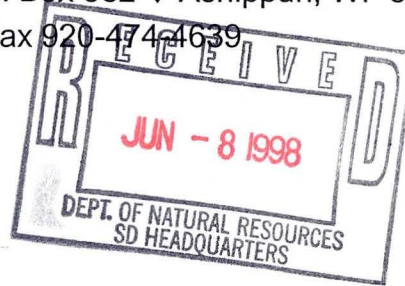


K&A

Kapur & Associates

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

Phone 920-474-4529 ♦ Fax 920-474-4639



May 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 May 1998, for the above referenced project. Questions regarding this report should be directed toward Syed Itheshamuddin 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 Itheshamuddin, 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

May 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 May 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.
3. Extraction Wells Pumping Capacity:
 - Pumping capacity remains low.
4. 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 April 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 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.

Mr. Arne Thomsen is preparing contract Modification for rehabilitation of the extraction wells and welding of the air stripper.

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 11.9 gpm.

Table 1 - Individual Extraction Well Pumping Capacity

Extraction Well	Pumping Capacity (GPM)
1	22
2	1
3	5.7
4	23
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:

Sodium Hydroxide Pump (SHP 361)

The microprocessor on the sodium hydroxide pump, SHP 361, had corroded and did not respond to the pH signal from the cyanide metals reactor tank. Mr. Arne Thomsen purchased a new pump and it was installed on May 13, 1998.

Sump Pump (SP-960A) Replacement

On May 11, the sump pump 960A was discovered to have stopped working. The pump motor was burnt out. Mr. Arne Thomsen purchased a new replacement pump. The pump was installed on May 21.

Filter Press Feed Pumps Diaphragm Replacement

The filter press diaphragm pumps (FFP-810 & 811) were showing signs of wear and were beginning to leak. On May 21, the diaphragms on both pumps were replaced as a preventative maintenance measure.

Cleaning of Filter Press (FP-800)

On May 18, the filter cloth of the filter press plates were pressure washed and cleaned as a maintenance item.

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 which need attention at this time.

K&A

Kapur & Associates

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

Phone 920-474-4529 ♦ Fax 920-474-4639



May 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 May 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,

A handwritten signature in cursive script that reads "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

May 31, 1998

1.0 Introduction

This report summarizes the monthly effluent monitoring results for the Oconomowoc Electroplating Groundwater Treatment Plant (OEGTP) for May 1998. 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 $\frac{1}{4}$ 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 treatment facilities. 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 May 6, 13, 21, and 27, 1998. The monthly 24-hour composite monitoring samples were collected on May 21, 1998. Results from the May 27 sampling will be included in the June report. Results from the April 29 sampling are included in this report.

1.4 Monitoring Results

A summary of the results for the weekly influent and effluent monitoring for April 29, May 6, 13, and 21 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). Quarterly sampling of the monitoring wells and the yearly samples from the residential wells were collected on May 13 and May 21. A summary of the results for the quarterly sampling of the monitoring wells and the residential wells is included in Appendix A.

2.0.0 Plant Operation and Shut Down

During the month of May, the plant was shut down for a total of 27 hours. Twenty five hours of the plant shut down was due to loss of power to the plant and the surrounding community on May 31, 1998. The power shut down was due to a spring storm in the Southeastern Wisconsin.

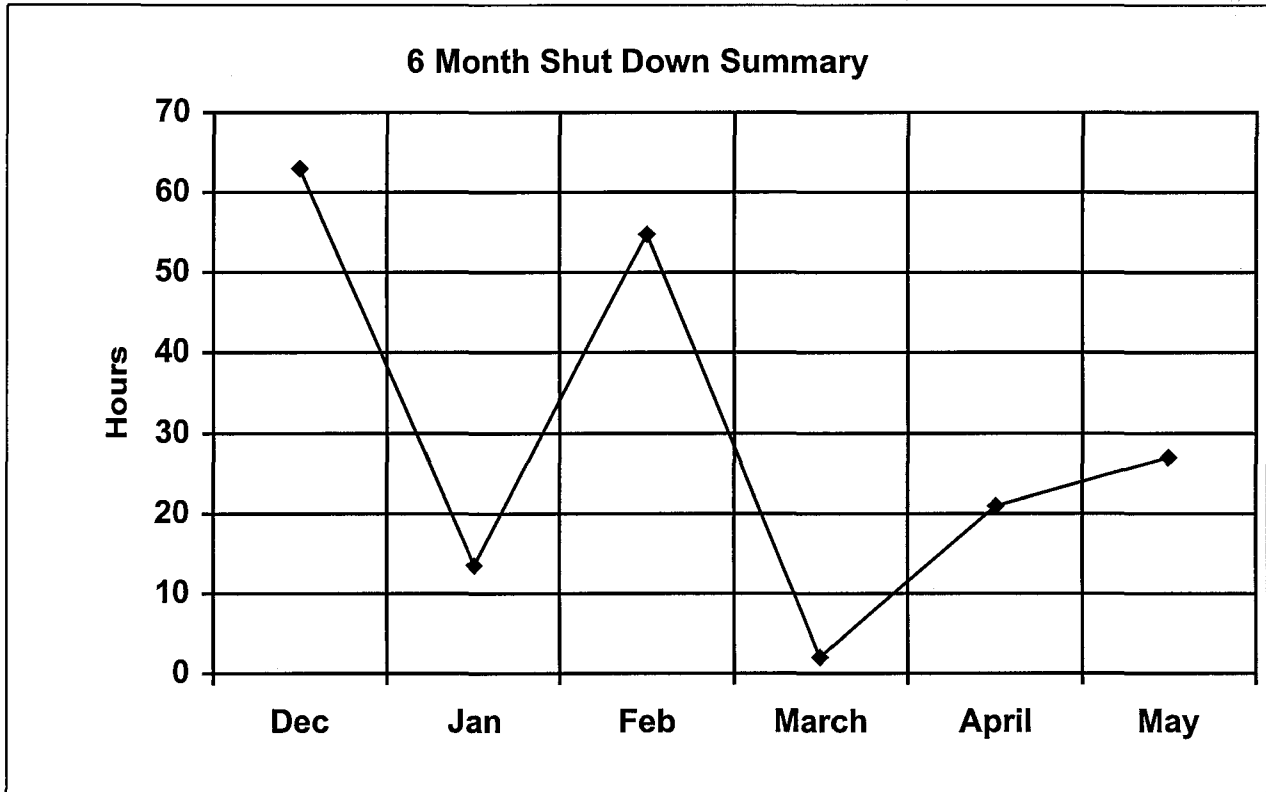
2.1.1 Plant Shut Down to Clean the Influent Flow Line

The plant was shut down on May 18 for 2 hours 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 for this maintenance activity.

2.1.2 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.

Chart 1



3.0 Summary

Weekly influent and effluent sample monitoring for the Oconomowoc Groundwater Treatment Plant was conducted on May 6, 13, 21 and 27, 1998. The monthly 24-hour composite monitoring samples were collected on May 13, 1998. Results from the May 27 sampling will be included in the June report. A summary of these laboratory results is included in Table 1. The effluent sampling results show that all contaminants, except the TCE effluent concentration from April 29 and May 06 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 TCE concentration in the effluent was 0.6 ug/l vs the discharge permit limit of 0.5 ug/l. The exceedence in the TCE concentration was possibly due to the breakthrough in the Granular Activated Carbon (GAC-620/621). The activated carbon was replaced on May 15, 1998. Since then, the effluent TCE concentration levels have been below the discharge permit limits.

During the month of May 1998, a total of 511,744 gallons of water was extracted from the wells and treated. This was an increase of 75,000 gallons from the previous month. During the month of May, the plant was shut down for a total of 27 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 granular activated pumps (GAC 650 & 651) do not keep up with the flow from the tertiary filter (TF-600). They are in the process of being upgraded to maintain the normal plant flow. Mr. Arne Thomsen has issued a purchase order to install manufacture recommended impellers, which will help the plant run more efficiently and operate at the normal pumping capacity.

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.”*

APPENDIX A

MONITORING WELL AND RESIDENTIAL WELL SAMPLING

MAP 1	Monitoring Well Location
TABLE 2	Monitoring Well Field Data
TABLE 3	Monitoring Well Summary Results
MAP 2	Extraction Well Location
MAP 3	Residential Location
TABLE 4	Residential Well Summary Results

The Quarterly samples from the monitoring wells and the residential wells were collected on May 13 and May 21. Syed Ihteshamuddin, Matt Hahm and Joe Fleischfresser collected the samples. En Chem, Inc tested all samples.

Map1 shows the locations of the monitoring wells. There are twelve monitoring wells listed in the contract document, however, only ten could be located in the field. Monitoring wells MW13SP and MW16SP could not be located. Of the ten remaining wells, monitoring well MW11BP was covered and could not be sampled.

The monitoring well field data, including the depth of well, water level and the height of water column is shown in Table 2. The water level and the height of water column change during the different quarters of the year as may be expected due to differing groundwater elevations.

The monitoring well summary results are presented in Table 3.

Map 2 shows the Extraction Well locations.

The residential well locations are shown on Map 3.

The residential well sampling results are presented in Table 4.

E 2394000
N 4464000

E 2394000

E 2394200

LEGEND:

- ⊙ - EXISTING POWER POLE / TELEPHONE POLE / LIGHT STANDARD
- ⊕ - EXISTING WATER WELL
- - EXISTING DEEP MONITORING WELL
- △ - EXISTING SHALLOW MONITORING WELL
- ◊ - EXISTING BEDROCK MONITORING OR OBSERVATION WELL
- ⊖ - EXISTING PUMP TEST WELL
- ⊙ - EXISTING MONITORING WELL
- ⊙ - EXISTING SHALLOW OBSERVATION WELL (PVC)
- ⊙ - EXISTING MONITORING WELL
- EW-1 - NEW EXTRACTION WELL (EW-4 EXISTING)
- WW-1 - NEW WATER SUPPLY WELL
- DND - DO NOT DISTURB
- Z - LEAK DETECTION ACCESS POINTS

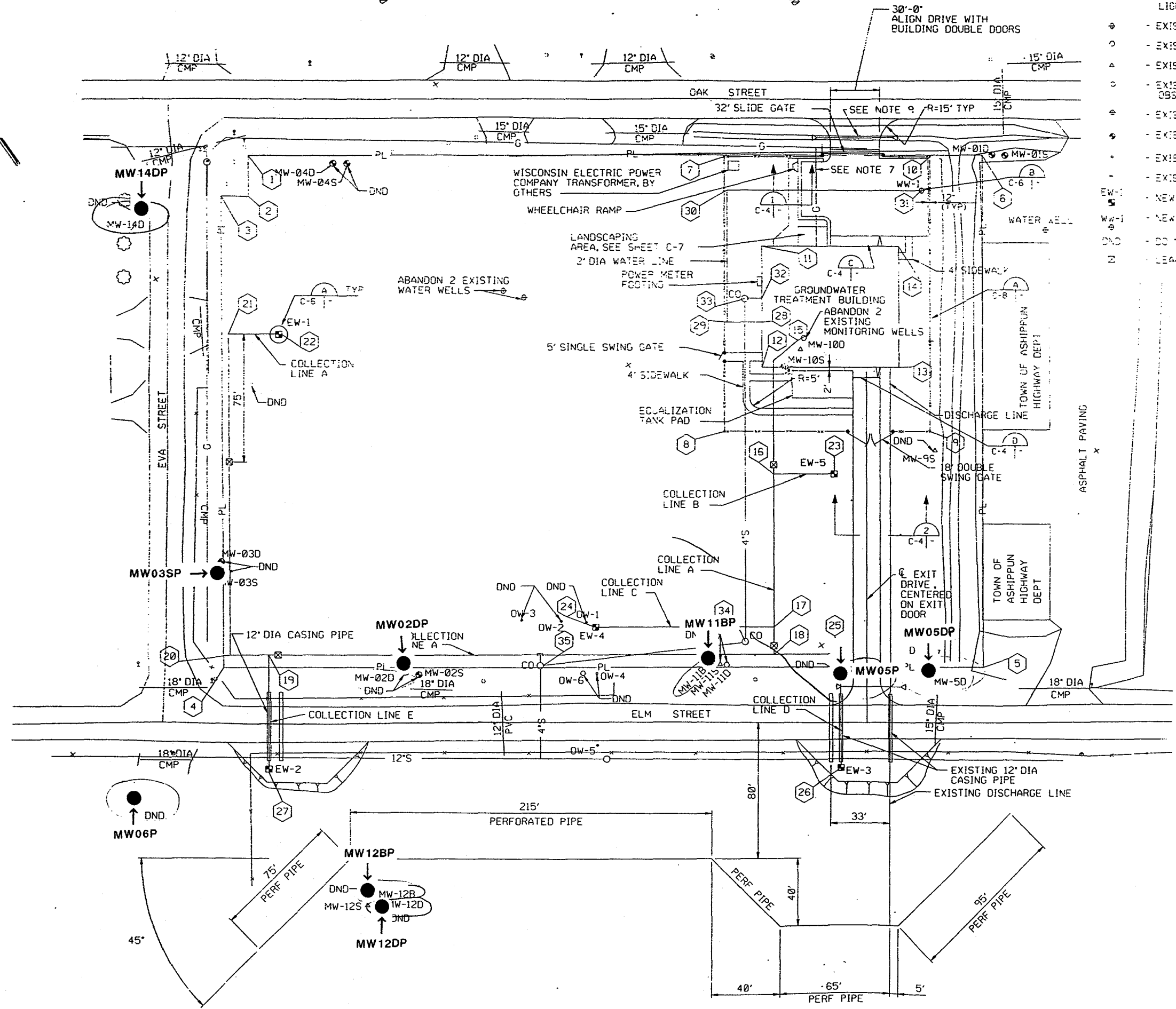
D

C

B

N 4462000

N 4460000



MAP 1

OCONOMOWOC GROUND WATER TREATMENT PLANT

MONITORING WELLS

TABLE 2
OCONOMOWOC GROUND WATER TREATMENT PLANT
MONITORING WELL FIELD DATA

Well Number	MW02DP
Depth of Well (ft)	49.79
Water Level	4.90
Height of Column	43.34

Well Number	MW03SP
Depth of Well (ft)	6.43
Water Level	DRY
Height of Column	DRY

Well Number	MW05P
Depth of Well (ft)	49.79
Water Level	DRY
Height of Column	DRY

Well Number	MW05DP
Depth of Well (ft)	27.44
Water Level	2.90
Height of Column	24.54

Well Number	MW06P
Depth of Well (ft)	49.79
Water Level	6.55
Height of Column	43.34

Well Number	MW11BP
Depth of Well (ft)	COVERED
Water Level	COVERED
Height of Column	COVERED

Well Number	MW12BP
Depth of Well (ft)	44.51
Water Level	3.40
Height of Column	41.11

Well Number	MW12DP
Depth of Well (ft)	24.54
Water Level	2.40
Height of Column	22.14

Well Number	MW13SP
Depth of Well (ft)	N/A
Water Level	N/A
Height of Column	N/A

Well Number	MW14DP
Depth of Well (ft)	32.16
Water Level	2.4
Height of Column	29.76

Well Number	MW15DP
Depth of Well (ft)	42.15
Water Level	9.00
Height of Column	33.15

Well Number	MW16SP
Depth of Well (ft)	N/A
Water Level	N/A
Height of Column	N/A

Table 3

OCONOMOWOC GROUNDWATER TREATMENT PLANT						
MONITORING WELLS						Date: 5/13/98
Parameter	MW02DP	MW03SP	MW05P	MW05DP	MW06P	MW11BP
pH	NT	DRY	DRY	NT	NT	COVERED
Arsenic	ND	DRY	DRY	4.40	5.40	COVERED
Barium	81.00	DRY	DRY	110.00	100.00	COVERED
Cadmium	ND	DRY	DRY	0.84	0.08	COVERED
Cadmium Total Recover	NT	DRY	DRY	NT	NT	COVERED
Chromium Total	0.96	DRY	DRY	6.50	19.00	COVERED
Chromium +6	ND	DRY	DRY	13.00	ND	COVERED
Copper	7.50	DRY	DRY	11.00	19.00	COVERED
Iron	1300.00	DRY	DRY	17000.00	17000.00	COVERED
Lead	ND	DRY	DRY	8.70	8.10	COVERED
Manganese	43.00	DRY	DRY	180.00	760.00	COVERED
Mercury	ND	DRY	DRY	ND	ND	COVERED
Nickel	23.00	DRY	DRY	8.70	24.00	COVERED
Selenium	ND	DRY	DRY	ND	ND	COVERED
Silver	ND	DRY	DRY	ND	ND	COVERED
Thallium	ND	DRY	DRY	ND	ND	COVERED
Zinc	ND	DRY	DRY	29.00	38.00	COVERED
Cyanide	ND	DRY	DRY	4.6000	ND	COVERED
Cyanide Free	NT	DRY	DRY	NT	NT	COVERED
Chlorobenzene	ND	DRY	DRY	ND	ND	COVERED
Chloroethane	ND	DRY	DRY	22.00	ND	COVERED
1,1-dichloroethane	ND	DRY	DRY	110.00	ND	COVERED
1,2-dichloroethane	ND	DRY	DRY	ND	ND	COVERED
1,1-dichloroethene	ND	DRY	DRY	5.60	ND	COVERED
1,2-dichloroethene cis	1.10	DRY	DRY	28.00	ND	COVERED
1,2-dichloroethene trans	ND	DRY	DRY	ND	ND	COVERED
Ethylbenzene	ND	DRY	DRY	ND	ND	COVERED
4-Isopropyltoluene	NT	DRY	DRY	NT	NT	COVERED
Methylene Chloride	ND	DRY	DRY	ND	ND	COVERED
Tetrachloroethene	ND	DRY	DRY	ND	ND	COVERED
Toluene	ND	DRY	DRY	ND	ND	COVERED
1,1,1-trichloroethane	ND	DRY	DRY	ND	ND	COVERED
1,1,2-trichloroethane	ND	DRY	DRY	ND	ND	COVERED
TCE	3.50	DRY	DRY	960.00	1.20	COVERED
Vinyl Chloride	ND	DRY	DRY	ND	ND	COVERED
Xylene Total	ND	DRY	DRY	ND	ND	COVERED

-Samples completed by Matt Hahm and Syed Ihteshamuddin on May 13, 1998

Table 3 Continued

OCONOMOWOC GROUNDWATER TREATMENT PLANT						
MONITORING WELLS						Date: 5/21/98
Parameter	MW12BP	MW12DP	MW13SP	MW14DP	MW15DP	MW16SP
pH	NT	NT	N/A	NT	NT	N/A
Arsenic	ND	ND	N/A	7.1	ND	N/A
Barium	81.0	110.0	N/A	120.0	86.0	N/A
Cadmium	1.2	ND	N/A	0.0	ND	N/A
Cadmium Total Recover	NT	NT	N/A	NT	NT	N/A
Chromium Total	30.0	15.0	N/A	180.0	1.4	N/A
Chromium +6	ND	ND	N/A	ND	ND	N/A
Copper	33.0	4800.0	N/A	49.0	5.1	N/A
Iron	640.0	22000.0	N/A	23000.0	190.0	N/A
Lead	11.0	7.2	N/A	6.8	ND	N/A
Manganese	43.0	550.0	N/A	510.0	200.0	N/A
Mercury	ND	ND	N/A	ND	ND	N/A
Nickel	39.0	35.0	N/A	690.0	7.8	N/A
Selenium	ND	ND	N/A	ND	ND	N/A
Silver	ND	ND	N/A	ND	ND	N/A
Thallium	ND	ND	N/A	1.6	ND	N/A
Zinc	24.0	21.0	N/A	26.0	ND	N/A
Cyanide	ND	5.4000	N/A	ND	ND	N/A
Cyanide Free	NT	NT	N/A	NT	NT	N/A
Chlorobenzene	ND	ND	N/A	ND	4.1	N/A
Chloroethane	ND	ND	N/A	ND	ND	N/A
1,1-dichloroethane	ND	11.0	N/A	ND	ND	N/A
1,2-dichloroethane	ND	ND	N/A	ND	ND	N/A
1,1-dichloroethene	ND	ND	N/A	ND	ND	N/A
1,2-dichloroethene cis	ND	2.5	N/A	ND	4.0	N/A
1,2-dichloroethene trans	ND	ND	N/A	ND	ND	N/A
Ethylbenzene	ND	ND	N/A	ND	ND	N/A
4-Isopropyltoluene	NT	NT	N/A	NT	NT	N/A
Methylene Chloride	ND	ND	N/A	ND	ND	N/A
Tetrachloroethene	ND	ND	N/A	ND	ND	N/A
Toluene	ND	ND	N/A	ND	ND	N/A
1,1,1-trichloroethane	ND	9.2	N/A	ND	ND	N/A
1,1,2-trichloroethane	ND	ND	N/A	ND	ND	N/A
TCE	ND	1.0	N/A	ND	27.0	N/A
Vinyl Chloride	ND	ND	N/A	ND	ND	N/A
Xylene Total	ND	ND	N/A	ND	ND	N/A

-Samples completed by Matt Hahm and Joseph Fleischfresser on May 21, 1998

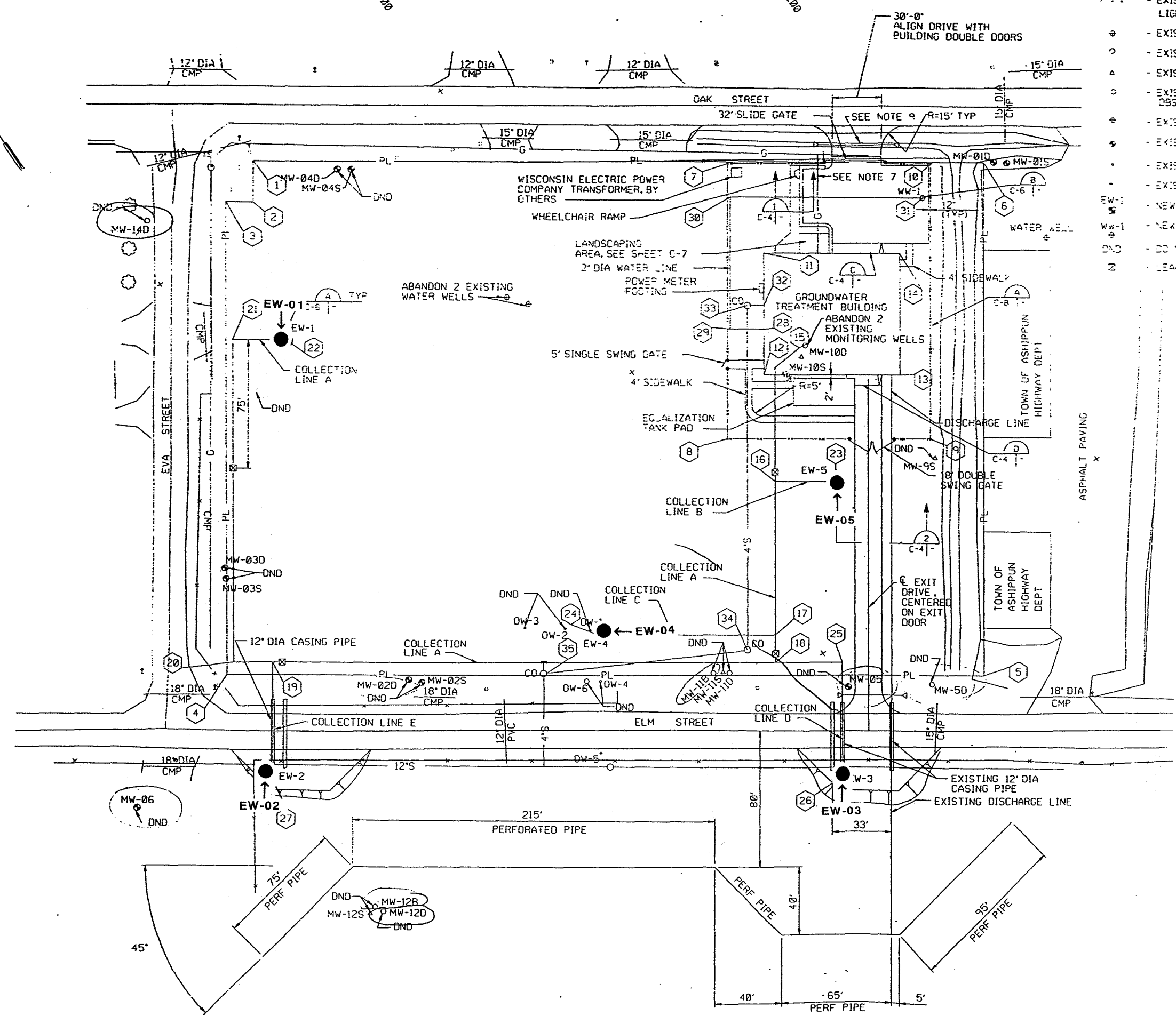
E 2394000
N 4464000

N 4462000

N 4460000

LEGEND:

- ⊙ - EXISTING POWER POLE / TELEPHONE POLE / LIGHT STANDARD
- ⊕ - EXISTING WATER WELL
- - EXISTING DEEP MONITORING WELL
- △ - EXISTING SHALLOW MONITORING WELL
- - EXISTING BEDROCK MONITORING OR OBSERVATION WELL
- ⊖ - EXISTING PUMP TEST WELL
- ⊙ - EXISTING MONITORING WELL
- ⊙ - EXISTING SHALLOW OBSERVATION WELL (PVC)
- ⊙ - EXISTING MONITORING WELL
- EW-1 - NEW EXTRACTION WELL (EW-4 EXISTING)
- MW-1 - NEW WATER SUPPLY WELL
- DND - DO NOT DISTURB
- Z - LEAK DETECTION ACCESS POINTS



MAP 2

OCONOMOWOC GROUND WATER TREATMENT PLANT

EXTRACTION WELLS

KEY FOR RESIDENTIAL WELL SAMPLING-- OECI SUPERFUND SITE

TW-1 = TOWNSHIP GARAGE

BW-1 = THERMOGAS BUSINESS FACILITY

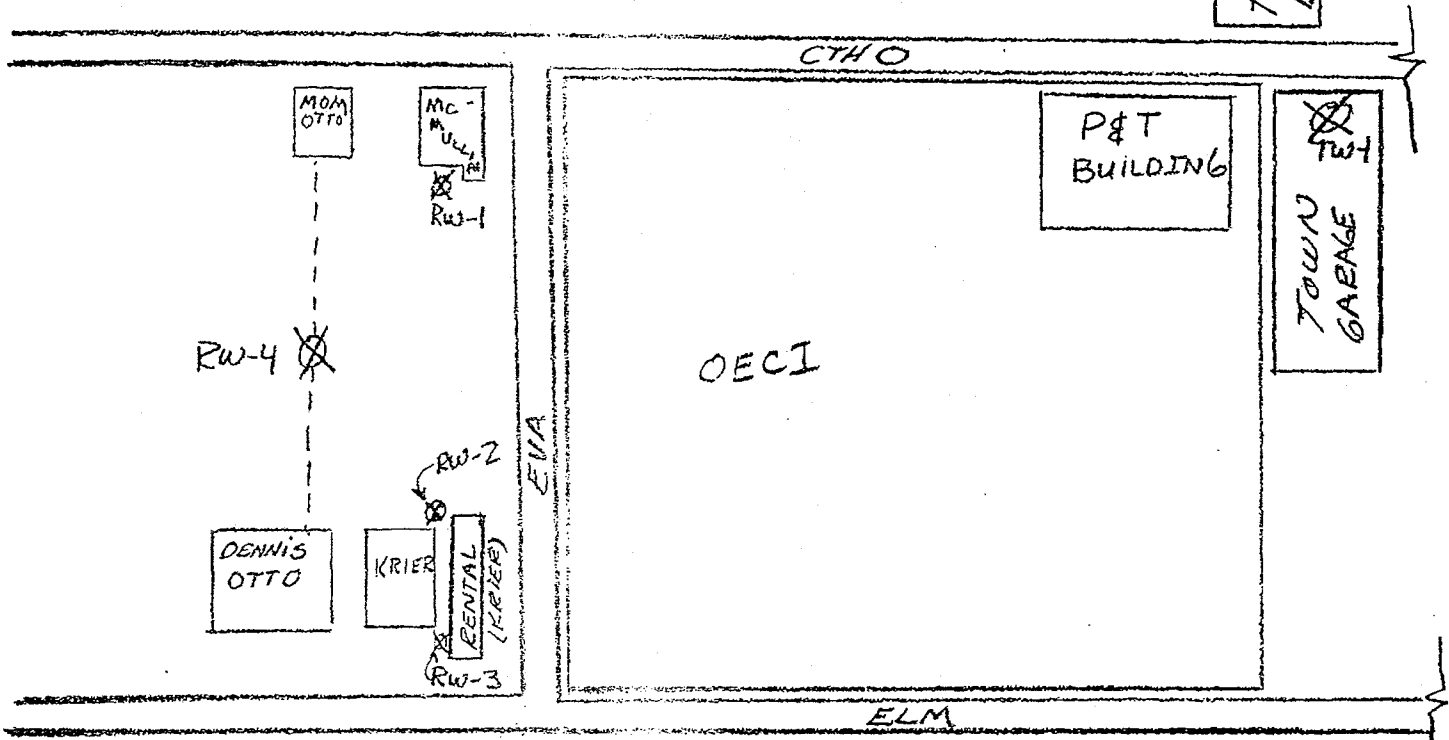
RW-1 = McMULLIN RESIDENCE

RW-2 = KRIER RESIDENCE

RW-3 = KRIER RENTAL PROPERTY

RW-4 = OTTO RESIDENCE (WELL SERVES TWO HOMES)

THERMOGAS
BW-1



Ashippun Township Garage
c/o Mr. Larry Krier
2602 Oak Street
Ashippun, WI 53003
Phone 414-474-4242

Mr. Dennis Otto
2606 Elm Street
Ashippun, WI 53003
Phone 414-474-4902
(One Well Serves two Homes)

Mr. & Mrs. John McMullen
2601 Oak Street
Ashippun, WI 53003
Phone 414-474-4521

Mr. Steve Grenier
Thermogas of Oconomowoc Inc.
P.O. Box 372
Ashippun, WI 53003
Phone 414-474-4484

Mr. Larry Krier
2602 Elm Street
Ashippun, WI 53003
Phone 414-474-7182
(Two Wells 1st-Home
2nd-Rental Unit)

MAP 3

OCONOMOWOC GROUND WATER
TREATMENT PLANT

RESIDENTIAL WELLS

Table 4

OCONOMOWOC GROUNDWATER TREATMENT PLANT						
RESIDENTIAL WELLS						
	5/13/98					
Parameter	TW-1	BW-1	RW-1	RW-2	RW-3	RW-4
pH	NT	NT	NT	NT	NT	NT
Arsenic	ND	ND	0.89	ND	ND	ND
Barium	260.00	0.62	90.00	81.00	65.00	74.00
Cadmium	ND	ND	ND	ND	ND	ND
Cadmium Total Recover	NT	NT	NT	NT	NT	NT
Chromium Total	ND	ND	1.20	ND	ND	ND
Chromium +6	ND	ND	ND	ND	ND	ND
Copper	11.00	14.00	17.00	7.40	12.00	13.00
Iron	1900.00	ND	3400.00	1600.00	1600.00	64.00
Lead	ND	1.20	1.80	ND	ND	ND
Manganese	45.00	0.67	44.00	43.00	34.00	570.00
Mercury	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	4.10	6.30	4.90	ND
Selenium	ND	ND	ND	ND	ND	ND
Silver	2.50	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	ND	ND	ND
Zinc	160.00	58.00	40.00	40.00	450.00	18.00
Cyanide	ND	ND	ND	ND	ND	ND
Cyanide Free	NT	NT	NT	NT	NT	NT
Chlorobenzene	ND	ND	ND	ND	ND	ND
Chloroethane	ND	ND	ND	ND	ND	ND
1,1-dichloroethane	ND	ND	ND	ND	ND	ND
1,2-dichloroethane	ND	ND	ND	ND	ND	ND
1,1-dichloroethene	ND	ND	ND	ND	ND	ND
1,2-dichloroethene cis	ND	ND	0.84	0.51	0.54	0.66
1,2-dichloroethene trans	ND	ND	ND	ND	ND	ND
Ethylbenzene	ND	ND	ND	ND	ND	ND
4-Isopropyltoluene	NT	NT	NT	NT	NT	NT
Methylene Chloride	ND	ND	ND	ND	ND	ND
Tetrachloroethene	ND	ND	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	ND	ND
1,1,1-trichloroethane	ND	ND	ND	ND	ND	ND
1,1,2-trichloroethane	ND	ND	ND	ND	ND	ND
TCE	ND	ND	ND	ND	ND	ND
Vinyl Chloride	ND	ND	ND	ND	ND	ND
Xylene Total	ND	ND	ND	ND	ND	ND

N/A = Results not available at this time.

-Samples completed by Matt Hahm and Syed Ihteshamuddin on May 13, 1998