5.80	3.20	3.60	Monitor
Iron	520.00	240.00	350.00	210.00	350.00	210.00	260.00	130.00	Monitor
Lead	ND	1.60	ND	ND	1.50	0.86	ND	ND	1.5
Manganese	49.00	1.70	37.00	9.00	67.00	13.00	71.00	3.00	Monitor
Mercury	ND	ND	ND	ND	ND	ND	ND	ND	0.2
Nickel	25.00	ND	16.00	5.00	42.00	11.00	41.00	14.00	20
Selenium	ND	5.40	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	1.60	0.4
Zinc	25.00	8.10	ND	8.00	7.10	8.20	4.00	8.10	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	31.00	ND	40.00	ND	16.00	ND	13.00	ND	85
1,2-dichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.5
1,1-dichloroethene	6.30	ND	4.40	ND	9.20	ND	9.50	ND	0.7
1,2-dichloroethene cis	48.00	ND	48.00	ND	42.00	ND	43.00	ND	7
1,2-dichloroethene tran	7.70	ND	4.90	ND	12.00	ND	13.00	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	6.00	ND	ND	ND	7.10	ND	8.10	ND	0.5
Toluene	ND	ND	ND	ND	ND	ND	ND	ND	68
1,1,1-trichloroethane	150.00	ND	ND	ND	130.00	ND	150.00	ND	40
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND	ND	ND	0.5
TCE	580.00	ND	480.00	ND	420.00	ND	480.00	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	Monthly	NT	Monthly	NT	12.00	NT	MONTH	Monitor (mg/l)
Phosphorus total	NT	Monthly	NT	Monthly	NT	0.16	NT	MONTH	Monitor (mg/l)
Nitrate + Nitrite	NT	Monthly	NT	Monthly	NT	0.19	NT	MONTH	Monitor (mg/l)
Ammonia Nitrogen	NT	Monthly	NT	Monthly	NT	ND	NT	MONTH	Monitor (mg/l)

2.0.0 Plant Operation and Shut Down

During this month period, the December 31 weekly effluent monitoring tests showed Lead at a concentration of 1.6 µg/l, which exceeded the 1.5 µg/l limit of the WDNR effluent discharge permit. Similarly, the January 21 weekly effluent monitoring tests showed Thallium at a concentration of 1.60 µg/l, which exceeded the WDNR permit limit of 0.4 µg/l.
These results were discussed with Mr. Paul Kozol of the Wisconsin Department of Natural Resources and he authorized to keep the plant operating.

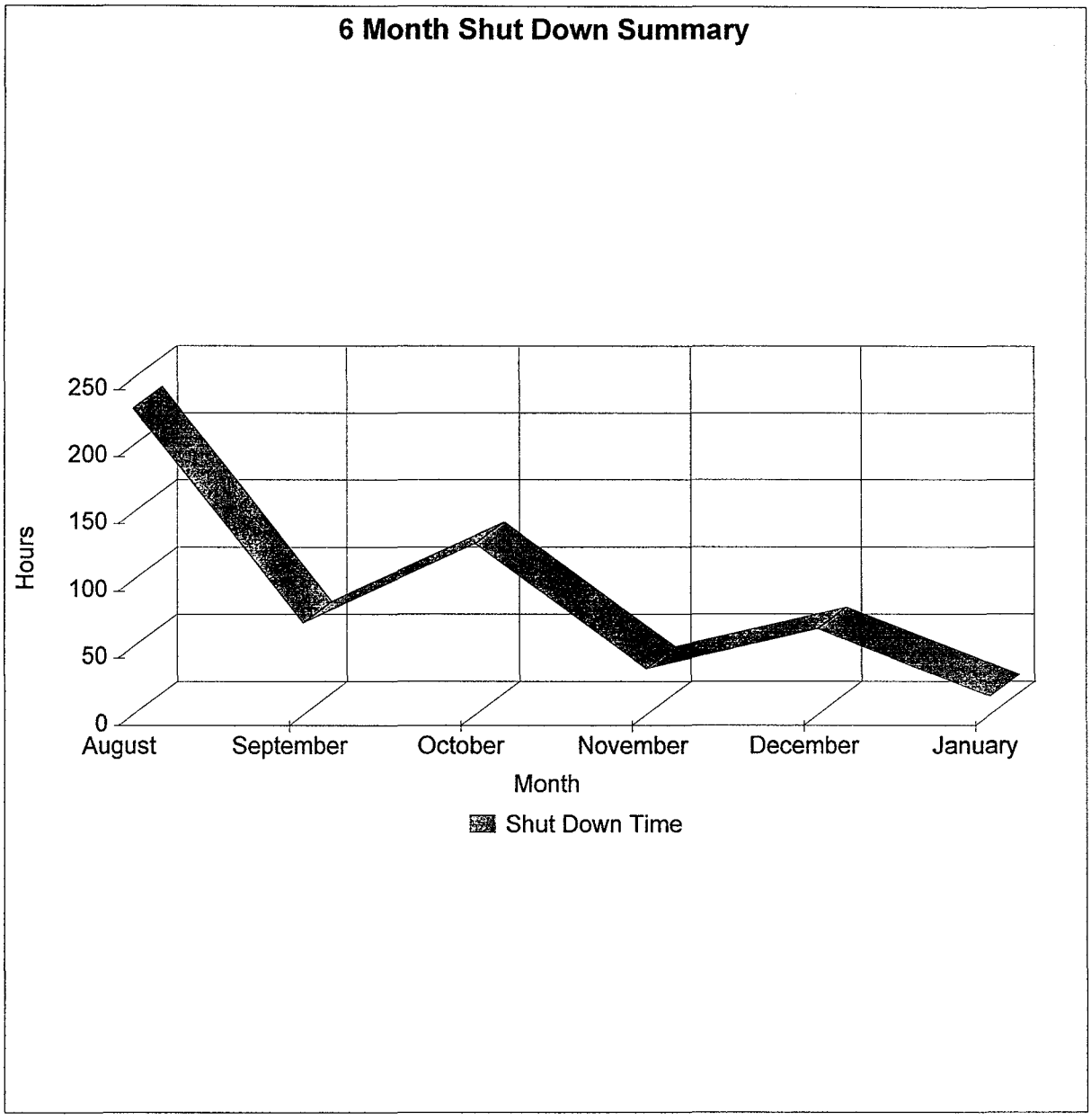
Mr. Arne Thomsen authorized and purchased two new ORP probes. The ORP Probes (ORP-205/215) were replaced on January 27. After they were calibrated and inserted into the Cyanide/Metals Treatment Package, they read 320 millivolts (mV) in the Chlorination Reaction Tank-201 (CRT-201) and 337 millivolts (mV) in the Chlorination Reaction Tank-211 (CRT-211). This indicated that ORP-205, was not working properly, consequently giving a false reading of the 600 millivolts (mV) needed to maintain the proper processing of the influent. This may have been the reason why Thallium exceeded the WDNR effluent discharge permit. At the current time, both probes are working properly and the readings are within the desired range.

The following Table summarizes the January plant down time, due to operation and maintenance problems:

Table 2 - January Plant Down Time Summary

Date(s)	Hours Shut Down	Reason
January 03	10.50	TFP-110 Sludge build up on the pump impeller
January 30	3.00	TFP-111 Sludge build up on the pump impeller
Total	**13.50**	

The following Graph summarizes the 6 month plant down time:



2.1.1 Shut Down Due to Sludge Build Up On The Pump Impeller (TFP110/110)

During the months of October and November, the influent pump capacity got progressively lower from 28 gpm to about 18 gpm. Towards the end of November, we discovered that the Equalization Tank (EQT-100) had an excessive amount of sludge build up along the bottom of the tank. This sludge was also caked along the tank walls, and could not be dislodged by the EQT sludge pumps (ESP-120 &121). The plant influent, over a period of time, had mixed with the sludge and coated the influent lines between the Equalization Tank (EQT-100) and the

influent pumps (TFP-110/111), reducing the pipe capacity. We feel the same problem continues. It is evident with the continuous need to clean the influent pump impellers (TFP-110/111) from the sludge build up. We have also notice the maximum pumping capacity after the impellers are clean, is approximately 25 gpm. This indicates that the pipe from the influent pumps (TFP-110/111) to the Equalization Tank (EQT-100) is starting to build up with sludge again.

Currently the influent pipe from the EQT-100 is at an elevation very close the elevation of the sludge pump (ESP-120 &121) inlet pipes. A solution may be to extend the influent pipe from inside the EQT-100 upward 3 to 4 feet, at an EQT-100 capacity of about 35% full. This should help to prevent the influent pumps from sucking the sludge build up at the lower elevation.

3.0 Summary

Treatment plant influent and effluent monitoring were conducted on December 31, January 7, 14, and 21. Monthly monitoring samples were collected on January 14. A summary of these laboratory results are 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 December 31 samples, and Thallium in the January 21 samples, comply with the permit limits.

During the month of January 1998, a total of 376,772 gallons of water was extracted from the wells and treated, a gain of 16,723 gallons from the previous month. During the month of January, the plant was shut down for a total of 13.5 hours, a decrease of 50 hours from the previous month. (See Table 2 for shut down times and reasons)

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.*"

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

January 31, 1998

Mr. Rick Warrington
P.O. Box 790
Keshena, WI 54135

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

Dear Mr. Warrington:

Attached is the Monthly O&M Report for January 1998, for the above referenced project. Questions regarding this report should be directed toward Matthew Hahm, at the treatment plant. The treatment plant phone number is (920) 474-4529.

Thank you for your cooperation and assistance with this project.

Sincerely,

Matthew Hahm

Matthew Hahm, Project Engineer
Kapur & Associates

cc: Arne Thomsen, USACE, St. Paul District
Steve Peterson, USACE, Omaha District
Randy Sitton, USACE
Tom Williams, USEPA
Paul Kozol, 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:

Warrington Builders, Inc.
P.O. Box 790
Keshena, WI 54135

Prepared by:

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

January 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 January 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. Sodium Hydroxide:
   - Pump surge supressors for pumps SHP-361 and SHP-262 are leaking.
3. Tertiary Filter (TF-600):
   - Level of sand in the filter is below the recommended level.
4. NPDES Station (NMS-740): Measuring probes still need to be calibrated.
5. All sampling ports provide evidence of corrosion of the process piping (iron pipes).
6. Sulfuric Acid Feed System: Corrosion of electrical conduits.
7. Spare Parts on site for all mechanical equipment.

O&M Repairs Made During the Month of January:

1. Exhaust Fan Warranty Work (EF-962)
2. Sodium Hydroxide Pump (SHP-361)
3. Sand Filter (TF-600) Air Lift Pipe
4. Thickened Sludge Pump (TSP-410)
5. ORP Probes (ORP-205/215)
6. Filter Press Pump (FPP-811)
7. Sludge Build Up On the Influent Pumps Impeller (TFT-110/111)

New O& M Issues include:

1. Extraction Wells Pumping Capacity.
2. Plant Operation

2.0.0 Process Difficulties

2.0.01 Continuing O&M Issues from Previous Months:

The O&M problems listed are repeated from the December 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. We anticipate this work to be accomplished in March 1998.

2. Sodium Hydroxide Chemical Feed Pumps (SHP-261/262/361):
Pump surge suppressors and pipe fittings continue to leak. This is leading to the loss of chemicals, and is creating a hazardous environment in the chemical feed room. These parts have been ordered and the pump fittings will be rebuilt when the parts arrive.

3. 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.

4. NPDES Station (NMS-740)
This NPDES Station should be calibrated by a certified technician.

5. Sampling Ports
All sampling ports continue to show corrosion when opened every week for sampling.

6. 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.

7. Spare Parts

It is necessary to supply the plant with spare parts for all of the equipment, to prevent unnecessary down time ordering parts.

2.0.02 O&M Repairs Made During the Month of January:

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

1. Exhaust Fan Warranty Work (EF-962)

Ziegelbauer, who furnished and installed the Exhaust Fans (EF-961/962), was on site January 6 to finished their warranty work. They balanced and installed a new motor in Exhaust Fan-962 (EF-962).

2. Sodium Hydroxide Pump (SHP-361)

On January 6, the Sodium Hydroxide Pump (SHP-361) could not keep up with the desired pH of 11.25. The pump was taken apart, which exhibited a hole in the diaphragm. The valve seat was also worn, preventing an adequate amount of sodium hydroxide from being pumped into the tubing. A spare diaphragm was found on site, but there was not a spare valve seat. A valve seat was taken off of the Sodium Hydroxide Pump 262 (SHP-262) and used on SHP-361. At the current time, SHP-361 is working and maintaining the needed pH of 11.25 to maintain good floc. SHP-262 is currently out of service until the ordered parts arrive on site.

3. Sand Filter (TF-600) Air Lift Pipe

The sand filter (TF-600) was not filtering the sand properly. Instead of the air coming up through the air lift pipe, the air was coming up through the sand. The air lift pipe was removed and the air diffuser was completely clogged. The diffuser was cleaned and the filter is currently filtering the sand at this time.

4. Thickened Sludge Pump (TSP-410)

A new airline flex connector was purchased and the pump was back on-line January 11. This flex connector may have failed due to the constant vibration of the air lines, while the pump is running.

5. ORP Probes (ORP-205/215)

Mr. Arne Thomsen authorized and purchased two new ORP probes. The ORP Probes (ORP-205/215) were calibrated and inserted into the Cyanide/Metals Treatment Package on January 27. At the current time, both probes are working properly and the readings are within the desired range.

6. Filter Press Pump (FPP-811)

The air chamber screw and nut came loose from inside the pump. The pump started to leak air from the center block gasket. Upon disassembling the pump, a nut fell out of the air chamber and was determined to be part of the air chamber assembly. The nut and screw were tightened, as well as the remaining three nuts and screws inside the air chamber. The pump was reassembled and put back in place. A new airline flex connector was purchased and the pump was back on-line January 28.

7. 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 twice this month, January 4 and January 30, after the pumps stopped pumping.

2.0.03 New O& M Issues:

1. Extraction Wells Pumping Capacity.

Mr. Arne Thomsen has requested that the draw-down be determined for each extraction well. We want to determine if the pump screens need to be cleaned, or if the wells are going dry. This will be determined in the month of February. 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 14.4 gpm.

Table 1 - Individual Extraction Well Pumping Capacity

Extraction Well	Pumping Capacity (GPM)
1	2.8
2	1.6
3	6.2
4	3.2
5	5.7

2. Plant Operation

This following information was mentioned in a letter that Syed Ihtheshamuddin sent to Richard Warrington and Arne Thomsen:

We are aware of the USACE's goal of operating the treatment plant with minimum attendance. The following is a brief synopsis of the treatment system stage by stage.

Extraction Wells: The extraction wells capacity has progressively reduced since we started the treatment operation. The extraction well capacity presently is at 15 gpm. We assume that the well screens need to be cleaned to restore the well capacity to an average of 25 to 30 gpm.

Influent Pumps: Since cleaning of the sludge from the Equalization Tank in December 1997, and auguring the influent line, the influent pump capacity has been restored. However, the influent pump impellers need to be cleaned with dilute muriatic acid every three weeks in order to prevent the pumps from binding. This is due to the close proximity of the influent and the sludge intake lines. A permanent solution to this problem could be achieved by raising the influent pipe within the EQT-100 tank so that the inlet level is at about 35% of the tank level and pointing up so that the sludge does not enter the influent pipe.

Cyanide Metals Package: Since we started operating the plant, we have made changes to the set points and chemical feed rates and now we believe that the cyanide metals package is operating at an optimum level. The sodium hypochlorite, sodium hydroxide and the polymer feed rates are at an optimum level. However, the chemical feed rates have to be adjusted depending on the influent flow characteristics. The chemical feed pumps have been operating for over one year and some of the mechanical parts need to be replaced. In addition, after speaking with the pump manufacturer's representative, we believe that four of the chemical feed pumps are not for the proper application and should be replaced.

The chemical feed pumps receive signals from the pH and ORP readings and the feed rates are adjusted accordingly. The pH and the ORP probes have to be cleaned periodically and re-calibrated. At present, the two ORP probes need to be replaced. We also observed that the measuring probes were not installed in accordance with manufacturer's instructions. This information has been passed on to you and Mr.

Thomsen. We have been monitoring the probes and readings a few times a day, however, with good working equipment, the need for monitoring and maintenance should be reduced considerably.

Inclined Plate Clarifier: Since we started operating the treatment system, we have activated the automatic sludge withdrawal from the inclined plate clarifier. With the cleaning of the caked sludge from the inclined plates during CSK's warranty work, and production of good quality floc, we do not have the sludge bridging over problems. However, two issues remain. Due to small diameter holes and overall reduced cross sectional area in the inlet chamber of the clarifier, the inlet chamber needs to be manually pumped out every two days. Otherwise the flow backs up into the floc chamber. The other issue is proper operation of the sludge pumps which have limited operating life. These pumps are working well as of now.

Sand Filter: The sand filter receives high pH chlorinated process water from the inclined plate clarifier. Due to the influent flow characteristics, the effluent from the clarifier is high in alkalinity. Floc particles and calcium carbonate (CaCO3) settle on the sand and cause head loss across the filter. When the head loss across the sand filter reaches a certain level, the filter has to manually backwashed. We have to backwash the filter at least once a day for efficient operation. Otherwise, more than 80 percent of the water goes over the weir and into the sump and has to be reprocessed.

Due to the above reason, one of the bottlenecks for automatic operation of the treatment system is the sand filter. In order to optimize the operation of the sand filter, we experimented at the plant and suggested acid neutralization of the inclined plate clarifier effluent stream for efficient operation of the sand filter. When I discussed this with Mr. Arne Thomsen, he noted that preliminary investigations of this concept have been done earlier and he sent us a file on previous data. We agree with the concepts presented, with the exception of the chemical used. However, our information is based on experiments conducted with not very sophisticated equipment. We believe that the acid neutralization of the clarifier effluent would increase the sand filter run times and should be pursued.

Filter Cake Production: The automatic sludge withdrawal from the inclined plate clarifier prevents the sludge bridging over problem, however, this fills up the sludge holding tank in about two days. In order to prevent the sludge from overflowing from the holding tank, it has to be processed by filter press every two to three days. And this is a manual operation.

With the Modification Order for the air stripper being implemented soon, the comfort level for VOCs concentration in the effluent should be increased.

The other downstream processes and operations such as tertiary filtration pumping, activated carbon filtration, effluent holding, acid neutralization need only periodic regular maintenance, such as changing of the activated carbon and weekly changing of the acid

feed barrels. The acid feed pumps also need to be primed whenever the chemical feed barrels are changed.

Should you have any questions or need more details, we will be glad to discuss the above processes/operations monitoring requirements with you.