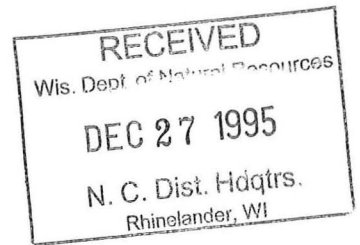




MONTGOMERY WATSON

12/27/95



December 26, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhinelander, Wisconsin 54501

Re: November Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

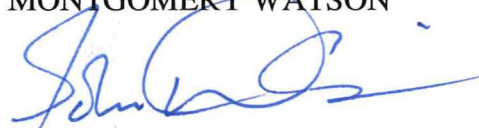
Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the November Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON


John D. Dadisman
Environmental Chemist


Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Fribance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/djd/DJB
J:\4113\0010\WPLTR\989_SUKU.DOC
4113.0010-MD

WAULECO INCORPORATED WAUSAU, WISCONSIN MONTHLY REPORT NOVEMBER 1995

SUMMARY OF NOVEMBER 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP screening results for the system effluent samples, which represent the discharge water to the municipal sewer, indicate PCP concentrations were below the permit level of 10 ug/L during the reporting period.

PCP influent concentrations ranged from 10,950 ug/L to 28,981 ug/L during November 1995 (Table 1). PCP influent and effluent concentrations in the Fluidized Bed Reactor (FBR) are presented graphically both as individual data points and as a 30-day moving average in Figure 1. As shown in Figure 1, PCP concentrations in the FBR effluent typically range from 500 ug/L to 1500 ug/L. However, FBR effluent PCP concentrations increased during the last week of November to as high as 4,221 ug/L, apparently due to channeling through the FBR unit. The fluidization rate was increased for a period of time following the observed PCP increase, this released trapped solids in the FBR and resulted in a decrease in PCP effluent levels to more typical levels during the early part of December. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water level deviation while decreasing during November, remains relatively high compared to the previous eighteen months. Product recovery for this month increased slightly in response to the water level decrease. Product recovery for November was 292 gal compared to 255 gal recovered during October.

The installation of two new product recovery wells (PW15 and PW16) was initiated during November. The new product wells will replace PW6 and PW14 which have not been contributing to product recovery. Based on information collected from pilot borings, the new wells have been located in areas of favorable geology for product removal.

Groundwater Monitoring

Groundwater elevation and product thickness data for September, October, and November are summarized in Table 4. The 4th round of quarterly groundwater monitoring for 1995 is scheduled for the week beginning December 18th, 1995.

Phase II Air Sparge/Soil Vapor Extraction (AS/SVE) Pilot Study

The Phase II AS/SVE pilot study system continued normal operation during the month of November.

J:\4113\0010\WPLTR\NOV.DOC

TABLE 1

1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
#2 Fuel Oil (mg/L)	11-OCT-95	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)	11-SEP-95	30	20	0
	18-SEP-95	50	15	0
	25-SEP-95	90	40	15
	02-OCT-95	70	20	5
	09-OCT-95	60	25	0
	11-OCT-95	59	35	< 20
	16-OCT-95	110	20	0
	30-OCT-95	100	20	5
	01-NOV-95			0
	02-NOV-95			0
	03-NOV-95			0
	04-NOV-95			0
	05-NOV-95			0
	06-NOV-95	75	25	0
	07-NOV-95			0
	08-NOV-95			0
	09-NOV-95			0
	10-NOV-95			0
	11-NOV-95			0
	12-NOV-95			0
	13-NOV-95	100	40	0
	14-NOV-95			0
	15-NOV-95			0
	16-NOV-95			0
	17-NOV-95	0	0	0
	18-NOV-95			0
	19-NOV-95			0
	20-NOV-95	50	30	0
	21-NOV-95			0
	22-NOV-95			0
	23-NOV-95			0
	24-NOV-95			0
	25-NOV-95			0
	26-NOV-95			0
	27-NOV-95	70	45	0
	28-NOV-95			0
	29-NOV-95			0
	30-NOV-95			0
Chloride (mg/L)	11-SEP-95	131	128	
	18-SEP-95	120	132	
	25-SEP-95	126	128	
	02-OCT-95	124	135	
	11-OCT-95	112	128	142

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Dissolved Oxygen (mg/L)				
	11-SEP-95	8.8	4.8	1.4
	13-SEP-95	8.6	4	.5
	15-SEP-95	8.4	3.4	.6
	18-SEP-95	6.2	3.2	1.2
	20-SEP-95	7.2	3.6	1
	22-SEP-95	7	4.8	1
	27-SEP-95	8.5	3.9	1.2
	30-SEP-95	8	4.2	1
	02-OCT-95	8.2	4.6	1.4
	06-OCT-95	8.8	4.4	1.4
	09-OCT-95	8.8	4	1.6
	11-OCT-95	9	4	.8
	13-OCT-95	8.8	4	1.4
	16-OCT-95	9	4.3	.8
	18-OCT-95	9	4.8	2.2
	20-OCT-95	8.2	4.6	1.2
	23-OCT-95	9.1	5	1
	25-OCT-95	9	4.2	1.4
	27-OCT-95	8.5	3.6	.8
	30-OCT-95	8.8	4	2
	01-NOV-95	9	4	1.8
	03-NOV-95	9	4.2	2
	06-NOV-95	8.6	3.2	1.6
	08-NOV-95	8.5	3.2	.8
	10-NOV-95	8.8	4.8	1.6
	13-NOV-95	8.2	3.8	2
	15-NOV-95	9	3.2	2
	17-NOV-95	8.4	4.8	1.8
	20-NOV-95	8.6	4.4	2.4
	22-NOV-95	8.8	5.4	1.6
	27-NOV-95	8.6	5.6	1.6
	29-NOV-95	9.2	5	.8
Gasoline (mg/L)	11-OCT-95	< .25	< .25	< .25
Kerosene (mg/L)	11-OCT-95	< .25	< .25	< .25
Mineral Spirits (mg/L)	11-OCT-95	20	< .25	< .25

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Ammonia (mg/L)				
	11-SEP-95	1	0	
	13-SEP-95	6	3	
	15-SEP-95	3	1	
	18-SEP-95	4	1	
	20-SEP-95	3	1	
	22-SEP-95	1	0	
	25-SEP-95	3	0	
	27-SEP-95	3	0	
	30-SEP-95	3	0	
	02-OCT-95	3	1	
	06-OCT-95	3	1	
	09-OCT-95	4	1	
	11-OCT-95	3	0	
	13-OCT-95	4	1	
	16-OCT-95	4	1	
	18-OCT-95	1	0	
	20-OCT-95	1	0	
	23-OCT-95	4	1	
	25-OCT-95	3	1	
	27-OCT-95	4	1	
	30-OCT-95	4	1	
	01-NOV-95	5	2	
	03-NOV-95	5	1	
	06-NOV-95	4	1	
	08-NOV-95	4	1	
	10-NOV-95	4	1	
	13-NOV-95	3	1	
	15-NOV-95	1	0	
	17-NOV-95	2	0	
	20-NOV-95	1	1	
	22-NOV-95	4	3	
	27-NOV-95	8	7	
	29-NOV-95	8	7	

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Nitrate (mg/L)	11-SEP-95	3	3	
	13-SEP-95	4	4	
	15-SEP-95	3	3	
	18-SEP-95	3	4	
	20-SEP-95	3	3	
	22-SEP-95	3	3	
	25-SEP-95	4	3	
	27-SEP-95	3	3	
	30-SEP-95	3	3	
	02-OCT-95	3	3	
	06-OCT-95	3	3	
	09-OCT-95	3	3	
	11-OCT-95	3	3	
	13-OCT-95	3	3	
	16-OCT-95	4	4	
	18-OCT-95	3	3	
	20-OCT-95	3	3	
	23-OCT-95	3	2	
	25-OCT-95	3	3	
	27-OCT-95	3	4	
	30-OCT-95	2	2	
	01-NOV-95	3	3	
	03-NOV-95	3	3	
	06-NOV-95	3	3	
	08-NOV-95	3	2	
	10-NOV-95	3	2	
	13-NOV-95	3	3	
	15-NOV-95	3	2	
	17-NOV-95	3	3	
	20-NOV-95	3	3	
	22-NOV-95	3	3	
	27-NOV-95	3	3	
	29-NOV-95	3	3	
Nitrogen, Nitrate + Nitrite (mg/L)	11-OCT-95	.25	.84	.25
Nitrogen, Total Kjeldahl (mg/L)	11-OCT-95	2.75	1.24	.16
Oil and Grease (mg/L)	11-OCT-95	23	2	1

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)				
	11-SEP-95	11927	1098	0
	12-SEP-95			0
	13-SEP-95	19200	1429	0
	14-SEP-95			0
	15-SEP-95	18144	388	0
	16-SEP-95			0
	17-SEP-95			0
	18-SEP-95	6723	1534	0
	19-SEP-95			0
	20-SEP-95	21871	1340	2
	21-SEP-95			0
	22-SEP-95	10000	1253	0
	23-SEP-95			0
	24-SEP-95			0
	25-SEP-95	20235	514	3
	26-SEP-95			0
	27-SEP-95	2084	616	0
	28-SEP-95			0
	29-SEP-95			0
	30-SEP-95	17035	359	1
	01-OCT-95			0
	02-OCT-95	3726	495	0
	03-OCT-95			0
	04-OCT-95			0
	05-OCT-95			0
	06-OCT-95	20141	644	0
	07-OCT-95			0
	08-OCT-95			0
	09-OCT-95	25067	429	0
	10-OCT-95			0
	11-OCT-95	10500	63	0
	12-OCT-95			0
	13-OCT-95	5096	829	0
	14-OCT-95			0
	15-OCT-95			0
	16-OCT-95	57402	700	0
	17-OCT-95			0
	18-OCT-95	10356	664	0
	19-OCT-95			0
	20-OCT-95	1579	578	0
	21-OCT-95			0
	22-OCT-95			0
	23-OCT-95	9917	479	0
	24-OCT-95			0
	25-OCT-95	11530	973	0
	26-OCT-95			0
	27-OCT-95	20041	899	0
	28-OCT-95			0
	29-OCT-95			0
	30-OCT-95	15175	469	0

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)	31-OCT-95			0
	01-NOV-95	20738	1555	0
	02-NOV-95			0
	03-NOV-95	20816	863	0
	04-NOV-95			0
	05-NOV-95			0
	06-NOV-95	19714	1751	0
	07-NOV-95			0
	08-NOV-95	11493	1118	0
	09-NOV-95			0
	10-NOV-95	17126	192	0
	11-NOV-95			0
	12-NOV-95			0
	13-NOV-95	20541	1085	0
	14-NOV-95			1
	15-NOV-95	19598	1085	0
	16-NOV-95			0
	17-NOV-95	19913	1095	0
	18-NOV-95			0
	19-NOV-95			0
	20-NOV-95	19152	1115	0
	21-NOV-95			0
	22-NOV-95	23742	2323	1
	23-NOV-95			0
	24-NOV-95			0
	25-NOV-95			0
	26-NOV-95			0
	27-NOV-95	10950	3403	1
	28-NOV-95			1
	29-NOV-95	28981	4221	1
	30-NOV-95			0
Phosphorus, Ortho (mg/L)	11-OCT-95	.62	.46	.41

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Phosphorus, Phosphate (mg/L)				
	11-SEP-95	3	1	
	13-SEP-95	4.2	1	
	15-SEP-95	3	2.5	
	18-SEP-95	3.3	1.6	
	20-SEP-95	3	.5	
	22-SEP-95	3.3	1.6	
	25-SEP-95	3.2	1.5	
	27-SEP-95	2.6	1.3	
	30-SEP-95	4	1	
	02-OCT-95	1	.6	
	06-OCT-95	3	2.3	
	09-OCT-95	3	2.6	
	11-OCT-95	2.2	.7	
	13-OCT-95	3.3	2	
	16-OCT-95	3.8	2	
	18-OCT-95	3	1	
	20-OCT-95	3.3	1	
	23-OCT-95	3.2	2.8	
	25-OCT-95	1.6	.3	
	27-OCT-95	3	.6	
	30-OCT-95	3	1.3	
	01-NOV-95	3	.5	
	03-NOV-95	3.3	1.3	
	06-NOV-95	3	.5	5
	08-NOV-95	3	2	
	10-NOV-95	3	1	
	13-NOV-95	3.3	1	0
	15-NOV-95	1.3	.3	
	17-NOV-95	1.6	.3	
	20-NOV-95	3.3	1	5
	22-NOV-95	3	1	
	27-NOV-95	2.6	1.6	0
	29-NOV-95	3	.6	
Solids, Total Suspended (mg/L)				
	11-OCT-95	5	7	< 7

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
pH (S.U.)				
	11-SEP-95	6.7	7	7
	13-SEP-95	6.8	7	7.1
	15-SEP-95	6.9	6.9	6.9
	18-SEP-95	6.8	6.9	6.7
	20-SEP-95	6.8	6.9	6.9
	22-SEP-95	7	6.9	6.9
	25-SEP-95	6.7	7.1	6.7
	27-SEP-95	7	7	6.9
	30-SEP-95	6.8	7.1	7
	02-OCT-95	6.8	6.9	6.8
	06-OCT-95	6.9	6.9	7
	09-OCT-95	6.6	6.9	7.2
	11-OCT-95	6.75	1.92	6.9
		6.8	6.8	7.1
	13-OCT-95	6.8	7	6.6
	16-OCT-95	7	7.1	6.7
	18-OCT-95	7	7	6.9
	20-OCT-95	6.1	6.9	6.5
	23-OCT-95	6.55	6.7	6.5
	25-OCT-95	6.5	7	6.7
	27-OCT-95	6.6	6.6	6.7
	30-OCT-95	6.5	6.8	6.6
	01-NOV-95	6.5	6.9	6.7
	03-NOV-95	6.6	6.9	6.8
	06-NOV-95	6.8	6.7	6.8
	08-NOV-95	6.5	6.8	6.7
	10-NOV-95	6.7	6.7	6.8
	13-NOV-95	6.3	6.5	6.6
	15-NOV-95	6.7	6.8	7
	17-NOV-95	6.8	7	7.2
	20-NOV-95	7	7.2	7
	22-NOV-95	6.8	7	7.2
	27-NOV-95	7.2	7	7.3
	29-NOV-95	6.7	7.2	6.9

FBR - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
Wauleco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
11/01/95	24.00	24.00	7507870	0.00
11/02/95	25.40	25.40	7544460	0.00
11/03/95	23.10	23.10	7577740	0.00
11/04/95	23.10	23.10	7610940	0.00
11/05/95	23.90	23.90	7645420	0.00
11/06/95	24.30	24.30	7680360	0.00
11/07/95	24.40	24.40	7715470	0.00
11/08/95	24.30	24.30	7750530	0.00
11/09/95	24.00	24.00	7750530	0.00
11/10/95	24.20	24.20	7785360	0.00
11/11/95	22.70	22.70	7818060	0.00
11/12/95	22.30	22.30	7850130	0.00
11/13/95	24.20	24.20	7911660	0.00
11/14/95	22.90	22.90	7944650	0.00
11/15/95	22.10	22.10	7976510	0.00
11/16/95	19.20	19.20	8004180	0.00
11/17/95	25.20	25.20	8040420	0.00
11/18/95	25.20	25.20	8076660	0.00
11/19/95	25.20	25.20	8112900	0.00
11/20/95	24.30	24.30	8139400	0.00
11/21/95	25.50	25.50	8176060	0.00
11/22/95	22.00	22.00	8189220	0.00
11/23/95	27.00	27.00	8228040	0.00
11/24/95	27.00	27.00	8266860	0.00
11/25/95	27.00	27.00	8305680	0.00
11/26/95	22.00	22.00	8337290	0.00
11/27/95	24.40	24.40	8372400	0.00
11/28/95	24.40	24.40	8407510	0.00
11/29/95	24.30	24.30	8442500	0.00
11/30/95	20.20	20.20	8471520	0.00
AVERAGE:	23.93	23.93		0.00
TOTAL (2):			963650	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
(2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

**Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
11/1/95	0	0	0	0	0	0	3.44	0	3.44	0	6.88
11/2/95	1.72	0	0	0	0	0	8.6	0	3.44	0	13.76
11/3/95	0	0	0	0	0	0	5.16	0	1.72	0	6.88
11/4/95	0	0	0	0	0	0	8.6	0	1.72	0	10.32
11/5/95	1.72	1.72	0	0	0	0	8.6	0	1.72	0	13.76
11/6/95	1.72	0	0	0	0	0	8.6	0	3.44	0	13.76
11/7/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
11/8/95	0	0	0	0	0	1.72	1.72	0	1.72	0	5.16
11/9/95	0	0	0	0	0	0	1.72	0	3.44	0	5.16
11/10/95	0	0	0	0	0	0	1.72	0	1.72	0	3.44
11/11/95	1.72	0	0	0	0	0	1.72	0	3.44	0	6.88
11/12/95	0	0	0	0	0	0	1.72	0	1.72	0	3.44
11/13/95	0	0	0	0	0	0	1.72	0	3.44	0	5.16
11/14/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
11/15/95	0	0	0	0	0	0	3.44	0	5.16	0	8.60
11/16/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
11/17/95	1.72	0	0	0	0	0	6.88	0	3.44	0	12.04
11/18/95	1.72	0	0	0	0	0	6.88	0	1.72	0	10.32
11/19/95	1.72	0	0	0	0	0	10.32	0	3.44	0	15.48
11/20/95	1.72	0	0	0	0	0	5.16	0	5.16	0	12.04
11/21/95	1.72	0	0	0	0	0	8.6	0	3.44	0	13.76
11/22/95	1.72	0	0	0	0	0	6.88	0	3.44	0	12.04
11/23/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
11/24/95	1.72	0	0	0	0	0	5.16	0	1.72	0	8.60
11/25/95	0	0	0	0	0	0	3.44	0	3.44	0	6.88
11/26/95	1.72	0	0	0	0	0	1.72	0	3.44	0	6.88
11/27/95	0	0	0	0	0	0	1.72	0	3.44	0	5.16
11/28/95	1.72	0	0	0	0	0	15.48	0	6.88	0	24.08
11/29/95	1.72	0	0	0	0	0	6.8	0	5.16	0	13.68
11/30/95	1.72	0	0	0	0	0	6.88	0	5.16	0	13.76
Total:	32.68	1.72	0.00	0.00	0.00	1.72	156.44	0.00	99.76	0.00	292.32

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	September 30,1995		October 31,1995		November 30,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.03	1164.15	----	1164.05	----	1163.85
PW02	----	1164.14	----	1164.00	----	1163.90
PW03	----	1164.09	----	1163.98	----	1163.83
PW3S	0.40	1161.71	0.50	1161.21	0.60	1161.01
PW04	0.15	1157.80	0.05	1159.50	0.90	1156.60
PW05	----	1157.53	----	1157.53	0.50	1154.23
PW06	0.25	1160.64	0.40	1162.04	0.46	1162.63
PW07	0.10	1158.95	0.30	1157.70	0.15	1157.00
PW08	0.15	1162.12	0.15	1162.02	0.10	1161.97
PW9I	----	1161.28	----	1161.50	----	1161.22
PW9O	----	1164.49	----	1163.39	----	1162.52
PW10	----	1161.31	0.70	1157.16	0.50	1158.56
PW11	0.75	1161.05	0.46	1161.27	1.20	1159.95
PW12	----	1164.51	----	1164.01	----	1163.79
PW13	1.00	1160.10	0.80	1160.00	0.30	1159.90
PW14	----	1142.46	----	1142.26	----	1146.56
P01	0.58	1162.26	0.60	1162.11	0.83	1161.61
OW01	----	1163.58	----	1163.38	----	1163.18
W01A	----	1164.68	----	1164.47	----	1164.36
W01B	----	1164.62	----	1164.49	----	1164.35
W02	----	1163.53	----	1163.53	----	1163.35
W03A	----	1162.11	----	1162.16	----	1161.89
W03B	----	1162.03	----	1162.14	----	1161.96
W04A	0.78	1162.71	0.80	1162.61	0.76	1162.38
W04B	0.95	1162.58	0.85	1162.58	0.77	1162.40
W05	0.15	1162.68	0.65	1162.13	0.65	1161.88
W06R	----	1164.45	----	1164.30	----	1165.15
W07	----	1163.32	----	1164.07	----	1163.92
W08	----	1175.26	----	1174.55	----	1174.05
W09	----	1163.23	----	1162.85	----	1162.63
W10A	----	1161.16	----	1161.36	----	1161.18
W10B	----	1161.20	----	1161.36	----	1161.23
W11	----	1161.02	----	1161.16	----	1160.98
W12	----	1160.65	----	1160.76	----	1160.63
W13	----	1161.72	----	1161.88	----	1161.60
W14	----	1159.62	----	1159.64	----	1159.74
W16	----	1162.21	----	1162.29	----	1162.15
W17	0.30	1161.82	0.10	1162.12	0.31	1161.61
W18	----	1161.25	----	1161.42	----	1161.17
W19	----	1163.97	----	1163.85	----	1163.63

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	September 30,1995		October 31,1995		November 30,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.87	----	1161.02	----	1160.82
W22	----	1163.13	----	1162.23	----	1162.01
W23	----	1160.80	----	1160.85	----	1160.90
W24A	----	1160.77	----	1160.80	----	1160.85
W25	----	1163.72	----	1164.87	----	1164.49
W26	----	1161.02	----	1161.32	----	1161.02
W27	----	1162.59	----	1161.94	----	1161.72
W28	----	1161.17	----	1161.38	----	1161.08
W29	----	1160.91	----	1161.07	----	1160.92
W30	1.20	1161.54	1.00	1161.64	----	1161.71
W31	----	1160.96	----	1161.08	----	1160.88
W32	----	1160.96	----	1161.08	----	1160.87
W33	----	1163.04	----	1163.04	----	1162.94
W34	----	1159.80	----	1159.63	----	1159.35
W35	----	1162.24	1.70	1161.14	0.70	1161.94
W36	0.03	1162.96	0.03	1162.84	0.02	1162.72
W39	----	1163.08	----	1163.00	----	1162.87
W40	0.50	1161.49	0.40	1161.69	0.40	1161.59
W41	----	1163.17	----	1163.09	----	1162.99
W42	0.70	1163.27	0.60	1163.32	0.77	1162.92
W44	0.85	1162.23	0.80	1162.13	0.51	1162.11
W45	0.02	1163.28	----	1163.15	----	1162.55
W46	0.77	1162.15	0.85	1161.87	0.83	1161.57
W47	0.80	1158.09	0.98	1157.96	1.07	1157.47
W48	1.00	1158.28	0.80	1158.48	0.85	1158.11
W49	0.05	1159.11	0.02	1159.16	0.06	1158.86
W66	----	1164.27	----	1164.16	----	1164.01
W67	----	1164.25	----	1164.10	----	1162.95
W68A	0.05	1164.15	----	1164.10	----	1162.97
W68B	----	1164.16	----	1163.94	----	1162.89
W69	0.90	1162.00	0.80	1162.50	0.80	1162.40
W70B	----	1158.27	----	1158.27	----	1158.27
River	----	High Water	----	1161.18	----	Frozen

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

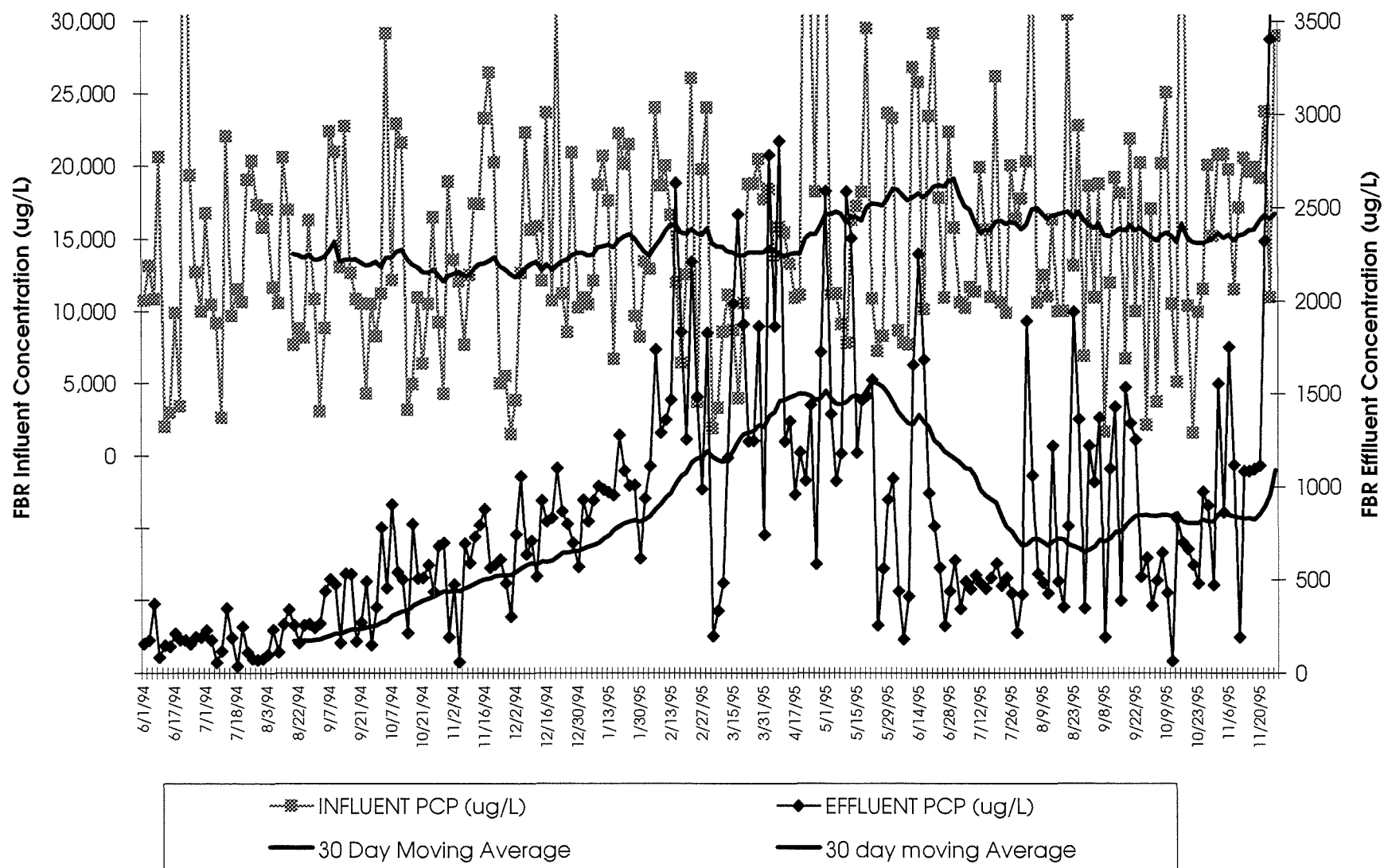
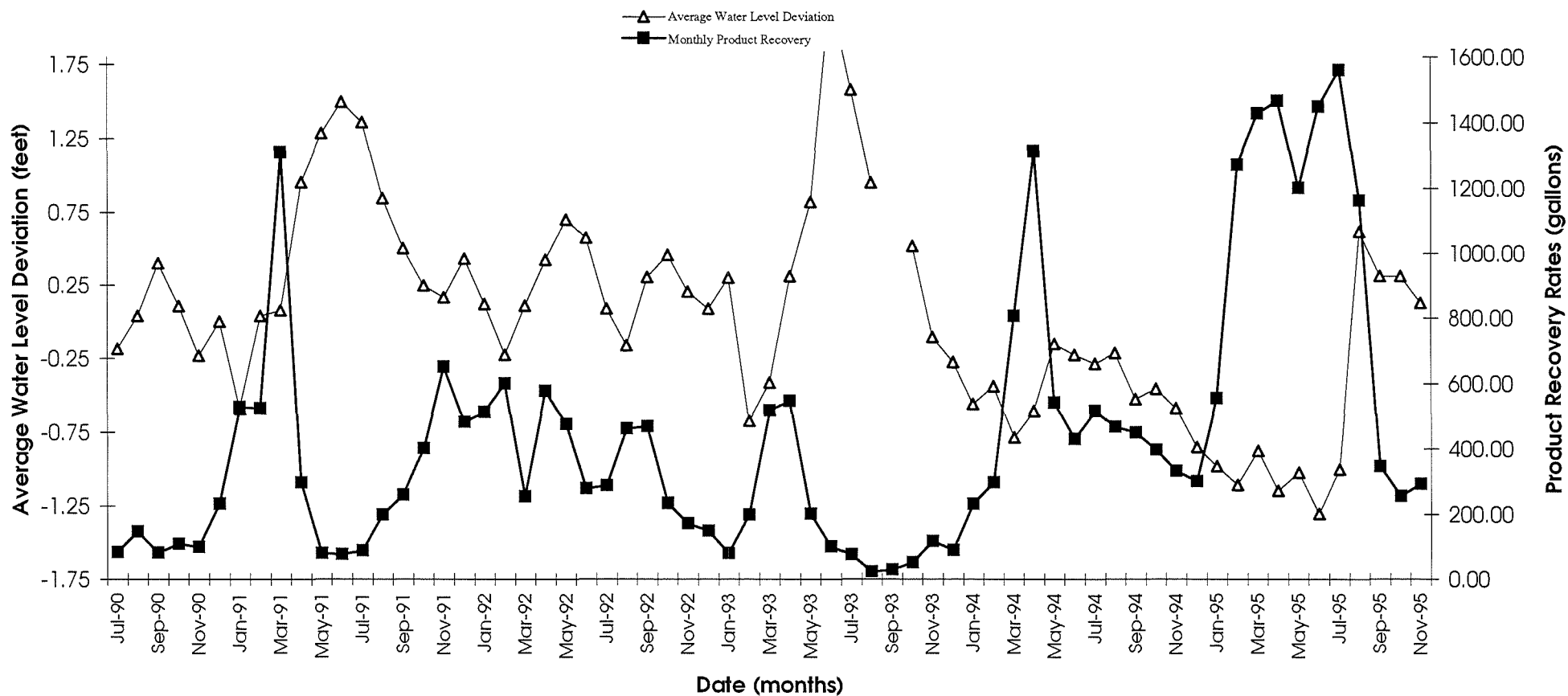


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates



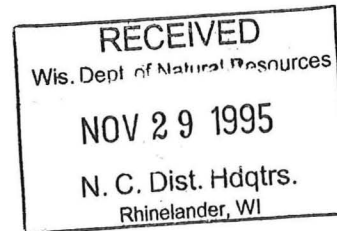


MONTGOMERY WATSON

11/29/95

November 27, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhinelander, Wisconsin 54501



Re: October Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

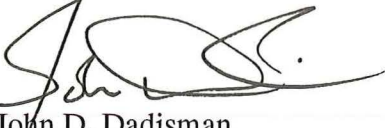
Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the October Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON


John D. Dadisman
Environmental Chemist


Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Fribance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/vlr/DJB
J:\4113\0010\WPLTR\989_SUKU.DOC
4113.0010-MD

WAULECO INCORPORATED WAUSAU, WISCONSIN MONTHLY REPORT OCTOBER 1995

SUMMARY OF OCTOBER 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP screening results for the system effluent samples, which represent the discharge water to the municipal sewer, indicate PCP concentrations were below the permit level of 10 ug/L during the reporting period. The Madison laboratory results for the October 11th treatment system confirmation samples were lost due to an analytical instrument malfunction. A new system effluent sample was collected on November 6 and the Madison laboratory analytical results for this sample indicated levels remain below the 10 ug/L effluent limit.

PCP influent concentrations ranged from 1,579 ug/L to 57,402 ug/L during October 1995 (Table 1). PCP influent and effluent concentrations in the Fluidized Bed Reactor (FBR) are presented graphically both as individual data points and as a 30-day moving average in Figure 1. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water levels through October remain relatively high compared to the previous eighteen months. Product recovery for October declined for the third month in a row, in response to the high water levels. Product recovery for October was 255 gal compared to 346 gal recovered during September.

Groundwater Monitoring

Groundwater elevation and product thickness data for August, September, and October are summarized in Table 4. The 3rd round of quarterly groundwater monitoring samples for 1995 were collected on September 13 and 14, 1995. Analytical results for the third round samples are attached to this report.

Phase II Air Sparge/Soil Vapor Extraction (AS/SVE) Pilot Study

The Phase II AS/SVE pilot study system continued normal operation during the month of October.

J:\4113\0010\WPLTR\984_OCT.DOC

TABLE 1

1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
#2 Fuel Oil (mg/L)	11-OCT-95	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)	11-SEP-95	30	20	0
	18-SEP-95	50	15	0
	25-SEP-95	90	40	15
	02-OCT-95	70	20	5
	09-OCT-95	60	25	0
	11-OCT-95	59	35	< 20
	16-OCT-95	110	20	0
	30-OCT-95	100	20	5
Chloride (mg/L)	11-SEP-95	131	128	
	18-SEP-95	120	132	
	25-SEP-95	126	128	
	02-OCT-95	124	135	
	11-OCT-95	112	128	142
Dissolved Oxygen (mg/L)	11-SEP-95	8.8	4.8	1.4
	13-SEP-95	8.6	4	.5
	15-SEP-95	8.4	3.4	.6
	18-SEP-95	6.2	3.2	1.2
	20-SEP-95	7.2	3.6	1
	22-SEP-95	7	4.8	1
	27-SEP-95	8.5	3.9	1.2
	30-SEP-95	8	4.2	1
	02-OCT-95	8.2	4.6	1.4
	06-OCT-95	8.8	4.4	1.4
	09-OCT-95	8.8	4	1.6
	11-OCT-95	9	4	.8
	13-OCT-95	8.8	4	1.4
	16-OCT-95	9	4.3	.8
	18-OCT-95	9	4.8	2.2
	20-OCT-95	8.2	4.6	1.2
	23-OCT-95	9.1	5	1
	25-OCT-95	9	4.2	1.4
	27-OCT-95	8.5	3.6	.8
	30-OCT-95	8.8	4	2
Gasoline (mg/L)	11-OCT-95	< .25	< .25	< .25
Kerosene (mg/L)	11-OCT-95	< .25	< .25	< .25
Mineral Spirits (mg/L)	11-OCT-95	20	< .25	< .25

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)				
	11-SEP-95	11927	1098	0
	12-SEP-95			0
	13-SEP-95	19200	1429	0
	14-SEP-95			0
	15-SEP-95	18144	388	0
	16-SEP-95			0
	17-SEP-95			0
	18-SEP-95	6723	1534	0
	19-SEP-95			0
	20-SEP-95	21871	1340	2
	21-SEP-95			0
	22-SEP-95	10000	1253	0
	23-SEP-95			0
	24-SEP-95			0
	25-SEP-95	20235	514	3
	26-SEP-95			0
	27-SEP-95	2084	616	0
	28-SEP-95			0
	29-SEP-95			0
	30-SEP-95	17035	359	1
	01-OCT-95			0
	02-OCT-95	3726	495	0
	03-OCT-95			0
	04-OCT-95			0
	05-OCT-95			0
	06-OCT-95	20141	644	0
	07-OCT-95			0
	08-OCT-95			0
	09-OCT-95	25067	429	0
	10-OCT-95			0
	11-OCT-95	10500	63	0
	12-OCT-95			0
	13-OCT-95	5096	829	0
	14-OCT-95			0
	15-OCT-95			0
	16-OCT-95	57402	700	0
	17-OCT-95			0
	18-OCT-95	10356	664	0
	19-OCT-95			0
	20-OCT-95	1579	578	0
	21-OCT-95			0
	22-OCT-95			0
	23-OCT-95	9917	479	0
	24-OCT-95			0
	25-OCT-95	11530	973	0
	26-OCT-95			0
	27-OCT-95	20041	899	0
	28-OCT-95			0
	29-OCT-95			0
	30-OCT-95	15175	469	0

FBR - Fluidized Bed Reactor

TABLE 1

5

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)	31-OCT-95			0
Phosphorus, Ortho (mg/L)	11-OCT-95	.62	.46	.41
Phosphorus, Phosphate (mg/L)	11-SEP-95	3	1	
	13-SEP-95	4.2	1	
	15-SEP-95	3	2.5	
	18-SEP-95	3.3	1.6	
	20-SEP-95	3	.5	
	22-SEP-95	3.3	1.6	
	25-SEP-95	3.2	1.5	
	27-SEP-95	2.6	1.3	
	30-SEP-95	4	1	
	02-OCT-95	1	.6	
	06-OCT-95	3	2.3	
	09-OCT-95	3	2.6	
	11-OCT-95	2.2	.7	
	13-OCT-95	3.3	2	
	16-OCT-95	3.8	2	
	18-OCT-95	3	1	
	20-OCT-95	3.3	1	
	23-OCT-95	3.2	2.8	
	25-OCT-95	1.6	.3	
	27-OCT-95	3	.6	
	30-OCT-95	3	1.3	
Solids, Total Suspended (mg/L)	11-OCT-95	5	7	< 7

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
pH (S.U.)				
	11-SEP-95	6.7	7	7
	13-SEP-95	6.8	7	7.1
	15-SEP-95	6.9	6.9	6.9
	18-SEP-95	6.8	6.9	6.7
	20-SEP-95	6.8	6.9	6.9
	22-SEP-95	7	6.9	6.9
	25-SEP-95	6.7	7.1	6.7
	27-SEP-95	7	7	6.9
	30-SEP-95	6.8	7.1	7
	02-OCT-95	6.8	6.9	6.8
	06-OCT-95	6.9	6.9	7
	09-OCT-95	6.6	6.9	7.2
	11-OCT-95	6.75	1.92	6.9
		6.8	6.8	7.1
	13-OCT-95	6.8	7	6.6
	16-OCT-95	7	7.1	6.7
	18-OCT-95	7	7	6.9
	20-OCT-95	6.1	6.9	6.5
	23-OCT-95	6.55	6.7	6.5
	25-OCT-95	6.5	7	6.7
	27-OCT-95	6.6	6.6	6.7
	30-OCT-95	6.5	6.8	6.6

FBR - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
Wauleco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
10/01/95	21.00	21.00	6582480	0.00
10/02/95	21.54	21.54	6613500	0.00
10/03/95	22.06	22.06	6645260	0.00
10/04/95	19.32	19.32	6673080	0.00
10/05/95	18.81	18.81	6700170	0.00
10/06/95	21.26	21.26	6730780	0.00
10/07/95	21.06	21.06	6761110	0.00
10/08/95	21.06	21.06	6791440	0.00
10/09/95	19.01	19.01	6818820	0.00
10/10/95	25.67	25.67	6855780	0.00
10/11/95	19.25	19.25	6883500	0.00
10/12/95	23.06	23.06	6916710	0.00
10/13/95	23.37	23.37	6950360	0.00
10/14/95	23.37	23.37	6984010	0.00
10/15/95	23.37	23.37	7017660	0.00
10/16/95	22.00	22.00	7028710	0.00
10/17/95	22.00	22.00	7060390	0.00
10/18/95	23.33	23.33	7093980	0.00
10/19/95	23.33	23.33	7127570	0.00
10/20/95	15.53	15.53	7149940	0.00
10/21/95	21.26	21.26	7180550	0.00
10/22/95	21.26	21.26	7211160	0.00
10/23/95	16.90	16.90	7235490	0.00
10/24/95	20.00	20.00	7264290	0.00
10/25/95	17.01	17.01	7288790	0.00
10/26/95	20.49	20.49	7318300	0.00
10/27/95	22.69	22.69	7350970	0.00
10/28/95	22.37	22.37	7383180	0.00
10/29/95	22.37	22.37	7415390	0.00
10/30/95	18.16	18.16	7441540	0.00
10/31/95	18.16	18.16	7467690	0.00
AVERAGE:	20.97	20.97		0.00
TOTAL (2):			885210	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
- (2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

**Product Removal
(gallons per day)
Waukeco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
10/1/95	1.72	0	0	0	0	1.72	3.44	0	5.16	0	12.04
10/2/95	1.72	0	0	1.72	0	1.72	3.44	0	8.6	0	17.20
10/3/95	3.44	0	0	0	0	0	3.44	0	1.72	0	8.60
10/4/95	1.72	0	0	0	0	1.72	3.44	0	3.44	0	10.32
10/5/95	1.72	0	0	1.72	0	0	3.44	0	3.44	0	10.32
10/6/95	1.72	0	0	0	0	1.72	3.44	0	3.44	0	10.32
10/7/95	0	0	0	1.72	0	0	3.44	0	1.72	0	6.88
10/8/95	1.72	0	0	0	0	0	3.44	0	5.16	0	10.32
10/9/95	5.16	0	0	1.72	0	0	3.44	0	3.44	0	13.76
10/10/95	0	0	0	0	0	0	3.44	0	1.72	0	5.16
10/11/95	0	0	0	0	0	0	3.44	0	1.72	0	5.16
10/12/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
10/13/95	0	0	0	0	0	0	3.44	0	3.44	0	6.88
10/14/95	1.72	0	0	0	0	0	3.44	0	1.72	0	6.88
10/15/95	0	0	0	0	0	0	3.44	0	1.72	0	5.16
10/16/95	1.72	0	0	0	0	0	5.16	0	1.72	0	8.60
10/17/95	1.72	0	0	0	0	0	1.72	0	1.72	0	5.16
10/18/95	0	0	0	0	0	0	1.72	0	0	0	1.72
10/19/95	0	0	0	0	0	0	1.72	0	1.72	0	3.44
10/20/95	0.86	0	0	0	0	1.72	1.72	0	3.44	0	7.74
10/21/95	0.86	0	0	0	0	0	1.72	0	3.44	0	6.02
10/22/95	0.86	0	0	0	0	0	1.72	0	3.44	0	6.02
10/23/95	0.86	0	0	0	0	0	1.72	0	3.44	0	6.02
10/24/95	1.72	0	0	0	0	0	3.44	0	1.72	0	6.88
10/25/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
10/26/95	1.72	0	0	1.72	0	0	3.44	0	1.72	0	8.60
10/27/95	1.72	0	0	0	0	0	1.72	0	1.72	0	5.16
10/28/95	3.44	0	0	0	0	0	5.16	0	3.44	0	12.04
10/29/95	1.72	0	0	0	0	1.72	3.44	0	1.72	0	8.60
10/30/95	1.72	0	0	0	0	0	3.44	0	3.44	0	8.60
10/31/95	0	0	0	0	0	0	8.6	0	5.16	0	13.76
Total:	43.00	0.00	0.00	8.60	0.00	10.32	101.48	0.00	91.16	0.00	254.56

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	August 30,1995		September 30,1995		October 31,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.06	1163.89	0.03	1164.15	----	1164.05
PW02	----	1163.83	----	1164.14	----	1164.00
PW03	----	1163.93	----	1164.09	----	1163.98
PW3S	0.28	1161.61	0.40	1161.71	0.50	1161.21
PW04	0.70	1159.50	0.15	1157.80	0.05	1159.50
PW05	0.50	1156.83	----	1157.53	----	1157.53
PW06	----	1159.29	0.25	1160.64	0.40	1162.04
PW07	0.40	1157.10	0.10	1158.95	0.30	1157.70
PW08	0.15	1161.87	0.15	1162.12	0.15	1162.02
PW9I	----	1161.18	----	1161.28	----	1161.50
PW9O	----	1163.41	----	1164.49	----	1163.39
PW10	0.90	1159.86	----	1161.31	0.70	1157.16
PW11	0.70	1160.75	0.75	1161.05	0.46	1161.27
PW12	----	1163.51	----	1164.51	----	1164.01
PW13	0.80	1160.20	1.00	1160.10	0.80	1160.00
PW14	1.00	1145.86	----	1142.46	----	1142.26
P01	0.30	1162.66	0.58	1162.26	0.60	1162.11
OW01	----	1163.38	----	1163.58	----	1163.38
W01A	----	1164.29	----	1164.68	----	1164.47
W01B	----	1164.29	----	1164.62	----	1164.49
W02	----	1163.48	----	1163.53	----	1163.53
W03A	----	1163.09	----	1162.11	----	1162.16
W03B	----	1162.79	----	1162.03	----	1162.14
W04A	0.02	1163.45	0.78	1162.71	0.80	1162.61
W04B	0.80	1162.78	0.95	1162.58	0.85	1162.58
W05	0.25	1162.68	0.15	1162.68	0.65	1162.13
W06R	0.18	1163.96	----	1164.45	----	1164.30
W07	----	1163.42	----	1163.32	----	1164.07
W08	----	1174.83	----	1175.26	----	1174.55
W09	----	1163.95	----	1163.23	----	1162.85
W10A	----	1162.40	----	1161.16	----	1161.36
W10B	----	1162.33	----	1161.20	----	1161.36
W11	----	1161.98	----	1161.02	----	1161.16
W12	----	1161.37	----	1160.65	----	1160.76
W13	----	1163.26	----	1161.72	----	1161.88
W14	----	1160.06	----	1159.62	----	1159.64
W16	----	1162.25	----	1162.21	----	1162.29
W17	0.85	1162.42	0.30	1161.82	0.10	1162.12
W18	----	1162.69	----	1161.25	----	1161.42
W19	----	1164.07	----	1163.97	----	1163.85

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	August 30,1995		September 30,1995		October 31,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1161.83	----	1160.87	----	1161.02
W22	----	1163.16	----	1163.13	----	1162.23
W23	----	1161.32	----	1160.80	----	1160.85
W24A	----	1161.26	----	1160.77	----	1160.80
W25	----	1164.50	----	1163.72	----	1164.87
W26	----	1162.02	----	1161.02	----	1161.32
W27	----	1162.78	----	1162.59	----	1161.94
W28	----	1162.67	----	1161.17	----	1161.38
W29	----	1162.06	----	1160.91	----	1161.07
W30	0.85	1162.09	1.20	1161.54	1.00	1161.64
W31	----	1161.99	----	1160.96	----	1161.08
W32	----	1161.96	----	1160.96	----	1161.08
W33	----	1163.24	----	1163.04	----	1163.04
W34	----	1159.85	----	1159.80	----	1159.63
W35	0.35	1162.44	----	1162.24	1.70	1161.14
W36	----	1162.99	0.03	1162.96	0.03	1162.84
W39	----	1163.25	----	1163.08	----	1163.00
W40	----	1162.38	0.50	1161.49	0.40	1161.69
W41	----	1163.61	----	1163.17	----	1163.09
W42	0.62	1163.30	0.70	1163.27	0.60	1163.32
W44	1.10	1162.13	0.85	1162.23	0.80	1162.13
W45	----	1163.58	0.02	1163.28	----	1163.15
W46	0.33	1162.52	0.77	1162.15	0.85	1161.87
W47	0.20	1159.34	0.80	1158.09	0.98	1157.96
W48	----	1159.88	1.00	1158.28	0.80	1158.48
W49	----	1160.01	0.05	1159.11	0.02	1159.16
W66	----	1164.04	----	1164.27	----	1164.16
W67	----	1163.98	----	1164.25	----	1164.10
W68A	0.50	1163.45	0.05	1164.15	----	1164.10
W68B	----	1164.31	----	1164.16	----	1163.94
W69	0.92	1162.18	0.90	1162.00	0.80	1162.50
W70B	----	1158.27	----	1158.27	----	1158.27
River	----	1162.99	----	High Water	----	1161.18

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Ammonia (mg/L)				
	11-SEP-95	1	0	
	13-SEP-95	6	3	
	15-SEP-95	3	1	
	18-SEP-95	4	1	
	20-SEP-95	3	1	
	22-SEP-95	1	0	
	25-SEP-95	3	0	
	27-SEP-95	3	0	
	30-SEP-95	3	0	
	02-OCT-95	3	1	
	06-OCT-95	3	1	
	09-OCT-95	4	1	
	11-OCT-95	3	0	
	13-OCT-95	4	1	
	16-OCT-95	4	1	
	18-OCT-95	1	0	
	20-OCT-95	1	0	
	23-OCT-95	4	1	
	25-OCT-95	3	1	
	27-OCT-95	4	1	
	30-OCT-95	4	1	
Nitrogen, Nitrate (mg/L)				
	11-SEP-95	3	3	
	13-SEP-95	4	4	
	15-SEP-95	3	3	
	18-SEP-95	3	4	
	20-SEP-95	3	3	
	22-SEP-95	3	3	
	25-SEP-95	4	3	
	27-SEP-95	3	3	
	30-SEP-95	3	3	
	02-OCT-95	3	3	
	06-OCT-95	3	3	
	09-OCT-95	3	3	
	11-OCT-95	3	3	
	13-OCT-95	3	3	
	16-OCT-95	4	4	
	18-OCT-95	3	3	
	20-OCT-95	3	3	
	23-OCT-95	3	2	
	25-OCT-95	3	3	
	27-OCT-95	3	4	
	30-OCT-95	2	2	
Nitrogen, Nitrate + Nitrite (mg/L)				
	11-OCT-95	.25	.84	.25
Nitrogen, Total Kjeldahl (mg/L)				
	11-OCT-95	2.75	1.24	.16
FBR - Fluidized Bed Reactor				

TABLE 1

3

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
Oil and Grease (mg/L)	11-OCT-95	23	2	1

FBR - Fluidized Bed Reactor

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

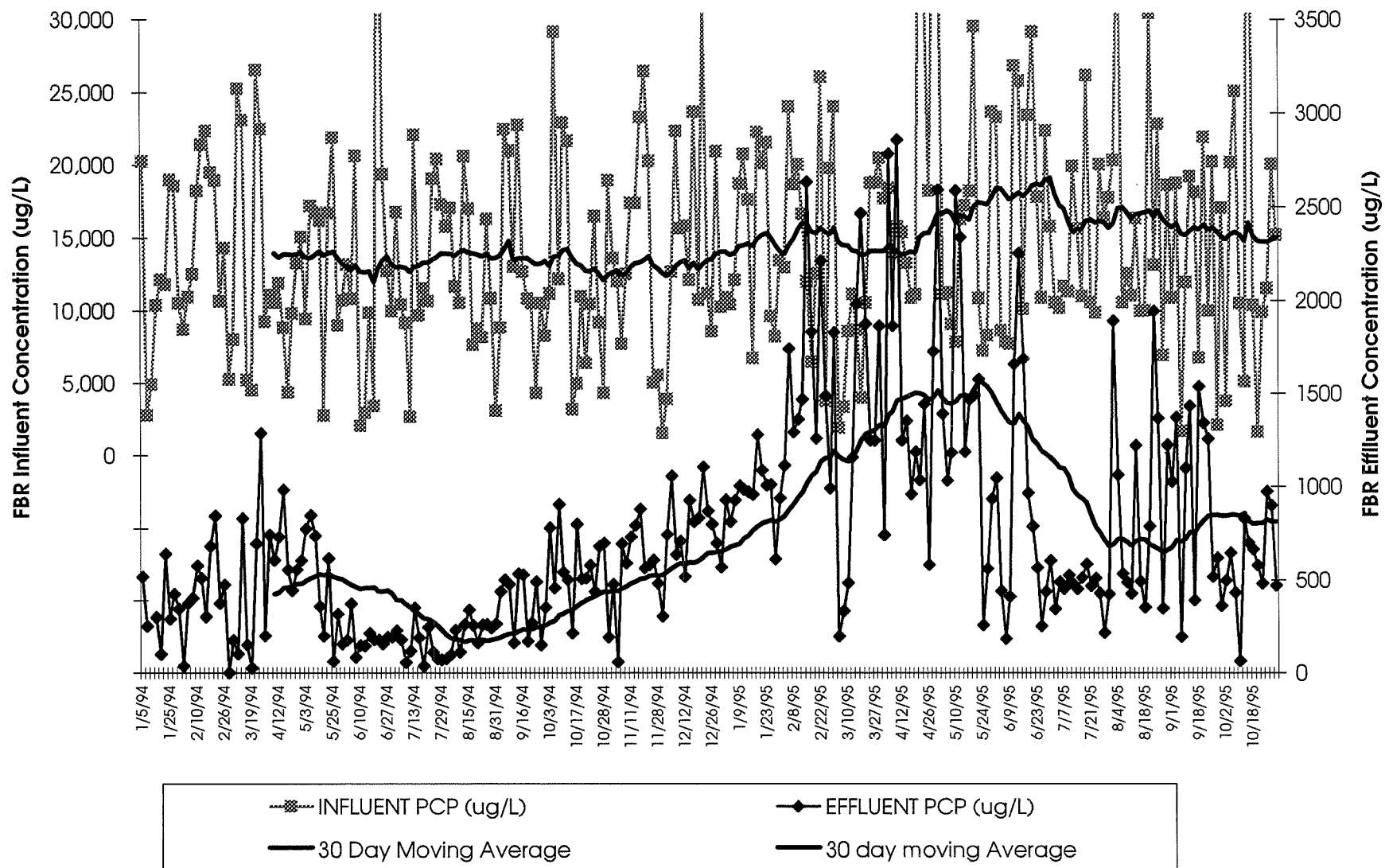
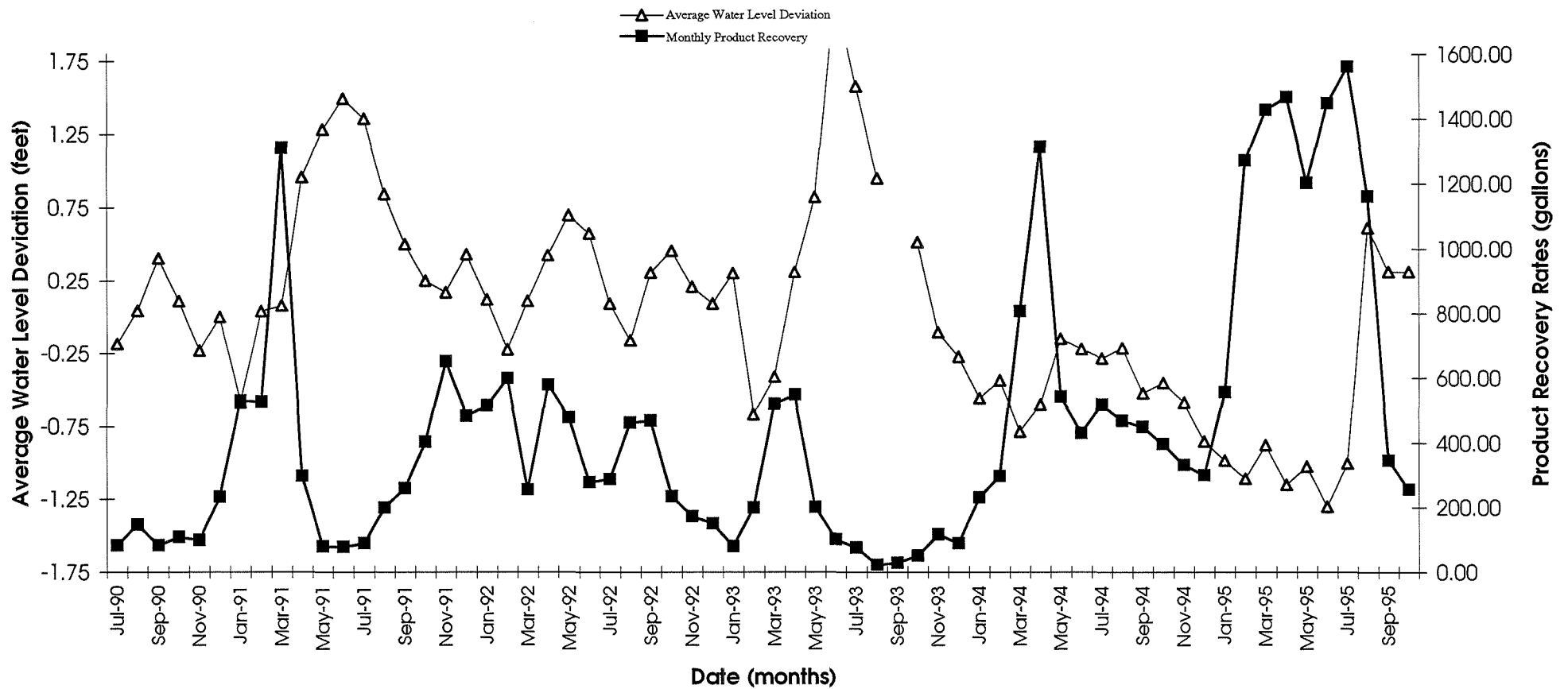


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates



ANALYTICAL DATA REPORT
Wauleco, Inc.
Wausau, Wisconsin

1

Project No. 4113.0020
Generated by: JAH
Date Issued: 04-NOV-95

Parameter	BLANK 09/13/95	W13 09/13/95	W19 09/13/95	W1A 09/13/95	W1A DUP 09/13/95
Phenol (ug/L)	< 10.	< 100.	< 500.	< 10.	< 10.
2-Chlorophenol (ug/L)	< 10.	< 100.	< 500.	< 10.	< 10.
2-Nitrophenol (ug/L)	< 10.	< 100.	< 500.	21.	28.
2,4-Dimethylphenol (ug/L)	11.	< 100.	< 500.	42.	72.
2,4-Dichlorophenol (ug/L)	< 10.	< 100.	< 500.	53.	20.
4-Chloro-3-methylphenol (ug/L)	< 10.	< 100.	< 500.	91.	25.
2,4,6-Trichlorophenol (ug/L)	< 10.	< 100.	< 500.	130.	60.
2,4-Dinitrophenol (ug/L)	< 20.	< 200.	< 1000.	89.	97.
4-Nitrophenol (ug/L)	< 20.	< 200.	< 1000.	29.	26.
4,6-Dinitro-2-methylphenol (ug/L)	< 10.	< 100.	< 500.	< 10.	12.
Pentachlorophenol (ug/L)	8.2	110.	520.	150.	140.
2-Methylphenol (ug/L)	< 10.	< 100.	< 500.	26.	25.
3&4-Methylphenol (ug/L)	< 20.	< 200.	< 1000.	20.	< 20.
Dinoseb (ug/L)	< 10.	< 100.	< 500.	< 10.	< 10.
2,6-Dichlorophenol (ug/L)	< 10.	< 100.	< 500.	24.	27.
2,4,5-Trichlorophenol (ug/L)	< 10.	< 100.	< 500.	70.	61.
2,3,4,6-Tetrachlorophenol (ug/L)	< 10.	< 100.	< 500.	20.	20.
Chloride (mg/L)	< 2.	96.	68.	80.	82.
Nitrogen, Ammonia (mg/L)	< 0.1	< 0.1	0.12	0.36	0.16
Nitrogen, Nitrate + Nitrite (mg/L)	< 0.02	4.59	0.04	1.61	1.88

ANALYTICAL DATA REPORT
Waukeco, Inc.
Wausau, Wisconsin

2

Parameter	W2 09/13/95	W2 DUP 09/13/95	W22 09/13/95	W25 09/13/95	W26 09/13/95
Phenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2-Chlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2-Nitrophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,4-Dimethylphenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,4-Dichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
4-Chloro-3-methylphenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,4,6-Trichlorophenol (ug/L)	< 1000.	1100.	< 1000.	< 1000.	1100.
2,4-Dinitrophenol (ug/L)	< 2000.	< 2000.	< 2000.	< 2000.	< 2000.
4-Nitrophenol (ug/L)	< 2000.	< 2000.	< 2000.	< 2000.	< 2000.
4,6-Dinitro-2-methylphenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	2900.
Pentachlorophenol (ug/L)	9200.	11000.	2000.	810.	4000.
2-Methylphenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
3&4-Methylphenol (ug/L)	< 2000.	< 2000.	< 2000.	< 2000.	< 2000.
Dinoseb (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,6-Dichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,4,5-Trichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
2,3,4,6-Tetrachlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 1000.	< 1000.
Chloride (mg/L)	114.	133.	119.	25.	245.
Nitrogen, Ammonia (mg/L)	0.13	0.14	< 0.1	< 0.1	< 0.1
Nitrogen, Nitrate + Nitrite (mg/L)	0.66	0.54	0.22	1.14	< 0.02

ANALYTICAL DATA REPORT
Waukeco, Inc.
Wausau, Wisconsin

3

Parameter	W33 09/13/95	W36 09/13/95	W39 09/13/95	W3A 09/13/95	W41 09/13/95
Phenol (ug/L)	< 10000.	< 1000.	< 1000.	< 10000.	< 1000.
2-Chlorophenol (ug/L)	41000.	< 1000.	< 1000.	< 10000.	< 1000.
2-Nitrophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	< 1000.
2,4-Dimethylphenol (ug/L)	6800.	< 1000.	1500.	< 10000.	< 1000.
2,4-Dichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	< 1000.
4-Chloro-3-methylphenol (ug/L)	1400.	< 1000.	< 1000.	< 10000.	< 1000.
2,4,6-Trichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	3400.
2,4-Dinitrophenol (ug/L)	< 2000.	< 2000.	< 2000.	< 20000.	< 2000.
4-Nitrophenol (ug/L)	< 2000.	< 2000.	< 2000.	< 20000.	< 2000.
4,6-Dinitro-2-methylphenol (ug/L)	2900.	< 1000.	< 1000.	< 10000.	< 1000.
Pentachlorophenol (ug/L)	94000.	1700.	1200.	20000.	9600.
2-Methylphenol (ug/L)	< 1000.	< 1000.	3300.	< 10000.	< 1000.
3&4-Methylphenol (ug/L)	9800.	< 2000.	< 2000.	< 20000.	< 2000.
Dinoseb (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	< 1000.
2,6-Dichlorophenol (ug/L)	1200.	< 1000.	< 1000.	< 10000.	< 1000.
2,4,5-Trichlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	< 1000.
2,3,4,6-Tetrachlorophenol (ug/L)	< 1000.	< 1000.	< 1000.	< 10000.	< 1000.
Chloride (mg/L)	50.	136.	62.	104.	100.
Nitrogen, Ammonia (mg/L)	< 0.1	< 0.1	0.16	< 0.1	0.57
Nitrogen, Nitrate + Nitrite (mg/L)	< 0.02	2.31	0.1	< 0.5	0.29

ANALYTICAL DATA REPORT
Waukeco, Inc.
Wausau, Wisconsin

Parameter	W8 09/13/95
Phenol (ug/L)	< 10.
2-Chlorophenol (ug/L)	< 10.
2-Nitrophenol (ug/L)	< 10.
2,4-Dimethylphenol (ug/L)	< 10.
2,4-Dichlorophenol (ug/L)	< 10.
4-Chloro-3-methylphenol (ug/L)	< 10.
2,4,6-Trichlorophenol (ug/L)	< 10.
2,4-Dinitrophenol (ug/L)	< 20.
4-Nitrophenol (ug/L)	< 20.
4,6-Dinitro-2-methylphenol (ug/L)	< 10.
Pentachlorophenol (ug/L)	< 1.
2-Methylphenol (ug/L)	< 10.
3&4-Methylphenol (ug/L)	< 20.
Dinoseb (ug/L)	< 10.
2,6-Dichlorophenol (ug/L)	< 10.
2,4,5-Trichlorophenol (ug/L)	< 10.
2,3,4,6-Tetrachlorophenol (ug/L)	< 10.
Chloride (mg/L)	73.
Nitrogen, Ammonia (mg/L)	< 0.1
Nitrogen, Nitrate + Nitrite (mg/L)	2.18



MONTGOMERY WATSON

7/17/95

July 17, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhinelander, Wisconsin 54501

Re: June Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04



Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the June Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON

John D. Dadisman
Environmental Chemist

Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Fribance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/vlr/DJB
J:\4113\0010\WPLTR\989_SUKU.DOC
4113.0010-MD

WAULECO INCORPORATED
WAUSAU, WISCONSIN
MONTHLY REPORT
JUNE 1995

SUMMARY OF JUNE 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP screening results for the system effluent samples, which represent the discharge water to the municipal sewer, indicated PCP concentrations below the permit level of 10 ug/L during the reporting period.

PCP influent concentrations ranged from 7,682 ug/L to 29,153 ug/L during June 1995 (Table 1). PCP influent and effluent concentrations in the Fluidized Bed Reactor (FBR) are presented graphically as a monthly moving average in Figure 1. Figure 1 shows a downward trend in FBR effluent concentrations since March 1995 when the carbon bed was changed out. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Based on data from previous years, product recovery tends to be inversely related to groundwater levels. Average water levels this spring and summer continue to be below historic levels (e.g. since 1990). The low water levels and the new pumping wells have contributed to the recovery of more than 7,000 gal of product since January 1995. Product recovery for June was 1,448 gal compared to 1,202 gal recovered during May.

Groundwater Monitoring

Groundwater elevation and product thickness data for April, May, and June are summarized in Table 4. Second quarter 1995 sampling took place on July 5th through 7th, 1995.

Phase II Air Sparge/Soil Vapor Extraction (AS/SVE) Pilot Study

The Phase II AS/SVE pilot study *in situ* soil test borings were installed during the week of June 5th 1995. The test borings, which were installed at eight locations, included the collection and chemical analysis of soil samples as described in the Phase II work plan dated February 15, 1995. The AS/SVE system is scheduled to begin operation during mid-July 1995 and will continue to operate for a period of six to twelve months, depending on the analytical results obtained from groundwater and soil vapor samples. Upon completion of the system test period, soil samples will again be collected from the test boring locations, and analyzed for changes in chemical constituent concentrations.

JDD/vlr/DJB
J:\4113\0010\WPLTR\989_JUNE.DOC
4113.0010-MD

TABLE 1

1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
#2 Fuel Oil (mg/L)	15-JUN-95	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)	22-MAY-95	50	30	0
	29-MAY-95	40	10	0
	05-JUN-95	80	30	0
	12-JUN-95	50	15	0
	15-JUN-95	48	24	< 20
	19-JUN-95	30	0	0
	26-JUN-95	50	20	0
Chloride (mg/L)	22-MAY-95	95	103	
	27-MAY-95	96	98	
	05-JUN-95	97	105	
	12-JUN-95	92	91	
	15-JUN-95	87	94	94
	19-JUN-95	100	101	
	26-JUN-95	93	102	
Dissolved Oxygen (mg/L)	22-MAY-95	9.2	6.2	1.8
	24-MAY-95	9	5.6	1.6
	26-MAY-95	9	5.4	1.4
	29-MAY-95	9.6	5.8	1.6
	02-JUN-95	8.4	6.4	.8
	05-JUN-95	8.6	6.6	1.8
	07-JUN-95	8.5	6	1.8
	09-JUN-95	8.8	5.3	.8
	12-JUN-95	9.8	6.4	1.4
	14-JUN-95	8.8	7.4	.9
	16-JUN-95	8.5	5.4	1
	19-JUN-95	8	5.4	1.4
	21-JUN-95	7.8	5.6	1.2
	23-JUN-95	7.4	3.8	1.2
	26-JUN-95	9.2	5	.7
	28-JUN-95	8.9	5.8	1.2
	30-JUN-95	6.8	4.4	1
Gasoline (mg/L)	15-JUN-95	< .25	< .25	< .25
Kerosene (mg/L)	15-JUN-95	< .25	< .25	< .25
Mineral Spirits (mg/L)	15-JUN-95	.9	< .25	< .25

FBR - Fluidized Bed Reactor

TABLE 1

2

Above Ground Treatment System Data
Waualeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Ammonia (mg/L)				
	22-MAY-95	3	1	
	24-MAY-95	2	1	
	26-MAY-95	3	1	
	29-MAY-95	3	1	
	02-JUN-95	2	0	
	05-JUN-95	5	2	
	07-JUN-95	4	1	
	09-JUN-95	3	1	
	12-JUN-95	3	1	
	14-JUN-95	3	1	
	16-JUN-95	3	0	
	19-JUN-95	3	1	
	21-JUN-95	2	1	
	23-JUN-95	2	1	
	26-JUN-95	2	0	
	28-JUN-95	1	0	
	30-JUN-95	1	0	
Nitrogen, Nitrate (mg/L)				
	22-MAY-95	3	3	
	24-MAY-95	3	3	
	26-MAY-95	3	3	
	29-MAY-95	3	3	
	02-JUN-95	3	3	
	05-JUN-95	3	3	
	07-JUN-95	3	3	
	09-JUN-95	3	3	
	12-JUN-95	3	3	
	14-JUN-95	4	3	
	16-JUN-95	3	3	
	19-JUN-95	3	3	
	21-JUN-95	3	3	
	23-JUN-95	3	3	
	26-JUN-95	3	3	
	28-JUN-95	3	3	
	30-JUN-95	7	3	
Nitrogen, Nitrate + Nitrite (mg/L)	15-JUN-95	.49	1.49	.52
Nitrogen, Total Kjeldahl (mg/L)	15-JUN-95	2.84	.9	.12
Oil and Grease (mg/L)	15-JUN-95	22	1	< 1

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
Pentachlorophenol-Screen (ug/L)				
	20-MAY-95			1
	21-MAY-95			1
	22-MAY-95	10863	1575	3
	23-MAY-95			2
	24-MAY-95	7228	255	1
	25-MAY-95			0
	26-MAY-95	8289	559	0
	27-MAY-95			1
	28-MAY-95			1
	29-MAY-95	23644	933	3
	30-MAY-95			0
	31-MAY-95			0
	01-JUN-95			1
	02-JUN-95	23267	1044	1
	03-JUN-95			0
	04-JUN-95			0
	05-JUN-95	8634	438	0
	06-JUN-95			0
	07-JUN-95	7809	181	1
	08-JUN-95			0
	09-JUN-95	7682	409	1
	10-JUN-95			0
	11-JUN-95			0
	12-JUN-95	26797	1656	1
	13-JUN-95			0
	14-JUN-95	25766	2252	1
	15-JUN-95			0
	16-JUN-95	10133	1685	1
	17-JUN-95			0
	18-JUN-95			0
	19-JUN-95	23411	964	6
	20-JUN-95			0
	21-JUN-95	29153	787	3
	22-JUN-95			0
	23-JUN-95	17815	564	1
	24-JUN-95			0
	25-JUN-95			0
	26-JUN-95	10915	251	1
	27-JUN-95			0
	28-JUN-95	22349	436	1
	29-JUN-95			0
	30-JUN-95	15760	604	1
Phosphorus, Ortho (mg/L)				
	15-JUN-95	1.51	1.55	1.33

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
Phosphorus, Phosphate (mg/L)				
	22-MAY-95	3.3	1	
	24-MAY-95	1.3	1	
	26-MAY-95	1.7	.9	
	29-MAY-95	3.3	1.6	
	02-JUN-95	3.3	1.5	
	05-JUN-95	1.3	1	
	07-JUN-95	1.5	1	
	09-JUN-95	3.5	1.1	
	12-JUN-95	3.3	1.6	
	14-JUN-95	3.5	3.5	
	16-JUN-95	3.3	3.5	
	19-JUN-95	1	.5	
	21-JUN-95	3.3	2.6	
	23-JUN-95	3	1	
	26-JUN-95	2.3	1.8	
	28-JUN-95	2.2	2	
	30-JUN-95	3	3	
Solids, Total Suspended (mg/L)				
	15-JUN-95	29	11	< 2
pH (S.U.)				
	22-MAY-95	6.8	6.8	6.6
	24-MAY-95	6.6	6.9	6.9
	26-MAY-95	6.6	7	6.9
	29-MAY-95	6.8	7.1	6.9
	02-JUN-95	6.5	6.7	6.4
	05-JUN-95	6.5	6.8	6.5
	07-JUN-95	6.5	6.8	6.6
	09-JUN-95	6.85	6.9	6.5
	12-JUN-95	6.5	6.9	6.7
	14-JUN-95	6.5	6.95	6.65
	15-JUN-95	6.56	7	6.77
	16-JUN-95	6.65	6.7	6.6
	19-JUN-95	6.5	6.7	6.6
	23-JUN-95	6.6	6.9	6.8
	26-JUN-95	6.6	6.75	6.9
	28-JUN-95	6.7	6.9	7
	30-JUN-95	6.6	6.4	6.4

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

SAMPLED	PARAMETER (UNIT)	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
15-JUN-95	2,3,4,6-Tetrachlorophenol (ug/L)	< 100	< 10	< 10
	2,4,5-Trichlorophenol (ug/L)	< 100	< 10	< 10
	2,4,6-Trichlorophenol (ug/L)	< 100	< 10	< 10
	2,4-Dichlorophenol (ug/L)	< 100	< 10	< 10
	2,4-Dimethylphenol (ug/L)	< 100	< 10	< 10
	2,4-Dinitrophenol (ug/L)	< 200	< 20	< 20
	2,6-Dichlorophenol (ug/L)	< 100	< 10	< 10
	2-Chlorophenol (ug/L)	< 100	< 10	< 10
	2-Nitrophenol (ug/L)	< 100	< 10	< 10
	4,6-Dinitro-2-methylphenol (ug/L)	980	< 10	< 10
	4-Chloro-3-methylphenol (ug/L)	< 100	< 10	< 10
	4-Nitrophenol (ug/L)	< 200	< 20	< 20
	Dinoseb (ug/L)	< 100	< 10	< 10
	Pentachlorophenol (ug/L)	2300	12	< 1
	Phenol (ug/L)	< 100	< 10	< 10
	m & p-Cresol (ug/L)	< 200	< 20	< 20
	o-Cresol (ug/L)	< 100	< 10	< 10

FBR - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
Wauleco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
06/01/95	24.00	24.00	2568600	0.00
06/02/95	24.00	24.00	2603160	0.00
06/03/95	24.00	24.00	2637720	0.00
06/04/95	24.00	24.00	2672280	0.00
06/05/95	13.84	13.84	2692210	0.00
06/06/95	24.60	24.60	2727640	0.00
06/07/95	24.97	24.97	2763600	0.00
06/08/95	17.80	17.80	2789230	0.00
06/09/95	22.61	22.61	2821790	0.00
06/10/95	18.87	18.87	2848960	0.00
06/11/95	24.31	24.31	2883970	0.00
06/12/95	22.89	22.89	2916930	0.00
06/13/95	23.11	23.11	2950210	0.00
06/14/95	24.26	24.26	2985150	0.00
06/15/95	19.88	19.88	3013770	0.00
06/16/95	23.34	23.34	3047380	0.00
06/17/95	23.74	23.74	3081570	0.00
06/18/95	23.74	23.74	3115760	0.00
06/19/95	20.40	20.40	3145140	0.00
06/20/95	20.40	20.40	3174520	0.00
06/21/95	26.03	26.03	3212000	0.00
06/22/95	22.35	22.35	3244180	0.00
06/23/95	21.40	21.40	3274990	0.00
06/24/95	22.69	22.69	3307660	0.00
06/25/95	22.44	22.44	3339980	0.00
06/26/95	21.19	21.19	3370490	0.00
06/27/95	21.91	21.91	3402040	0.00
06/28/95	22.42	22.42	3434320	0.00
06/29/95	21.53	21.53	3465320	0.00
06/30/95	22.18	22.18	3497260	0.00
AVERAGE:	22.30	22.30		0.00
TOTAL (2):			928660	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
- (2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

**Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
6/1/95	17.2	6.88	0	0	0	3.44	3.44	0	1.72	0	32.68
6/2/95	10.32	15.48	0	2.58	0	5.16	5.16	0	1.72	0	40.42
6/3/95	17.2	13.76	0	1.72	0	1.72	3.44	0	1.72	0	39.56
6/4/95	17.2	6.88	0	1.72	0	3.44	1.72	0	1.72	0	32.68
6/5/95	24	6.88	0	0	0	5.16	0	0	1.72	0	37.76
6/6/95	6.88	1.72	0	1.72	0	1.72	6.88	0	5.16	0	24.08
6/7/95	12.04	1.72	0	0	0	1.72	8.6	0	5.16	0	29.24
6/8/95	8.6	3.44	0	1.72	0	3.44	1.72	0	13.76	0	32.68
6/9/95	17.2	10.32	0	0	0	8.6	3.44	0	8.6	0	48.16
6/10/95	3.44	10.32	0	1.72	0	5.16	17.2	0	6.88	0	44.72
6/11/95	18.92	8.6	0	0	0	3.44	8.6	0	10.32	0	49.88
6/12/95	13.76	8.6	0	1.72	0	3.44	15.48	0	17.2	0	60.20
6/13/95	17	6.88	0	1.72	0	3.44	12	0	19	0	60.04
6/14/95	12.04	8.6	0	0	0	3.44	5.16	0	24.08	0	53.32
6/15/95	6.88	3.44	0	0	0	3.44	3.44	0	25.8	0	43.00
6/16/95	12.04	8.6	0	0	0	8.6	18.92	0	17.2	0	65.36
6/17/95	8.6	10.32	0	1.72	0	3.44	12.04	0	34.4	0	70.52
6/18/95	12	8.6	0	1.72	0	5.16	5.16	0	25.8	0	58.44
6/19/95	17.2	5	0	1.72	0	6.88	5	0	22	0	57.80
6/20/95	12.04	3.44	0	1.72	0	3.44	6.88	0	24.08	0	51.60
6/21/95	13.76	6.88	0	0	0	1.72	8.6	0	25.8	0	56.76
6/22/95	9	5.16	0	1.72	0	3.44	10.32	0	25.8	0	55.44
6/23/95	17.2	6.88	0	0	0	3.44	6.88	0	25.8	0	60.20
6/24/95	12.04	6.88	0	0	0	3.44	6.88	0	26	0	55.24
6/25/95	10.32	5.16	0	1.72	0	3.44	5.16	0	25.8	0	51.60
6/26/95	14	3.44	0	0	0	3.44	8	0	29	0	57.88
6/27/95	13.76	3.44	0	0	0	3.44	8.6	0	5.16	0	34.40
6/28/95	8.6	6.88	0	1.72	0	1.72	6.88	0	13.76	0	39.56
6/29/95	15.48	5.16	0	0	0	5.16	6.88	0	17	0	49.68
6/30/95	10.32	5.16	0	1.72	0	3.44	8.6	0	25.8	0	55.04
Total:	389.04	204.52	0.00	28.38	0.00	116.96	221.08	0.00	487.96	0.00	1447.94

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	April 28,1995		May 31,1995		June 30,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.20	1162.05	0.20	1162.02	0.10	1162.20
PW02	----	1162.18	----	1162.15	----	1162.20
PW03	----	1162.25	----	1162.26	----	1162.38
PW3S	0.80	1159.61	0.67	1159.89	0.75	1159.51
PW04	0.15	1158.05	0.15	1158.05	0.20	1157.70
PW05	0.11	1154.08	0.07	1154.14	0.50	1155.63
PW06	----	1157.64	----	1157.74	----	1157.54
PW07	0.65	1156.05	0.10	1156.00	0.60	1155.70
PW08	0.13	1160.17	0.12	1160.20	0.22	1160.27
PW9I	----	1159.43	----	1159.38	----	1159.20
PW9O	0.05	1161.34	----	1161.52	----	1161.74
PW10	0.65	1157.76	0.30	1157.96	0.20	1157.81
PW11	0.60	1160.35	0.35	1160.40	0.35	1160.35
PW12	----	1161.66	----	1161.66	----	1162.06
PW13	0.40	1158.60	0.80	1158.60	0.80	1158.40
PW14	0.06	1142.26	0.20	1142.91	0.95	1143.76
P01	0.80	1160.56	0.80	1160.66	0.77	1160.46
OW01	----	1162.43	----	1162.38	----	1162.58
W01A	----	1162.51	----	1162.43	----	1162.52
W01B	----	1162.37	----	1162.45	----	1162.63
W02	----	1161.68	----	1161.70	----	1161.83
W03A	----	1161.14	----	1161.22	----	1161.14
W03B	----	1161.24	----	1161.29	----	1161.21
W04A	0.66	1161.15	0.62	1161.19	0.67	1161.07
W04B	0.45	1161.33	0.43	1161.37	0.48	1161.25
W05	0.65	1160.68	0.60	1160.78	0.65	1160.58
W06R	0.35	1161.99	0.35	1162.04	0.50	1162.04
W07	----	1161.72	----	1161.82	----	1161.92
W08	----	1168.98	----	1169.39	----	1170.26
W09	----	1161.57	----	1161.83	----	1161.69
W10A	----	1160.94	----	1161.03	----	1160.89
W10B	----	1160.95	----	1161.01	----	1160.87
W11	----	1160.84	----	1160.92	----	1160.74
W12	----	1160.51	----	1160.58	----	1160.47
W13	----	1161.18	----	1161.25	----	1161.08
W14	----	1159.48	----	1159.52	----	1159.43
W16	----	1161.49	----	1161.59	----	1161.35
W17	0.35	1160.77	0.25	1161.02	0.39	1160.77
W18	----	1160.93	----	1161.03	----	1160.92
W19	----	1162.28	----	1162.29	----	1162.90

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	April 28,1995		May 31,1995		June 30,1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.74	----	1160.81	----	1160.65
W22	----	1161.24	----	1161.34	----	1161.32
W23	----	1160.66	----	1160.72	----	1160.59
W24A	----	1160.64	----	1160.67	----	1160.56
W25	----	1162.52	----	1162.68	----	1162.85
W26	----	1160.90	----	1160.97	----	1160.78
W27	----	1161.25	----	1161.32	----	1161.19
W28	----	1160.88	----	1160.99	----	1160.86
W29	----	1160.54	----	1160.61	----	1160.69
W30	1.20	1160.06	2.19	1160.20	1.40	1159.79
W31	----	1160.84	----	1161.07	----	1160.75
W32	----	1160.79	----	1160.84	----	1160.76
W33	0.20	1161.29	0.22	1161.34	0.30	1161.19
W34	0.10	1158.05	0.08	1158.07	0.15	1157.95
W35	0.50	1160.84	0.58	1160.91	0.25	1160.94
W36	0.10	1161.27	0.05	1161.44	0.13	1161.21
W39	----	1156.52	----	1161.55	0.10	1161.37
W40	0.70	1161.26	----	1161.62	0.87	1160.86
W41	----	1162.15	----	1161.70	----	1161.54
W42	0.10	1162.02	----	1162.15	0.04	1157.17
W44	0.21	1161.17	0.30	1161.18	0.37	1160.93
W45	0.02	1161.55	0.03	1161.85	0.02	1161.25
W46	0.60	1160.67	0.48	1161.02	0.62	1160.55
W47	1.27	1156.72	1.45	1156.54	1.50	1156.39
W48	0.30	1157.68	0.25	1157.83	0.25	1157.73
W49	0.55	1157.56	0.70	1157.56	0.71	1157.47
W66	----	1162.21	----	1162.22	----	1162.39
W67	----	1162.15	----	1162.15	----	1162.34
W68A	0.55	1161.70	0.55	1161.75	0.45	1161.95
W68B	----	1162.13	----	1162.17	----	1162.31
W69	0.90	1160.80	0.90	1160.90	1.00	1160.70
W70B	----	1162.27	----	1162.27	----	1162.38
River	----	1160.89	----	1160.99	----	1161.19

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

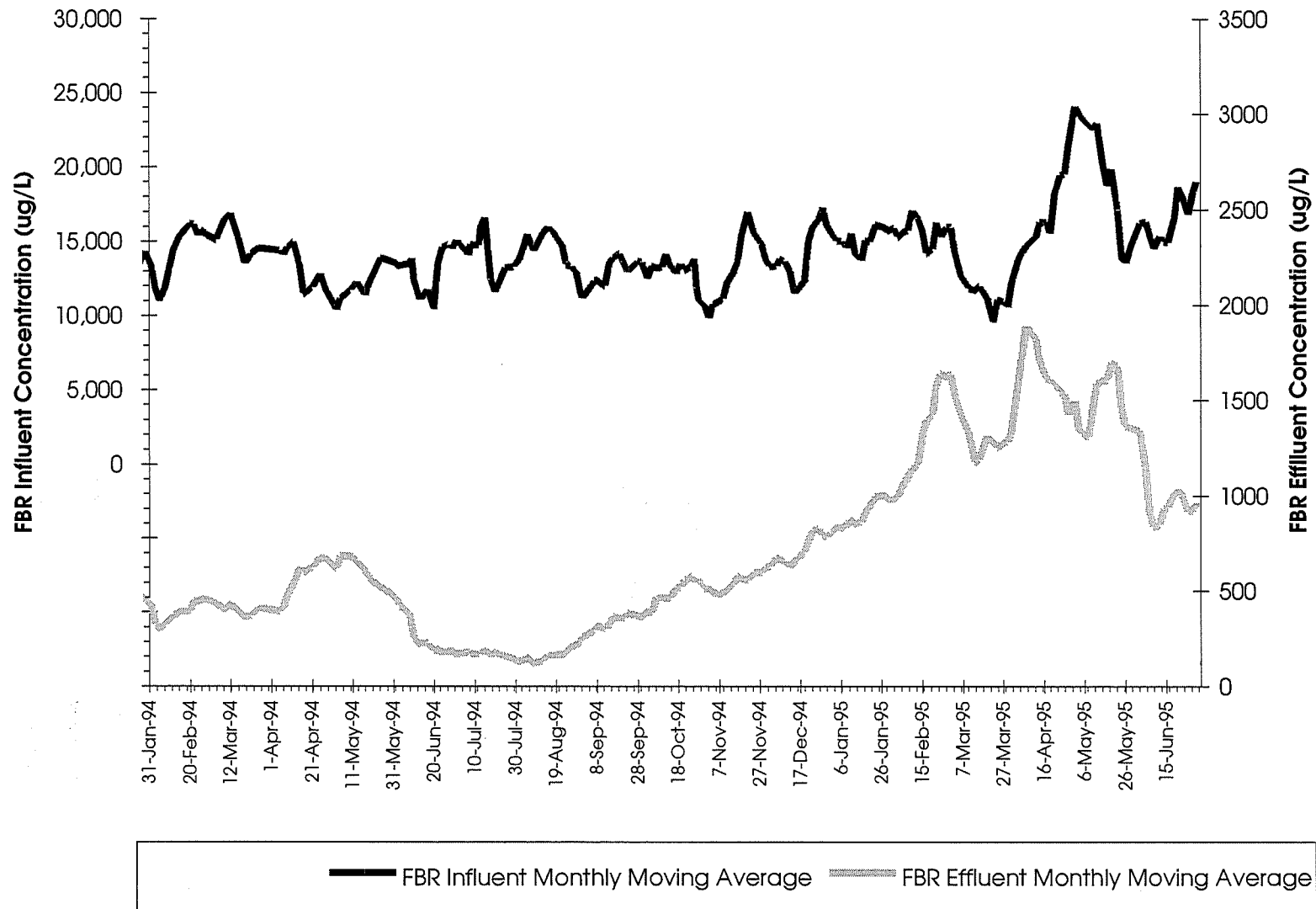
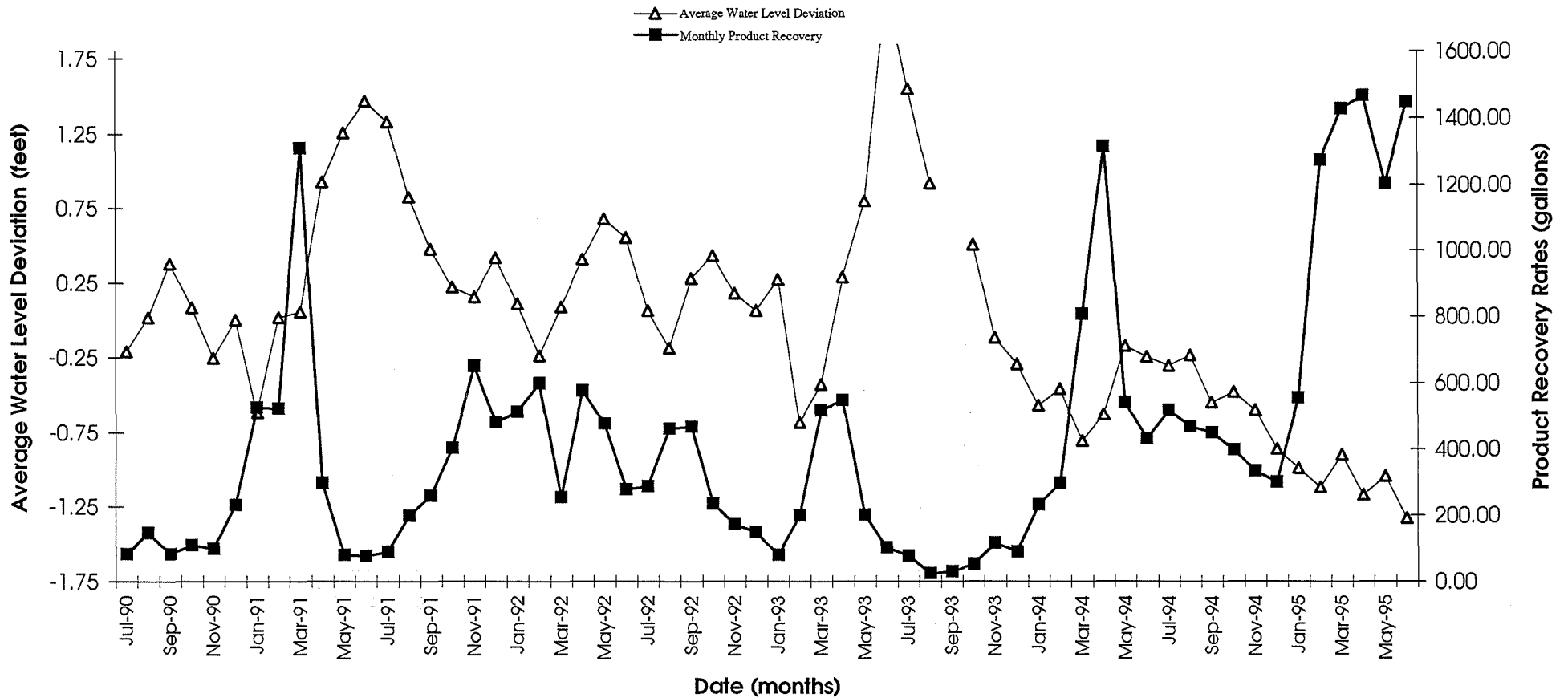


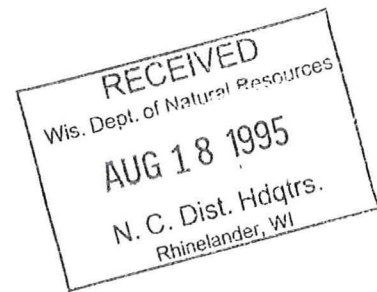
FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates





MONTGOMERY WATSON

8/18/95



July 17, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhinelander, Wisconsin 54501

Re: July Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the July Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON

John D. Dadisman
Environmental Chemist

Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Fribance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/djd/DJB
J:\4113\0010\WPLTR\989_SUKU.DOC
4113.0010-MD

**WAULECO INCORPORATED
WAUSAU, WISCONSIN
MONTHLY REPORT
JULY 1995**

SUMMARY OF JULY 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP screening results for the system effluent samples, which represent the discharge water to the municipal sewer, indicated PCP concentrations below the permit level of 10 ug/L during the reporting period.

PCP influent concentrations ranged from 9,869 ug/L to 26,176 ug/L during July 1995 (Table 1). PCP influent and effluent concentrations in the Fluidized Bed Reactor (FBR) are presented graphically as both individual data points and 30-day moving average in Figure 1. Figure 1 shows a downward trend in FBR effluent concentrations since March 1995 when the carbon bed was changed out. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water levels this spring and summer continue to be below historic levels (e.g. since 1990), and product recovery has been above 1000 gal. per month since February 1995. Product recovery for July was 1,560 gal compared to 1,448 gal recovered during June. The amount of product recovered during July represents the highest monthly volume since the start of the remediation system.

Groundwater Monitoring

Groundwater elevation and product thickness data for May, June, and July are summarized in Table 4.

Phase II Air Sparge/Soil Vapor Extraction (AS/SVE) Pilot Study

The Phase II AS/SVE pilot study system began operation on July 11, 1995 and will continue to operate for a period of six to twelve months, depending on the analytical results obtained from groundwater and soil vapor samples.

JDD/DJB
J:\4113\0010\WPL\TR\JULY.DOC
4113.0010-MD

TABLE 1

1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
#2 Fuel Oil (mg/L)	13-JUL-95	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)	03-JUL-95	55	15	0
	10-JUL-95	50	10	0
	13-JUL-95	54	30	< 20
	24-JUL-95	40	20	0
	30-JUL-95	30	25	0
Chloride (mg/L)	03-JUL-95	92	102	
	10-JUL-95	91	99	
	13-JUL-95	84	95	95
Dissolved Oxygen (mg/L)	03-JUL-95	8	5.1	.6
	05-JUL-95	8	6.4	.8
	07-JUL-95	8.2	6.6	1.6
	10-JUL-95	8.8	7.8	1.6
	12-JUL-95	8.8	6.4	1.6
	14-JUL-95	8.5	6.2	1.6
	17-JUL-95	8.5	6	1.7
	19-JUL-95	8.2	4.2	1.8
	21-JUL-95	8.6	6.6	1.2
	24-JUL-95	8.6	5.4	1.6
	26-JUL-95	9.2	4.8	1.6
	28-JUL-95	8.4	4	1.6
	30-JUL-95	8	5	1.2
Gasoline (mg/L)	13-JUL-95	< .25	< .25	< .25
Kerosene (mg/L)	13-JUL-95	< .25	< .25	< .25
Mineral Spirits (mg/L)	13-JUL-95	.49	< .25	< .25

FBR - Fluidized Bed Reactor

TABLE 1

2

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
Nitrogen, Ammonia (mg/L)				
	03-JUL-95	2	1	
	07-JUL-95	2	0	
	10-JUL-95	0	0	
	12-JUL-95	1	0	
	14-JUL-95	2	0	
	17-JUL-95	2	0	
	19-JUL-95	4	1	
	21-JUL-95	2	0	
	24-JUL-95	3	1	
	26-JUL-95	1	1	
	28-JUL-95	6	3	
	30-JUL-95	2	0	
Nitrogen, Nitrate (mg/L)				
	05-JUL-95	3	3	
	07-JUL-95	3	3	
	10-JUL-95	3	3	
	12-JUL-95	3	3	
	14-JUL-95	3	3	
	19-JUL-95	3	3	
	21-JUL-95	3	3	
	24-JUL-95	3	3	
	26-JUL-95	3	3	
	28-JUL-95	3	3	
	30-JUL-95	3	3	
Nitrogen, Nitrate + Nitrite (mg/L)				
	13-JUL-95	.42	.22	.13
Nitrogen, Total Kjeldahl (mg/L)				
	13-JUL-95	.48	.65	< .1
Oil and Grease (mg/L)				
	13-JUL-95	21	2	1

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
Pentachlorophenol-Screen (ug/L)				
	01-JUL-95			1
	02-JUL-95			1
	03-JUL-95	10589	342	1
	04-JUL-95			1
	05-JUL-95	10187	489	1
	06-JUL-95			0
	07-JUL-95	11649	449	0
	08-JUL-95			0
	09-JUL-95			1
	10-JUL-95	11323	523	0
	11-JUL-95			0
	12-JUL-95	19917	477	1
	13-JUL-95			1
	14-JUL-95	15615	450	1
	15-JUL-95			0
	16-JUL-95			1
	17-JUL-95	11000	509	0
	18-JUL-95			0
	19-JUL-95	26176	585	0
	20-JUL-95			0
	21-JUL-95	10588	467	1
	22-JUL-95			0
	23-JUL-95			0
	24-JUL-95	9869	508	1
	25-JUL-95			1
	26-JUL-95	20000	426	3
	27-JUL-95			2
	28-JUL-95	16398	215	2
	29-JUL-95			1
	30-JUL-95	17752	421	1
	31-JUL-95			0
Phosphorus, Ortho (mg/L)				
	13-JUL-95	1.02	.97	1.06
Phosphorus, Phosphate (mg/L)				
	03-JUL-95	3.5	1.8	
	05-JUL-95	2	1	
	07-JUL-95	.9	.6	
	10-JUL-95	3	1	
	12-JUL-95	2	.5	
	14-JUL-95	2.5	1	
	17-JUL-95	2.5	.8	
	19-JUL-95	3	1	
	21-JUL-95	3.3	1	
	24-JUL-95	2.8	1.8	
	26-JUL-95	3	1	
	28-JUL-95	1	.5	
	30-JUL-95	3	3.2	

FBR - Fluidized Bed Reactor

TABLE 1

4

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
Solids, Total Suspended (mg/L)	13-JUL-95	3	6	3
pH (S.U.)	03-JUL-95	6.6	6.8	7
	05-JUL-95	6.5	6.7	6.7
	07-JUL-95	6.5	6.7	6.6
	13-JUL-95	6.73	6.98	7.06
	21-JUL-95	7.1	7	6.8
	24-JUL-95	7	7.2	6.9
	26-JUL-95	7.4	7.1	7
	28-JUL-95	7	6.9	6.9
	30-JUL-95	7.2	7	6.9

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
 Wauleco, Inc.
 Wausau, Wisconsin

SAMPLED	PARAMETER (UNIT)	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
13-JUL-95	2,3,4,6-Tetrachlorophenol (ug/L)	< 100	< 10	< 10
	2,4,5-Trichlorophenol (ug/L)	< 100	< 10	< 10
	2,4,6-Trichlorophenol (ug/L)	< 100	< 10	< 10
	2,4-Dichlorophenol (ug/L)	< 100	< 10	< 10
	2,4-Dimethylphenol (ug/L)	< 100	< 10	< 10
	2,4-Dinitrophenol (ug/L)	< 200	< 20	< 20
	2,6-Dichlorophenol (ug/L)	< 100	< 10	< 10
	2-Chlorophenol (ug/L)	< 100	< 10	< 10
	2-Nitrophenol (ug/L)	< 100	< 10	< 10
	4,6-Dinitro-2-methylphenol (ug/L)	1300	< 10	< 10
	4-Chloro-3-methylphenol (ug/L)	< 100	< 10	< 10
	4-Nitrophenol (ug/L)	< 200	< 20	< 20
	Dinoseb (ug/L)	< 100	< 10	< 10
	Pentachlorophenol (ug/L)	2700	4.7	< 1
	Phenol (ug/L)	< 100	< 10	< 10
	m & p-Cresol (ug/L)	< 200	< 20	< 20
	o-Cresol (ug/L)	< 100	< 10	< 10

FBR - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
Waualeco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
07/01/95	22.00	22.00	3528410	0.00
07/02/95	22.00	22.00	3560090	0.00
07/03/95	21.99	21.99	3591750	0.00
07/04/95	22.65	22.65	3624360	0.00
07/05/95	21.58	21.58	3655430	0.00
07/06/95	22.29	22.29	3687530	0.00
07/07/95	22.17	22.17	3719450	0.00
07/08/95	22.05	22.05	3751200	0.00
07/09/95	21.99	21.99	3782860	0.00
07/10/95	21.34	21.34	3813590	0.00
07/11/95	21.45	21.45	3844480	0.00
07/12/95	22.14	22.14	3876360	0.00
07/13/95	21.60	21.60	3907460	0.00
07/14/95	22.80	22.80	3940290	0.00
07/15/95	22.80	22.80	3973120	0.00
07/16/95	22.80	22.80	4005950	0.00
07/17/95	22.00	22.00	4029140	0.00
07/18/95	21.49	21.49	4060090	0.00
07/19/95	21.49	21.49	4091040	0.00
07/20/95	23.78	23.78	4125280	0.00
07/21/95	22.69	22.69	4157950	0.00
07/22/95	22.69	22.69	4190620	0.00
07/23/95	22.69	22.69	4223290	0.00
07/24/95	18.06	18.06	4249300	0.00
07/25/95	20.14	20.14	4278300	0.00
07/26/95	20.76	20.76	4308200	0.00
07/27/95	25.49	25.49	4344900	0.00
07/28/95	23.20	23.20	4378310	0.00
07/29/95	27.26	27.26	4417560	0.00
07/30/95	27.26	27.26	4456810	0.00
07/31/95	18.85	18.85	4483950	0.00
AVERAGE:	22.31	22.31		0.00
TOTAL (2):			955540	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
- (2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

**Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
7/1/95	8	3.44	0	0	0	3.44	7	0	25.8	0	47.68
7/2/95	10.32	3.44	0	0	0	5.16	6.88	0	25.8	0	51.60
7/3/95	10.32	5.16	0	1.72	0	3.44	8.6	0	34.4	0	63.64
7/4/95	10.32	1.72	0	0	0	1.72	6.88	0	30	0	50.64
7/5/95	6.88	3.44	0	1.72	0	1.72	6.88	0	20.64	0	41.28
7/6/95	10.32	5.16	0	0	0	3.44	5.16	0	25.8	0	49.88
7/7/95	6.88	5.16	0	0	0	3.44	5.16	0	20.64	0	41.28
7/8/95	13.76	3.44	0	1.72	0	3.44	6.88	0	25.8	0	55.04
7/9/95	13.76	8.6	0	0	0	3.44	6.88	0	25.8	0	58.48
7/10/95	10.32	1.72	0	0	0	1.72	5.16	0	27.52	0	46.44
7/11/95	10.32	3.44	0	1.72	0	3.44	6.88	0	24.08	0	49.88
7/12/95	13.76	1.72	0	0	0	3.44	6.88	0	25.8	0	51.60
7/13/95	8.6	1.72	0	0	0	3.44	5.16	0	33	0	51.92
7/14/95	8.6	1.72	0	1.72	0	1.72	0	0	30.96	0	44.72
7/15/95	3.44	0	0	0	0	3.44	1.72	0	25.8	0	34.40
7/16/95	13.76	1.72	0	1.72	0	3.44	0	0	25.8	0	46.44
7/17/95	15.48	0	0	0	0	3.44	1.72	0	29	0	49.64
7/18/95	6.88	3.44	0	0	0	3.44	3.44	0	28	0	45.20
7/19/95	12.04	3.44	0	0	0	5.16	3.44	0	22.36	0	46.44
7/20/95	8.6	3.44	0	1.72	0	3.44	5.16	0	20	0	42.36
7/21/95	13.76	1.72	0	1.72	0	0	5.16	0	26	0	48.36
7/22/95	12.04	0	0	0	0	5.16	5.16	0	29.24	0	51.60
7/23/95	17.2	1.72	0	1.72	0	5.16	8.6	0	22.36	0	56.76
7/24/95	13.76	0	0	1.72	0	5.16	13.76	0	27.84	0	62.24
7/25/95	12.04	3.44	0	1.72	0	0	3.44	0	24	0	44.64
7/26/95	12.04	1.72	0	1.72	0	0	8.6	0	25.8	0	49.88
7/27/95	13.76	1.72	0	1.72	0	0	8.6	0	25.8	0	51.60
7/28/95	13	3.44	0	5.16	0	0	8.6	0	25.8	0	56.00
7/29/95	24.08	5.16	0	1.72	0	0	3.44	0	26	0	60.40
7/30/95	13.76	6.88	0	0	0	1.72	1.72	0	25.8	0	49.88
7/31/95	16	10	0	2	0	2	4	0	26	0	60.00
Total:	363.80	97.72	0.00	31.24	0.00	84.56	170.96	0.00	811.64	0.00	1559.92

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	May 31, 1995		June 30, 1995		July 28, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.20	1162.02	0.10	1162.20	0.12	1162.35
PW02	----	1162.15	----	1162.20	0.23	1162.20
PW03	----	1162.26	----	1162.38	----	1162.58
PW3S	0.67	1159.89	0.75	1159.51	0.67	1159.76
PW04	0.15	1158.05	0.20	1157.70	0.15	1157.95
PW05	0.07	1154.14	0.50	1155.63	0.10	1155.63
PW06	----	1157.74	----	1157.54	0.05	1157.64
PW07	0.10	1156.00	0.60	1155.70	0.10	1156.70
PW08	0.12	1160.20	0.22	1160.27	0.25	1160.47
PW9I	----	1159.38	----	1159.20	----	1159.58
PW9O	----	1161.52	----	1161.74	----	1162.19
PW10	0.30	1157.96	0.20	1157.81	1.15	1159.51
PW11	0.35	1160.40	0.35	1160.35	0.77	1160.05
PW12	----	1161.66	----	1162.06	----	1162.06
PW13	0.80	1158.60	0.80	1158.40	0.74	1158.60
PW14	0.20	1142.91	0.95	1143.76	1.25	1145.51
P01	0.80	1160.66	0.77	1160.46	0.75	1160.71
OW01	----	1162.38	----	1162.58	----	1162.48
W01A	----	1162.43	----	1162.52	----	1162.51
W01B	----	1162.45	----	1162.63	----	1162.59
W02	----	1161.70	----	1161.83	----	1162.00
W03A	----	1161.22	----	1161.14	----	1161.24
W03B	----	1161.29	----	1161.21	----	1161.29
W04A	0.62	1161.19	0.67	1161.07	0.60	1161.31
W04B	0.43	1161.37	0.48	1161.25	0.42	1161.48
W05	0.60	1160.78	0.65	1160.58	0.65	1160.78
W06R	0.35	1162.04	0.50	1162.04	0.23	1162.46
W07	----	1161.82	----	1161.92	0.02	1162.48
W08	----	1169.39	----	1170.26	----	1170.64
W09	----	1161.83	----	1161.69	----	1161.83
W10A	----	1161.03	----	1160.89	----	1160.80
W10B	----	1161.01	----	1160.87	----	1160.86
W11	----	1160.92	----	1160.74	----	1160.80
W12	----	1160.58	----	1160.47	----	1160.55
W13	----	1161.25	----	1161.08	----	1161.16
W14	----	1159.52	----	1159.43	----	1159.45
W16	----	1161.59	----	1161.35	----	1161.49
W17	0.25	1161.02	0.39	1160.77	0.25	1160.97
W18	----	1161.03	----	1160.92	----	1160.82
W19	----	1162.29	----	1162.90	----	1162.56

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

Well	May 31, 1995		June 30, 1995		July 28, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.81	----	1160.65	----	1160.69
W22	----	1161.34	----	1161.32	----	1161.33
W23	----	1160.72	----	1160.59	----	1160.66
W24A	----	1160.67	----	1160.56	----	1160.62
W25	----	1162.68	----	1162.85	----	1162.80
W26	----	1160.97	----	1160.78	----	1160.87
W27	----	1161.32	----	1161.19	----	1161.28
W28	----	1160.99	----	1160.86	----	1160.76
W29	----	1160.61	----	1160.69	----	1160.71
W30	2.19	1160.20	1.40	1159.79	1.15	1160.19
W31	----	1161.07	----	1160.75	----	1160.80
W32	----	1160.84	----	1160.76	----	1160.65
W33	0.22	1161.34	0.30	1161.19	0.15	1161.44
W34	0.08	1158.07	0.15	1157.95	0.12	1158.18
W35	0.58	1160.91	0.25	1160.94	0.40	1161.04
W36	0.05	1161.44	0.13	1161.21	0.03	1161.47
W39	----	1161.55	0.10	1161.37	0.02	1161.57
W40	----	1161.62	0.87	1160.86	0.80	1160.96
W41	----	1161.70	----	1161.54	----	1161.66
W42	----	1162.15	0.04	1157.17	0.20	1162.17
W44	0.30	1161.18	0.37	1160.93	0.33	1161.10
W45	0.03	1161.85	0.02	1161.25	----	1161.80
W46	0.48	1161.02	0.62	1160.55	0.59	1160.76
W47	1.45	1156.54	1.50	1156.39	1.60	1156.39
W48	0.25	1157.83	0.25	1157.73	0.25	1157.88
W49	0.70	1157.56	0.71	1157.47	0.60	1157.71
W66	----	1162.22	----	1162.39	----	1162.54
W67	----	1162.15	----	1162.34	----	1162.50
W68A	0.55	1161.75	0.45	1161.95	0.30	1162.25
W68B	----	1162.17	----	1162.31	----	1162.46
W69	0.90	1160.90	1.00	1160.70	0.90	1160.70
W70B	----	1162.27	----	1162.38	----	1158.27
River	----	1160.99	----	1161.19	----	1160.99

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

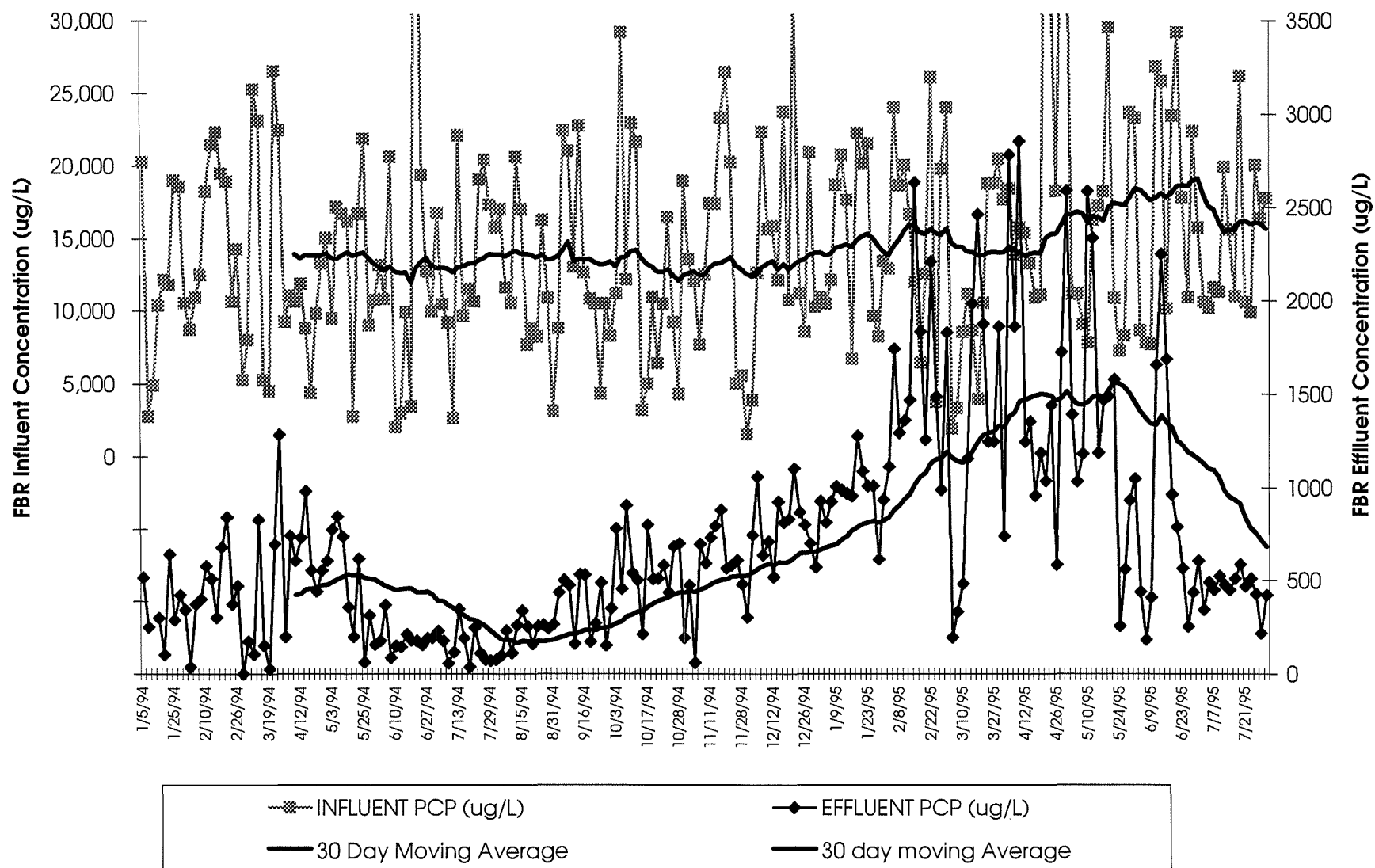
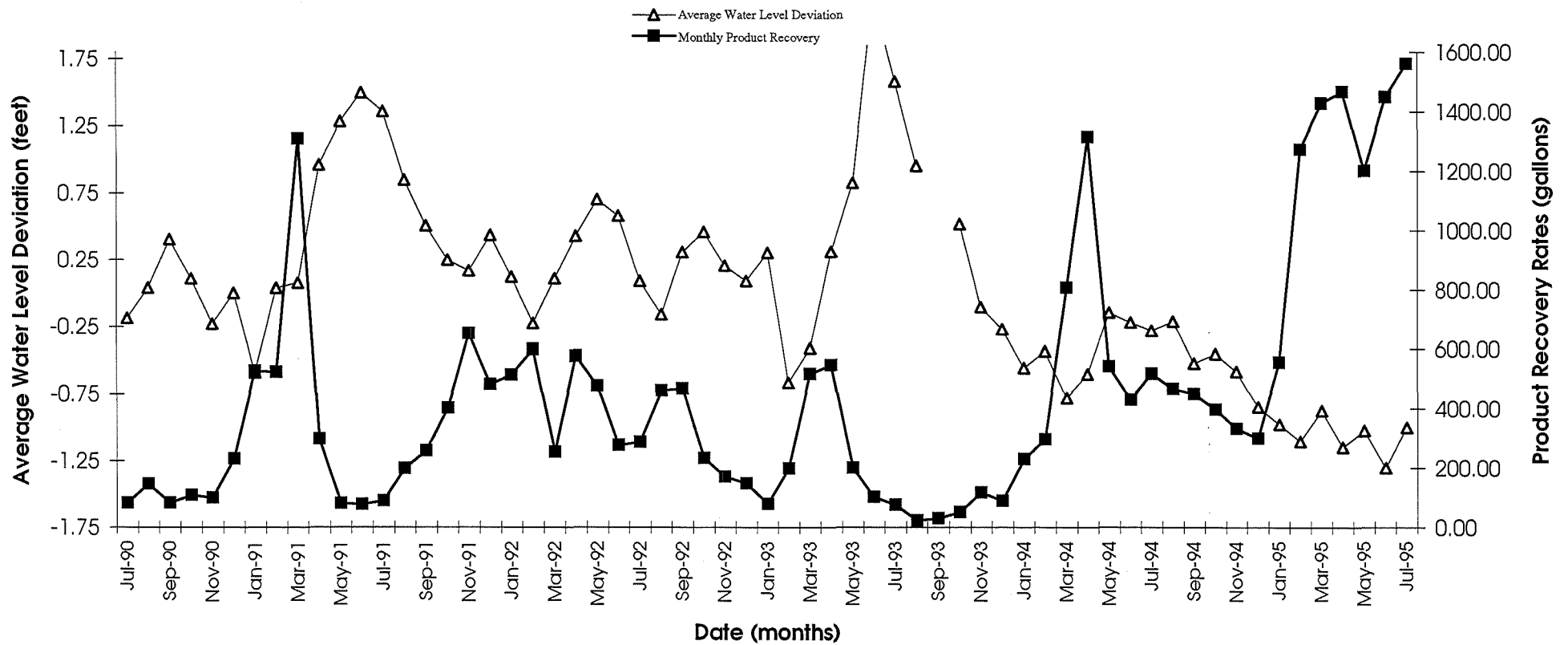


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates





MONTGOMERY WATSON

3/9/95

March 9, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhineland, Wisconsin 54501

Re: February Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the February Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON AMERICAS, INC.



John D. Dadisman
Environmental Chemist



Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Frihance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/djd/DJB
J:\41130010\WPLTR\999_SUKU
4113.0010-MD

**WAULECO INCORPORATED
WAUSAU, WISCONSIN
MONTHLY REPORT
FEBRUARY 1995**

SUMMARY OF FEBRUARY 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP concentrations in the system effluent samples, which represent the discharge water to the municipal sewer, continued to be below permit level of 10 ug/L (PCP) during the reporting period. PCP influent concentrations ranged from 3,703 ug/L to 26,057 ug/L during February 1995 (Table 1). PCP concentrations for samples collected at the Fluidized Bed Reactor (FBR) influent and effluent are presented graphically in Figure 1. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

A gradual increase in PCP effluent concentrations from the FBR system has been observed over the past several months (Figure 1). This trend coincides with an increase in solids production from the 10,000 lb carbon unit, indicating the carbon is approaching the end of its useful life and needs replacement. The carbon unit change has been scheduled for March 9th, 1995. We are anticipating the carbon change-out can be completed within an eight hour period, thereby minimizing any interruption to the extraction and product recovery system. The polishing units continue to maintain the final effluent PCP concentration to the POTW to less than the permit level of 10 ug/L.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water levels declined in February 1995 continuing a downward trend since May 1994 (Figure 2). Product recovery for February 1995 was 1,272 gal compared to the 503 gal recovered during January. Most of the volume of product recovered during February was collected from wells PW5, PW11, and PW13. PW5 and PW11 were redeveloped during December 1994 to improve product recovery. PW13 was a new pumping well brought on line during October 1994.

Groundwater Monitoring

Groundwater elevation and product thickness data for December 1994, and January and February 1995 are summarized in Table 4. The first round of quarterly groundwater

monitoring for 1995 is scheduled for the week of March 6th.

JDD/cas/DJB/KJQ
J:\41130010\FEBRPT.WPD
4113.0010-MD

TABLE 1

1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
Chemical Oxygen Demand (mg/L)				
	08-FEB-95	90	50	20
	13-FEB-95	55	30	10
	20-FEB-95	100	50	20
	27-FEB-95	60	40	0
Dissolved Oxygen (mg/L)				
	01-FEB-95	6.2	3	1.1
	03-FEB-95	5.2	3	1
	06-FEB-95	5	4	1
	08-FEB-95	6	3	1.5
	10-FEB-95	6	3.3	2
	13-FEB-95	5.6	3.3	2.6
	15-FEB-95	6	3	2
	17-FEB-95	5.2	2.7	1.2
	20-FEB-95	4.6	2.5	1
	22-FEB-95	4.8	2.2	.9
	24-FEB-95	4.8	2.6	1.6
	27-FEB-95	5.2	2.8	1.1
Nitrogen, Ammonia (mg/L)				
	01-FEB-95	3	1	
	03-FEB-95	3	1	
	06-FEB-95	3	1	
	08-FEB-95	4	0	
	10-FEB-95	3	0	
	13-FEB-95	3	1	
	15-FEB-95	3	1	
	17-FEB-95	5	2	
	20-FEB-95	4	1	
	22-FEB-95	3	1	
	24-FEB-95	5	1	
	27-FEB-95	3	1	
Nitrogen, Nitrate (mg/L)				
	01-FEB-95	3	3	
	03-FEB-95	3	3	
	06-FEB-95	3	3	
	08-FEB-95	3	4	
	10-FEB-95	3	3	
	13-FEB-95	3	3	
	15-FEB-95	3	3	
	17-FEB-95	4	4	
	20-FEB-95	3	3	
	22-FEB-95	3	3	
	24-FEB-95	3	3	
	27-FEB-95	3	3	

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)				
	01-FEB-95	13450	936	0
	02-FEB-95			0
	03-FEB-95	12941	1110	2
	04-FEB-95			3
	05-FEB-95			3
	06-FEB-95	24000	1740	2
	07-FEB-95			0
	08-FEB-95	18649	1291	4
	09-FEB-95			2
	10-FEB-95	20000	1360	4
	11-FEB-95			1
	12-FEB-95			1
	13-FEB-95	16615	1467	1
	14-FEB-95			3
	15-FEB-95	12000	2632	2
	16-FEB-95			2
	17-FEB-95	6434	1833	4
	18-FEB-95			1
	19-FEB-95			1
	20-FEB-95	12546	1256	2
	21-FEB-95			2
	22-FEB-95	26057	2211	0
	23-FEB-95			0
	24-FEB-95	3703	1485	2
	25-FEB-95			0
	26-FEB-95			3
	27-FEB-95	19764	988	0
	28-FEB-95			1
Phosphorus, Phosphate (mg/L)				
	01-FEB-95	1.5	1	
	03-FEB-95	.6	.3	
	06-FEB-95	3.3	2.6	
	08-FEB-95	1.8	.8	
	10-FEB-95	3	1.9	
	13-FEB-95	3.3	1.9	
	15-FEB-95	2	.6	
	17-FEB-95	3.2	1.1	
	20-FEB-95	.6	.3	
	22-FEB-95	3.3	1.6	
	24-FEB-95	3	1	
	27-FEB-95	1.6	1	

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
pH (S.U.)				
	01-FEB-95	6.9	7	7
	03-FEB-95	6.9	7	7
	06-FEB-95	6.8	7	6.9
	08-FEB-95	6.7	6.7	6.6
	10-FEB-95	6.8	6.8	6.7
	13-FEB-95	6.9	6.9	6.9
	15-FEB-95	7	7	7
	17-FEB-95	7.1	7.1	7
	20-FEB-95	7	7.4	7
	22-FEB-95	7	7.4	6.9
	24-FEB-95	7	7	7
	27-FEB-95	7	6.9	7

FBR - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
Waukeco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
02/01/95	24.16	24.16	8701850	0.00
02/02/95	24.16	24.16	8736640	0.00
02/03/95	24.41	24.41	8771790	0.00
02/04/95	25.99	25.99	8809220	0.00
02/05/95	25.99	25.99	8846650	0.00
02/06/95	19.56	19.56	8874810	0.00
02/07/95	24.17	24.17	8909610	0.00
02/08/95	26.24	26.24	8947400	0.00
02/09/95	26.44	26.44	8985480	0.00
02/10/95	25.26	25.26	9021850	0.00
02/11/95	25.51	25.51	9058590	0.00
02/12/95	25.06	25.06	9094670	0.00
02/13/95	22.69	22.69	9127350	0.00
02/14/95	25.17	25.17	9163590	0.00
02/15/95	24.31	24.31	9198590	0.00
02/16/95	23.17	23.17	9231960	0.00
02/17/95	24.39	24.39	9267080	0.00
02/18/95	23.98	23.98	9301610	0.00
02/19/95	23.98	23.98	9336140	0.00
02/20/95	24.97	24.97	9372100	0.00
02/21/95	21.96	21.96	9403720	0.00
02/22/95	21.96	21.96	9435340	0.00
02/23/95	24.54	24.54	9459600	0.00
02/24/95	24.56	24.56	9578412	0.00
02/25/95	24.00	24.00	9654781	0.00
02/26/95	24.00	24.00	9587415	0.00
02/27/95	24.00	24.00	9597520	0.00
02/28/95	24.00	24.00	9637520	0.00
AVERAGE:	24.24	24.24		0.00
TOTAL (2):			952931	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
(2) Total is the cumulative POTW discharge during the reporting period.

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

Well	December 29, 1994		January 31, 1995		February 28, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.30	1162.15	0.30	1161.95	0.20	1161.90
PW02	----	1162.47	----	1162.29	----	1162.15
PW03	----	1162.53	----	1162.31	----	1162.22
PW3S	0.53	1159.91	0.70	1159.56	0.75	1159.46
PW04	0.90	1157.60	0.50	1156.65	----	1156.75
PW05	0.95	1158.93	0.28	1158.40	0.10	1156.98
PW06	----	1157.44	----	1157.14	----	1157.16
PW07	0.55	1155.50	0.17	1156.53	0.85	1155.60
PW08	----	1160.57	----	1160.35	0.05	1160.22
PW9I	----	1158.28	----	1159.06	----	1159.01
PW9O	----	1160.54	0.02	1161.47	----	1161.39
PW10	0.20	1159.66	0.25	1157.16	0.45	1157.51
PW11	1.50	1159.75	0.30	1160.34	0.70	1159.80
PW12	----	1161.61	----	1161.40	----	1161.21
PW13	1.50	1157.20	0.60	1157.20	0.50	1157.90
PW14	0.46	1141.22	0.68	1140.08	----	1135.96
P01	0.55	1160.91	0.50	1160.76	0.60	1160.56
OW01	----	1162.59	----	1162.42	----	1162.20
W01A	----	1162.66	----	1162.48	----	1162.37
W01B	----	1162.69	----	1162.51	----	1162.36
W02	----	1161.98	----	1161.77	----	1161.68
W03A	----	1161.16	----	1161.01	----	1160.89
W03B	----	1161.29	----	1161.19	----	1161.11
W04A	0.85	1161.11	0.75	1161.01	0.67	1160.94
W04B	0.60	1161.33	0.57	1161.18	0.52	1161.06
W05	0.65	1160.78	0.50	1160.73	0.55	1160.58
W06R	0.25	1162.34	0.41	1162.03	0.40	1161.89
W07	0.37	1162.10	0.50	1161.82	----	1161.62
W08	----	1170.21	----	1169.79	----	1169.35
W09	----	1161.79	----	1161.76	----	1161.49
W10A	----	1161.00	----	1160.94	----	1160.87
W10B	----	1160.99	----	1160.90	----	1160.87
W11	----	1160.83	----	1160.71	----	1160.67
W12	----	1160.41	----	1160.44	----	1160.42
W13	----	1161.20	----	1161.11	----	1161.07
W14	----	1159.41	----	1159.39	----	1159.41
W16	----	1161.38	----	1161.31	----	1161.21
W17	----	1160.76	0.45	1160.62	0.35	1160.62
W18	----	1160.99	----	1160.99	----	1160.93
W19	----	1162.31	----	1164.00	----	1162.04

TABLE 3

**Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
2/1/95	0	0	0	0	0	0	0	0	0	0	0.00
2/2/95	1.72	13.76	0	1.72	0	1.72	17.2	0	30.96	1.72	68.80
2/3/95	1.72	10.32	0	0	0	3.44	6.88	0	17.2	1.72	41.28
2/4/95	1.72	3.44	0	1.72	0	3.44	3.44	0	17.2	0.86	31.82
2/5/95	1.72	5.16	0	0.86	0	3.44	13.76	0	17.2	0	42.14
2/6/95	3.44	1.72	0	0.86	0	3.44	17.2	0	17.2	0	43.86
2/7/95	3.44	3.44	0	0	0	3.44	10.32	0	17.2	0.86	38.70
2/8/95	3.44	13.76	0	0	0	3.44	6.88	0	19	0	46.52
2/9/95	5.16	8.6	0	0	0	3.44	6.88	0	19	0.86	43.94
2/10/95	3.44	18.92	0	0	0	0	6.88	0	27.52	0	56.76
2/11/95	3.44	3.44	0	0	0	3.44	10.32	0	17.2	0.86	38.70
2/12/95	3.44	13.76	0	0	0	3.44	8.6	0	17.2	0	46.44
2/13/95	3.44	6.88	0	0	0	5.16	10	0	26	0.86	52.34
2/14/95	3.44	5.16	0	0	0	0	10	0	26	0.86	45.46
2/15/95	3.44	6.88	0	0	0	1.72	8.6	0	25.8	0	46.44
2/16/95	3.44	8.6	0	0	0	1.72	5.16	0	17.2	1.72	37.84
2/17/95	3.44	5.16	0	0	0	3.44	1.72	0	34.4	0	48.16
2/18/95	3.44	3.44	0	0	0	1.72	8.6	0	17.2	0	34.40
2/19/95	3.44	20.64	0	0.43	0	1.72	8.6	0	17.2	0.86	52.89
2/20/95	5.16	17.2	0	0.43	0	1.72	5.16	0	34	0.86	64.53
2/21/95	3.44	8.6	0	0	0	0	3.44	0	36.12	0	51.60
2/22/95	3.44	6.88	0	0	0	1.72	11.18	0	25.8	0	49.02
2/23/95	3.44	6.88	0	0	0	1.72	2.58	0	25.8	0	40.42
2/24/95	1.72	6.88	0	0	0	8.6	6.02	0	17.2	0	40.42
2/25/95	3.44	10.32	0	0	0	12.04	6.88	0	34.4	0	67.08
2/26/95	1.72	8.6	0	0	0	1.72	3.44	0	17.2	0	32.68
2/27/95	5.16	12.04	0	0	0	5.16	6.88	0	34.4	0	63.64
2/28/95	3.44	6.88	0	0	0	3.44	15	0	17.2	0	45.96
Total:	87.72	237.36	0.00	6.02	0.00	84.28	221.62	0.00	622.80	12.04	1271.84

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	December 29, 1994		January 31, 1995		February 28, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.54	----	1160.69	----	1160.65
W22	----	1161.27	----	1161.10	----	1161.04
W23	----	1160.57	----	1160.59	----	1160.55
W24A	----	1160.53	----	1160.56	----	1160.54
W25	----	1162.75	----	1162.55	----	1162.42
W26	----	1160.90	----	1160.87	----	1160.77
W27	----	1161.19	----	1161.09	----	1161.03
W28	----	1161.03	----	1161.02	----	1160.90
W29	----	1160.70	----	1160.53	----	1160.45
W30	1.20	1160.24	----	1160.04	1.20	1159.94
W31	----	1160.91	----	1160.87	----	1160.81
W32	----	1160.92	----	1160.82	----	1160.76
W33	----	Under Snow	----	Under Snow	----	Under Snow
W34	----	Under Snow	----	Under Snow	----	Under Snow
W35	0.35	1160.99	----	1160.84	0.30	1160.84
W36	0.22	1161.32	----	1161.17	0.30	1160.29
W39	0.03	1161.69	----	1161.28	----	1161.17
W40	----	Under Snow	----	Under Snow	----	Under Snow
W41	----	1161.65	----	1161.49	----	1161.27
W42	0.02	1162.22	----	1162.17	----	1161.92
W44	0.27	1161.25	----	1161.03	0.20	1160.98
W45	0.50	1160.98	----	1161.05	0.40	1160.85
W46	1.05	1160.32	----	1160.47	0.75	1159.37
W47	0.81	1160.48	0.80	1160.34	0.80	1160.29
W48	0.35	1161.03	----	Under Snow	----	Under Snow
W49	0.24	1160.57	----	1160.56	0.60	1160.51
W66	----	1162.44	----	1162.26	----	1162.13
W67	----	1162.35	----	1162.19	----	1162.05
W68A	0.49	1162.04	----	1161.90	0.50	1161.70
W68B	----	1162.42	----	1162.23	----	1162.06
W69	0.70	1161.20	----	1160.97	0.85	1160.75
W70B	----	1162.47	----	1162.30	----	1162.17
River	----	Frozen	----	Frozen	----	Frozen

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

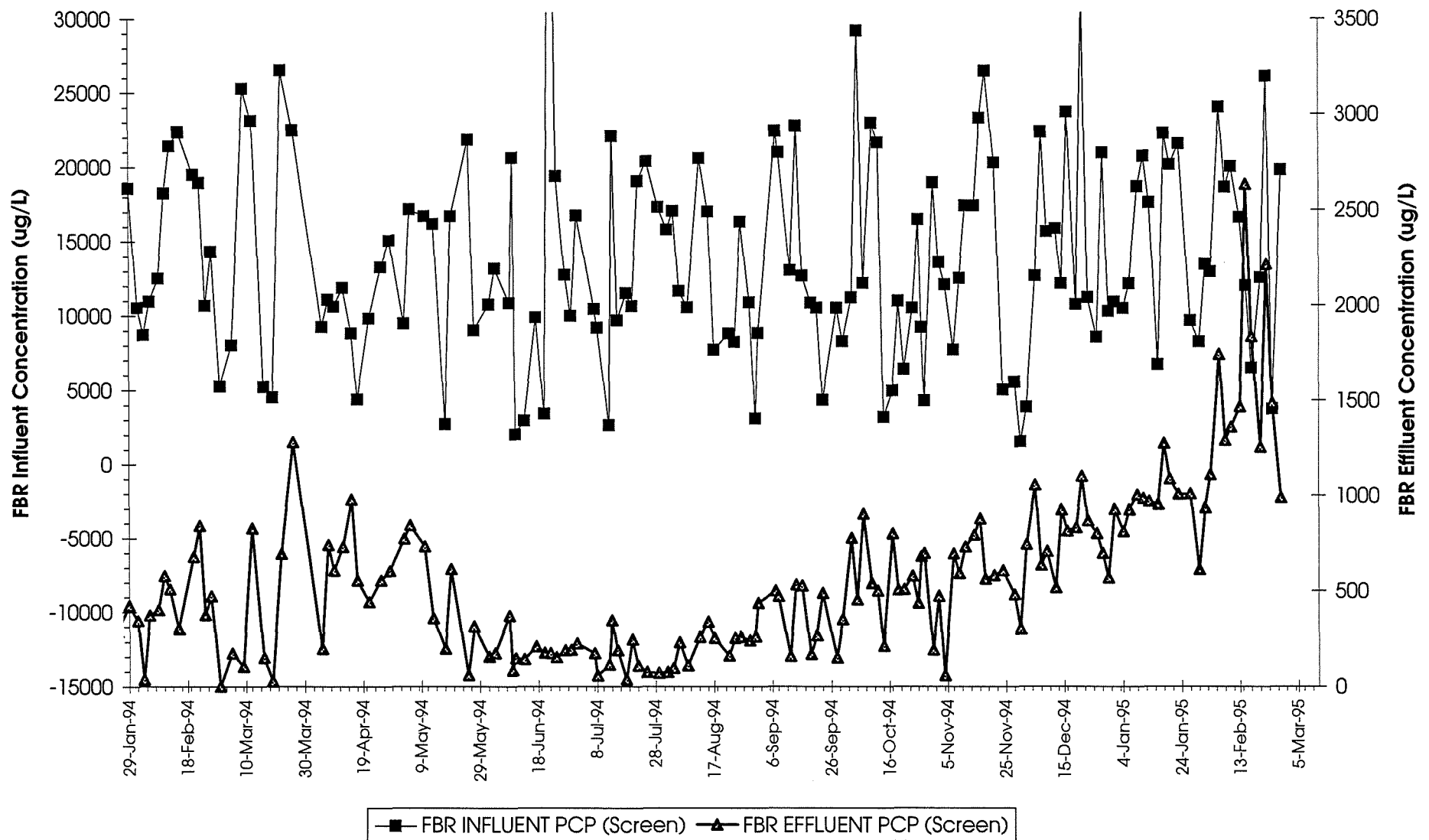
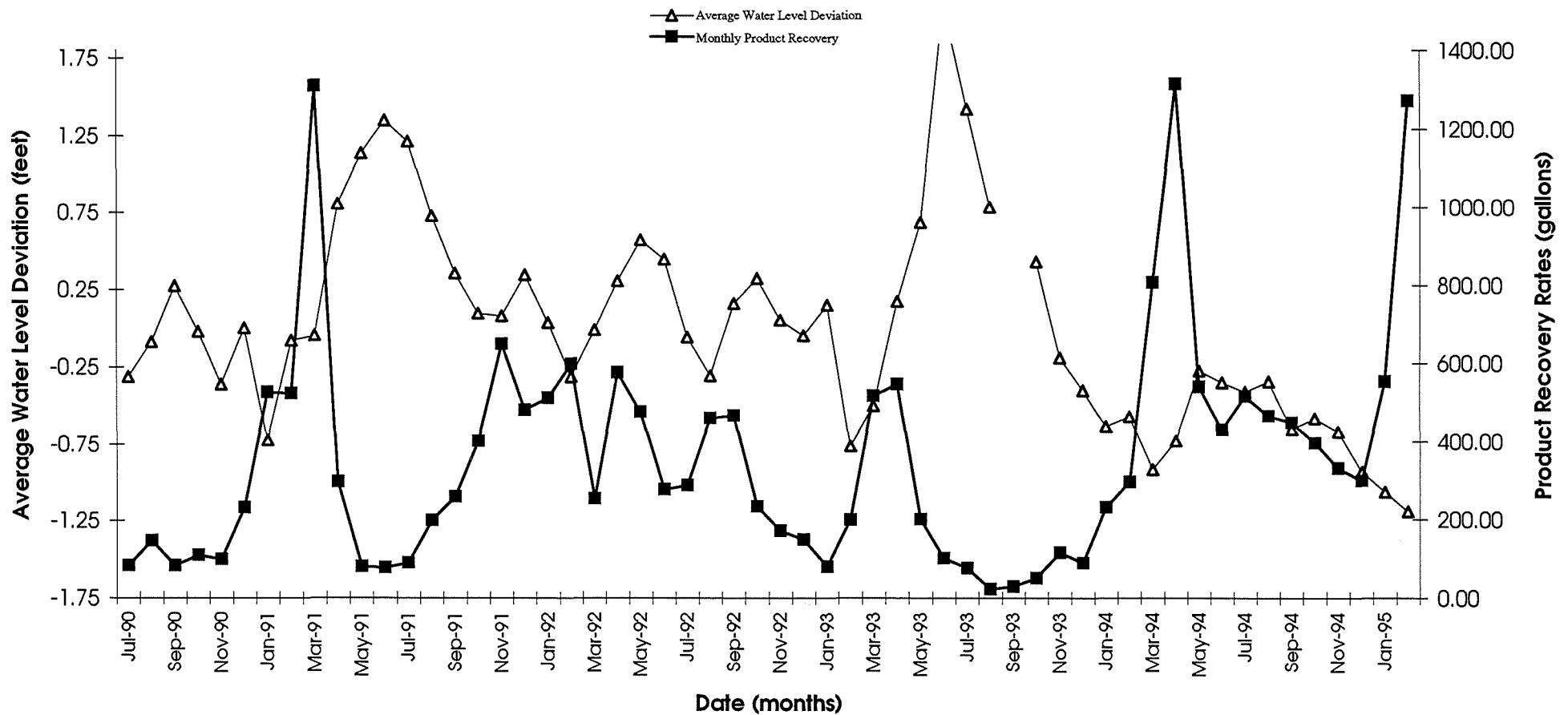


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates





MONTGOMERY WATSON

2/27/95

February 27, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhineland, Wisconsin 54501

Re: January Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the January Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON AMERICAS, INC.

John D. Dadisman
Environmental Chemist

Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) (w/2 encl)
Wastewater Engineer - WDNR (Wausau, WI) (w/1 encl)
J. Gehin - Wausau Utilities Director (w/1 encl)
C. Fribance (w/1 encl)
R. Kammer (w/1 encl)
P. Peshek (w/1 encl)

JDD/cas/DJB
J:\41130010\WPLTR999_SUKU.
4113.0010-MD

**WAULECO INCORPORATED
WAUSAU, WISCONSIN
MONTHLY REPORT
JANUARY 1995**

SUMMARY OF JANUARY 1995 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP concentrations in the system effluent samples, which represent the discharge water to the municipal sewer, continued to be below permit level of 10 ug/L (PCP) during the reporting period. PCP influent concentrations ranged from 6680 ug/L to 22,235 ug/L during January 1995 (Table 1). PCP concentrations for samples collected at the Fluidized Bed Reactor (FBR) influent and effluent are presented graphically in Figure 1. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water levels declined in January 1995 continuing a downward trend since May 1994 (Figure 2). Product recovery for January 1995 was 503 gal compared to the 300 gal recovered during December 1994. Recovery wells PW4, PW5, PW10, and PW11 were redeveloped during December to improve groundwater pumping rates and product recovery rates. Because product recovery increased at most of the individual production wells during January (whether they were redeveloped or not), it was not obvious if the well redevelopment had an effect on recovery rates. However, specific capacity increased at the redeveloped wells.

Groundwater Monitoring

Groundwater elevation and product thickness data for November and December 1994, and January 1995 are summarized in Table 4. The fourth round of quarterly groundwater monitoring for 1994 was completed on January 5, 1995. Laboratory results for this sampling round should be available for submittal with the March 1995 Monthly Report.

JDD/cas/DJB/KJQ
J:\41130010\WP\RPT\997_JANU.WPD
4113.0010-MD

TABLE 1

1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
#2 Fuel Oil (mg/L)				
	27-DEC-94		< .25	< .25
	24-JAN-95	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)				
	12-DEC-94	40	30	0
	19-DEC-94	50	30	0
	26-DEC-94	55	20	0
	27-DEC-94		31	< 20
	30-DEC-94	60	15	0
	01-JAN-95	60	50	5
	09-JAN-95	80	70	5
	11-JAN-95	47	37	< 20
	16-JAN-95	60	60	10
	23-JAN-95	150	70	20
	30-JAN-95	62	50	5
Chloride (mg/L)				
	08-DEC-94		133	
	12-DEC-94		136	
	19-DEC-94		120	
	27-DEC-94		132	133
	02-JAN-95	136	136	
	09-JAN-95	121	135	
	11-JAN-95	115	97	121
	24-JAN-95	121	126	
Dissolved Oxygen (mg/L)				
	07-DEC-94	5.6	3.2	1.6
	09-DEC-94	6	2.9	1.3
	12-DEC-94	5.2	3.2	1.2
	14-DEC-94	6.6	3.6	1.3
	16-DEC-94	5.2	3.4	1.8
	19-DEC-94	5	3.2	1.8
	21-DEC-94	4.2	2.8	1.6
	23-DEC-94	5.2	4.2	1.8
	26-DEC-94	4.8	2.8	1.6
	28-DEC-94	4.4	3.4	1.8
	30-DEC-94	5.5	2.5	1.2
	01-JAN-95	4.6	3.8	1.6
	04-JAN-95	4.2	2.8	1.6
	06-JAN-95	5.2	2.9	1.8
	09-JAN-95	6	3.5	1.7
	11-JAN-95	5.2	3	1.6
	13-JAN-95	5.6	3.6	1.6
	16-JAN-95	4.8	2.8	1.8
	18-JAN-95	6.5	3.8	1
	20-JAN-95	6.2	3.3	2
	23-JAN-95	5.2	2	1
	27-JAN-95	5.2	3.2	1.4
	30-JAN-95	5.2	2.8	1

FBR - Fluidized Bed Reactor

TABLE 1

2

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Gasoline (mg/L)	27-DEC-94		< .25	< .25
	24-JAN-95	< .25	< .25	< .25
Kerosene (mg/L)	27-DEC-94		< .25	< .25
	24-JAN-95	< .25	< .25	< .25
Mineral Spirits (mg/L)	27-DEC-94		< .25	< .25
	24-JAN-95	16	< .25	< .25
Nitrogen, Ammonia (mg/L)	07-DEC-94	3	1	
	09-DEC-94	3	0	
	12-DEC-94	2	1	
	14-DEC-94	6	0	
	16-DEC-94	5	0	
	19-DEC-94	3	1	
	21-DEC-94	4	1	
	23-DEC-94	3	1	
	26-DEC-94	4	2	
	28-DEC-94	3	1	
	30-DEC-94	4	1	
	01-JAN-95	2	1	
	04-JAN-95	6	4	
	06-JAN-95	5	1	
	09-JAN-95	4	0	
	11-JAN-95	3	1	
	13-JAN-95	3	1	
	16-JAN-95	3	1	
	18-JAN-95	3	1	
	20-JAN-95	3	1	
	23-JAN-95	3	1	
	27-JAN-95	3	1	
	30-JAN-95	3	1	

FBR - Fluidized Bed Reactor

TABLE 1

3

Above Ground Treatment System Data
Waualeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Nitrate (mg/L)				
	07-DEC-94	3	3	
	09-DEC-94	3	3	
	12-DEC-94	3	3	
	14-DEC-94	3	3	
	16-DEC-94	3	3	
	19-DEC-94	3	3	
	21-DEC-94	3	3	
	23-DEC-94	3	3	
	26-DEC-94	4	4	
	28-DEC-94	3	3	
	30-DEC-94	3	3	
	01-JAN-95	3	3	
	04-JAN-95	3	3	
	06-JAN-95	3	3	
	09-JAN-95	3	3	
	11-JAN-95	3	3	
	13-JAN-95	3	3	
	16-JAN-95	3	3	
	18-JAN-95	3	3	
	20-JAN-95	4	4	
	23-JAN-95	4	4	
	27-JAN-95	4	4	
	30-JAN-95	3	3	
Nitrogen, Nitrate + Nitrite (mg/L)				
	27-DEC-94		3.86	3.44
	11-JAN-95	2.65	1.05	1.1
Nitrogen, Total Kjeldahl (mg/L)				
	27-DEC-94		1.33	.16
	11-JAN-95	1.88	3.67	.35
Oil and Grease (mg/L)				
	27-DEC-94		2	2
	11-JAN-95	2	2	< 1

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
Pentachlorophenol-Screen (ug/L)				
	07-DEC-94	22320	636	0
	08-DEC-94			0
	09-DEC-94	15650	708	0
	10-DEC-94			0
	11-DEC-94			2
	12-DEC-94	15840	516	1
	13-DEC-94			1
	14-DEC-94	12123	925	1
	15-DEC-94			0
	16-DEC-94	23657	814	0
	17-DEC-94			0
	18-DEC-94			1
	19-DEC-94	10750	831	0
	20-DEC-94			0
	21-DEC-94	31460	1101	1
	22-DEC-94			0
	23-DEC-94	11200	868	0
	24-DEC-94			1
	25-DEC-94			1
	26-DEC-94	8546	800	1
	27-DEC-94			0
	28-DEC-94	20932	697	1
	29-DEC-94			1
	30-DEC-94	10254	568	1
	31-DEC-94			0
	01-JAN-95	10909	928	0
	02-JAN-95			0
	03-JAN-95			1
	04-JAN-95	10458	812	2
	05-JAN-95			2
	06-JAN-95	12123	925	0
	07-JAN-95			1
	08-JAN-95			1
	09-JAN-95	18683	1004	4
	10-JAN-95			1
	11-JAN-95	20700	985	0
	12-JAN-95			3
	13-JAN-95	17611	970	4
	14-JAN-95			1
	15-JAN-95			0
	16-JAN-95	6680	955	1
	17-JAN-95			1
	18-JAN-95	22235	1276	4
	19-JAN-95			3
	20-JAN-95	20125	1087	3
	21-JAN-95			1
	22-JAN-95			2
	23-JAN-95	21517	1006	3
	24-JAN-95			2
	26-JAN-95			3

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)	27-JAN-95	9636	1008	1
	28-JAN-95			3
	29-JAN-95			2
	30-JAN-95	8205	613	1
	31-JAN-95			1
Phosphorus, Ortho (mg/L)	27-DEC-94		1.48	1.25
	11-JAN-95	.41	.46	.53
Phosphorus, Phosphate (mg/L)	07-DEC-94	3.3	1.6	
	09-DEC-94	2.5	1.7	
	12-DEC-94	3.3	1.6	
	14-DEC-94	2	1.5	
	16-DEC-94	1.3	1	
	19-DEC-94	1	.7	
	21-DEC-94	3.3	1.8	
	23-DEC-94	3	3	
	26-DEC-94	3	1	
	28-DEC-94	3.3	2.6	
	30-DEC-94	3.5	2	
	01-JAN-95	3.3	1.3	
	04-JAN-95	3.3	1.3	
	06-JAN-95	3	1.8	
	09-JAN-95	3.8	2.4	
	11-JAN-95	3.3	1.5	
	13-JAN-95	3.3	1.1	
	16-JAN-95	3.3	1.6	
	18-JAN-95	1	.5	
	20-JAN-95	3	1	
	23-JAN-95	3.1	1	
	27-JAN-95	3.3	3	
	30-JAN-95	3.3	1	
Solids, Total Suspended (mg/L)	27-DEC-94		14	< 2
	11-JAN-95	21	9	< 2

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Waukeco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
-----	-----	-----	-----	-----
pH (S.U.)				
	07-DEC-94	6.9	7.2	7.4
	09-DEC-94	7.1	7.2	6.9
	12-DEC-94	7.4	7.5	7.1
	14-DEC-94	7	7.1	6.9
	16-DEC-94	7	6.9	6.9
	19-DEC-94	7	7	7
	21-DEC-94	6.9	6.9	6.9
	23-DEC-94	7.3	7.3	7.3
	26-DEC-94	7.2	7	6
	27-DEC-94		6.85	6.77
	28-DEC-94	7	7	6.9
	30-DEC-94	7	7	6.9
	01-JAN-95	7.1	7.2	7.2
	04-JAN-95	7.1	7.1	7
	06-JAN-95	7.1	7.1	7
	09-JAN-95	7	7.1	7.1
	11-JAN-95	6.9	6.75	7
		7	7	7.02
	13-JAN-95	7	7.1	6.9
	16-JAN-95	7	7	6.9
	18-JAN-95	7	7	7
	20-JAN-95	6.9	7	6.9
	23-JAN-95	7	7	6.8
	27-JAN-95	6.9	3.2	6.9
	30-JAN-95	6.8	7	6.8

FBR - Fluidized Bed Reactor

TABLE 1

7

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

SAMPLED	PARAMETER (UNIT)	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
27-DEC-94	2,3,4,6-Tetrachlorophenol (ug/L)		< 10	< 1
	2,4,5-Trichlorophenol (ug/L)		< 20	< 1
	2,4,6-Trichlorophenol (ug/L)		< 10	< 1
	2,4-Dichlorophenol (ug/L)		< 10	< 1
	2,4-Dimethylphenol (ug/L)		< 10	< 10
	2,4-Dinitrophenol (ug/L)		< 20	< 1
	2,6-Dichlorophenol (ug/L)		< 10	< 1
	2-Nitrophenol (ug/L)		< 10	< 1
	4,6-Dinitro-2-methylphenol (ug/L)		< 10	< 1
	4-Chloro-3-methylphenol (ug/L)		< 10	< 10
	4-Nitrophenol (ug/L)		< 20	< 1
	Dinoseb (ug/L)		< 10	< 1
	Pentachlorophenol (ug/L)		48	< 1
	Phenol/2-Chlorophenol (ug/L)		< 20	< 20
	m & p-Cresol (ug/L)		< 20	< 20
	o-Cresol (ug/L)		< 10	< 10
24-JAN-95	2,3,4,6-Tetrachlorophenol (ug/L)	1000	100	< 10
	2,4,5-Trichlorophenol (ug/L)	< 1000	< 200	< 20
	2,4,6-Trichlorophenol (ug/L)	< 500	< 100	< 10
	2,4-Dichlorophenol (ug/L)	< 500	< 100	< 10
	2,4-Dimethylphenol (ug/L)	< 500	< 100	< 10
	2,4-Dinitrophenol (ug/L)	< 1000	< 200	< 20
	2,6-Dichlorophenol (ug/L)	< 500	< 100	< 10
	2-Nitrophenol (ug/L)	< 500	< 100	< 10
	4,6-Dinitro-2-methylphenol (ug/L)	< 500	< 100	< 10
	4-Chloro-3-methylphenol (ug/L)	< 500	< 100	< 10
	4-Nitrophenol (ug/L)	< 1000	< 200	< 20
	Dinoseb (ug/L)	< 500	< 100	< 10
	Pentachlorophenol (ug/L)	7300	810	1
	Phenol/2-Chlorophenol (ug/L)	< 2000	< 200	< 20
	m & p-Cresol (ug/L)	< 1000	< 200	< 20
	o-Cresol (ug/L)	< 500	< 100	< 10

FBD - Fluidized Bed Reactor

TABLE 2

Treatment System Flows
 Wauleco, Inc.
 Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
01/01/95	22.15	22.15	7721295	0.00
01/02/95	21.29	21.29	7751950	0.00
01/03/95	21.22	21.22	7782500	0.00
01/04/95	24.47	24.47	7817730	0.00
01/05/95	20.33	20.33	7847010	0.00
01/06/95	22.00	22.00	7878690	0.00
01/07/95	20.64	20.64	7908410	0.00
01/08/95	20.64	20.64	7938130	0.00
01/09/95	20.19	20.19	7967200	0.00
01/10/95	19.11	19.11	7994720	0.00
01/11/95	22.03	22.03	8026440	0.00
01/12/95	20.63	20.63	8056140	0.00
01/13/95	19.69	19.69	8084490	0.00
01/14/95	23.48	23.48	8118300	0.00
01/15/95	23.48	23.48	8152110	0.00
01/16/95	11.35	11.35	8168460	0.00
01/17/95	19.17	19.17	8196070	0.00
01/18/95	16.34	16.34	8219600	0.00
01/19/95	24.47	24.47	8254840	0.00
01/20/95	24.09	24.09	8289530	0.00
01/21/95	26.13	26.13	8327150	0.00
01/22/95	26.13	26.13	8364770	0.00
01/23/95	21.51	21.51	8395740	0.00
01/24/95	27.85	27.85	8435840	0.00
01/25/95	27.85	27.85	8475940	0.00
01/26/95	23.65	23.65	8510000	0.00
01/27/95	18.17	18.17	8536170	0.00
01/28/95	22.13	22.13	8568030	0.00
01/29/95	22.13	22.13	8599890	0.00
01/30/95	19.41	19.41	8627840	0.00
01/31/95	27.13	27.13	8666900	0.00
AVERAGE:	21.90	21.90		0.00
TOTAL (2):			945605	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
 (2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

**Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin**

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
1/1/95	1.72	0.86	0	0.86	0	1.72	1.72	0	3.44	0.86	11.18
1/2/95	1.72	0.86	0	0.86	0	2.58	1.72	0	3.44	0.86	12.04
1/3/95	1.72	1.72	0	1.72	0	2.58	2.58	0	3.44	0.86	14.62
1/4/95	1.72	1.72	0	0.86	0	1.72	0.86	0	3.44	0.86	11.18
1/5/95	1.72	1.72	0	0.86	0	3.44	1.72	0	3.44	0.86	13.76
1/6/95	1.72	1.72	0	0.86	0	1.72	1.72	0	3.44	0.86	12.04
1/7/95	1.72	1.72	0	0.86	0	1.72	1.72	0	3.44	0.86	12.04
1/8/95	0	0.86	0	0.86	0	1.72	1.72	0	3.44	0.86	9.46
1/9/95	0	0.86	0	0.86	0	0	1.72	0	5.16	0.86	9.46
1/10/95	0	0	0	0.86	0	0	1.72	0	6.88	0	9.46
1/11/95	1.72	3.44	0	0	0	5.16	0.86	0	0	0	11.18
1/12/95	1.72	5.16	0	0	0	5.16	0.86	0	0	0	12.90
1/13/95	3.44	1.72	0	3.44	0	10.32	0	0	3.44	1.72	24.08
1/14/95	3.44	0.86	0	3.44	0	6.88	0	0	1.72	1.72	18.06
1/15/95	1.72	0	0	1.72	0	3.44	0	0	1.72	1.72	10.32
1/16/95	1.72	4.3	0	0.86	0	3.44	0	0	1.72	1.72	13.76
1/17/95	3.44	3.44	0	0.86	0	3.44	0	0	1.72	1.72	14.62
1/18/95	0.86	3.44	0	1.72	0	3.44	1.72	0	5.16	0	16.34
1/19/95	1.72	3.44	0	0.86	0	1.72	1.72	0	5.16	0	14.62
1/20/95	1.72	8.6	0	1.72	0	0.86	1.72	0	5.16	1.72	21.50
1/21/95	5.16	8.6	0	0.86	0	3.44	1.72	0	5.16	0	24.94
1/22/95	5.16	6.88	0	0	0	0	0.86	0	3.44	0	16.34
1/23/95	6.88	8.6	0	0.86	0	0.86	0.86	0	3.44	0	21.50
1/24/95	3.44	3.44	0	0	0	0	1.72	0	10.32	0	18.92
1/25/95	1.72	3.44	25.8	0.86	0	1.72	1.72	0	12.04	0	47.30
1/26/95	3.44	6.88	25.8	1.72	0	1.72	1.72	0	17.2	0	58.48
1/27/95	3.44	1.72	0	0	0	0	0	0	8.6	0	13.76
1/28/95	5.16	0	0	1.72	0	1.72	1.72	0	3.44	1.72	15.48
1/29/95	3.44	1.72	0	1.72	0	1.72	12.04	0	6.88	0	27.52
1/30/95	6.88	3.44	0	1.72	0	5.16	8.6	0	10.32	1.72	37.84
1/31/95	0	0	0	0	0	0	0	0	0	0	0.00
Total:	78.26	91.16	51.60	33.54	0.00	77.40	55.04	0.00	146.20	21.50	554.70

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	November 29, 1994		December 29, 1994		January 31, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.27	1162.28	0.30	1162.15	0.30	1161.95
PW02	----	1162.58	----	1162.47	----	1162.29
PW03	----	1162.63	----	1162.53	----	1162.31
PW3S	0.45	1160.36	0.53	1159.91	0.70	1159.56
PW04	0.52	1155.70	0.90	1157.60	0.50	1156.65
PW05	2.00	1151.73	0.95	1158.93	0.28	1158.40
PW06	----	1157.01	----	1157.44	----	1157.14
PW07	1.00	1154.90	0.55	1155.50	0.17	1156.53
PW08	----	1160.67	----	1160.57	----	1160.35
PW9I	----	1159.45	----	1158.28	----	1159.06
PW9O	0.02	1161.97	----	1160.54	0.02	1161.47
PW10	1.00	1158.66	0.20	1159.66	0.25	1157.16
PW11	0.12	1161.33	1.50	1159.75	0.30	1160.34
PW12	----	1161.24	----	1161.61	----	1161.40
PW13	1.25	1159.70	1.50	1157.20	0.60	1157.20
PW14	1.55	1141.46	0.46	1141.22	0.68	1140.08
P01	0.55	1161.26	0.55	1160.91	0.50	1160.76
OW01	----	1162.69	----	1162.59	----	1162.42
W01A	----	1162.81	----	1162.66	----	1162.48
W01B	----	1162.79	----	1162.69	----	1162.51
W02	----	1162.08	----	1161.98	----	1161.77
W03A	----	1161.29	----	1161.16	----	1161.01
W03B	----	1161.37	----	1161.29	----	1161.19
W04A	0.81	1161.33	0.85	1161.11	0.75	1161.01
W04B	0.60	1161.53	0.60	1161.33	0.57	1161.18
W05	0.75	1161.08	0.65	1160.78	0.50	1160.73
W06R	0.28	1162.46	0.25	1162.34	0.41	1162.03
W07	----	1162.55	0.37	1162.10	0.50	1161.82
W08	----	1170.58	----	1170.21	----	1169.79
W09	----	1162.02	----	1161.79	----	1161.76
W10A	----	1160.96	----	1161.00	----	1160.94
W10B	----	1160.99	----	1160.99	----	1160.90
W11	----	1160.83	----	1160.83	----	1160.71
W12	----	1160.49	----	1160.41	----	1160.44
W13	----	1161.25	----	1161.20	----	1161.11
W14	----	1159.43	----	1159.41	----	1159.39
W16	----	1161.52	----	1161.38	----	1161.31
W17	0.40	1160.92	----	1160.76	0.45	1160.62
W18	----	1161.00	----	1160.99	----	1160.99
W19	----	1162.48	----	1162.31	----	1164.00

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

Well	November 29, 1994		December 29, 1994		January 31, 1995	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.74	----	1160.54	----	1160.69
W22	----	1161.41	----	1161.27	----	1161.10
W23	----	1160.62	----	1160.57	----	1160.59
W24A	----	1160.57	----	1160.53	----	1160.56
W25	----	1162.88	----	1162.75	----	1162.55
W26	----	1160.90	----	1160.90	----	1160.87
W27	----	1161.25	----	1161.19	----	1161.09
W28	----	1161.01	----	1161.03	----	1161.02
W29	----	1160.85	----	1160.70	----	1160.53
W30	1.12	1160.67	1.20	1160.24	----	1160.04
W31	----	1160.85	----	1160.91	----	1160.87
W32	----	1160.85	----	1160.92	----	1160.82
W33	----	Under Snow	----	Under Snow	----	Under Snow
W34	----	Under Snow	----	Under Snow	----	Under Snow
W35	0.85	1161.04	0.35	1160.99	----	1160.84
W36	0.10	1161.74	0.22	1161.32	----	1161.17
W39	0.05	1161.77	0.03	1161.69	----	1161.28
W40	----	Under Snow	----	Under Snow	----	Under Snow
W41	----	1161.77	----	1161.65	----	1161.49
W42	----	1162.37	0.02	1162.22	----	1162.17
W44	1.40	1160.53	0.27	1161.25	----	1161.03
W45	----	1161.88	0.50	1160.98	----	1161.05
W46	0.80	1161.02	1.05	1160.32	----	1160.47
W47	0.75	1160.69	0.81	1160.48	0.80	1160.34
W48	----	Under Snow	0.35	1161.03	----	Under Snow
W49	----	Under Snow	0.24	1160.57	----	1160.56
W66	----	1162.51	----	1162.44	----	1162.26
W67	----	1162.40	----	1162.35	----	1162.19
W68A	0.65	1162.00	0.49	1162.04	----	1161.90
W68B	----	1162.46	----	1162.42	----	1162.23
W69	0.65	1161.40	0.70	1161.20	----	1160.97
W70B	----	1162.61	----	1162.47	----	1162.30
River	----	Frozen	----	Frozen	----	Frozen

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

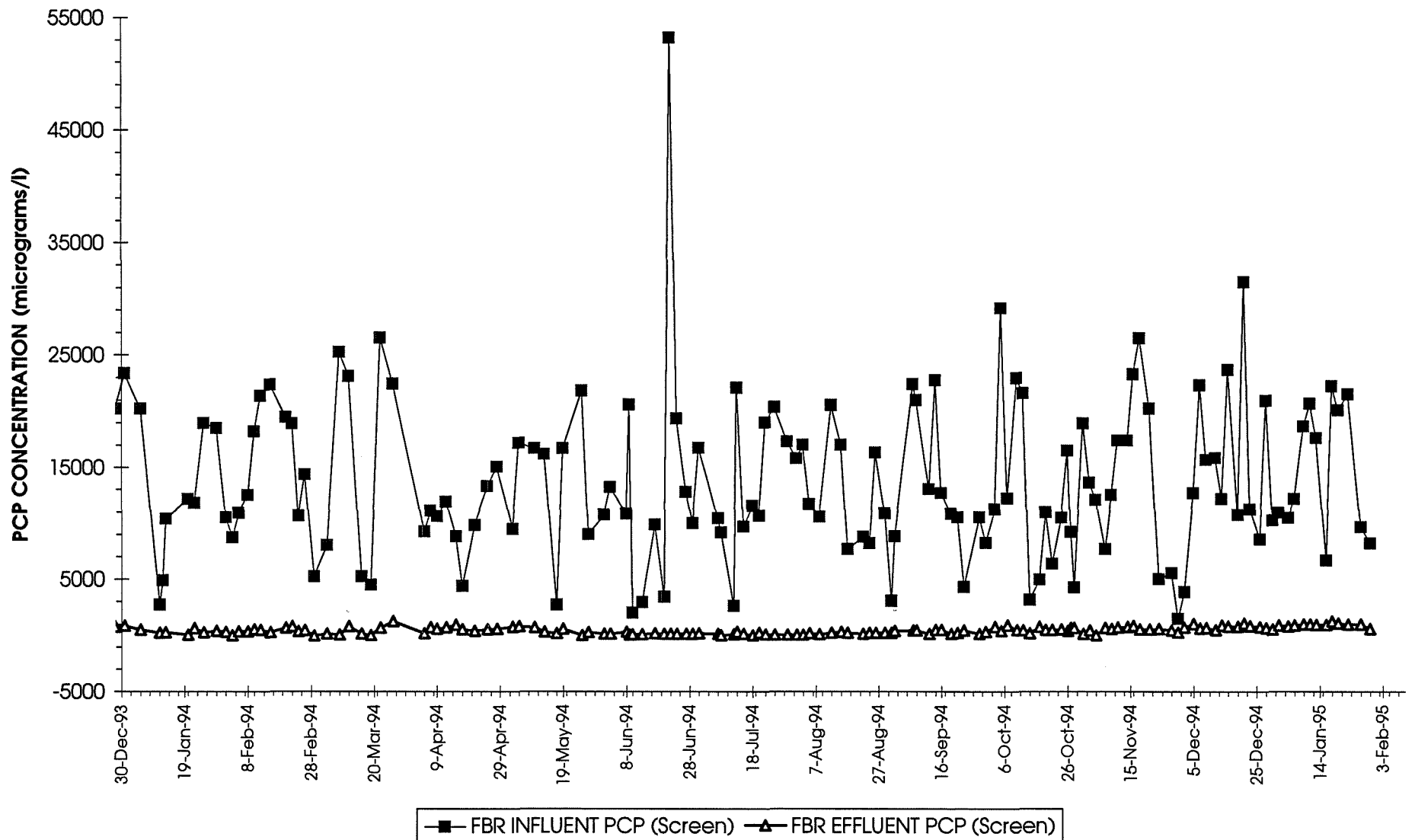
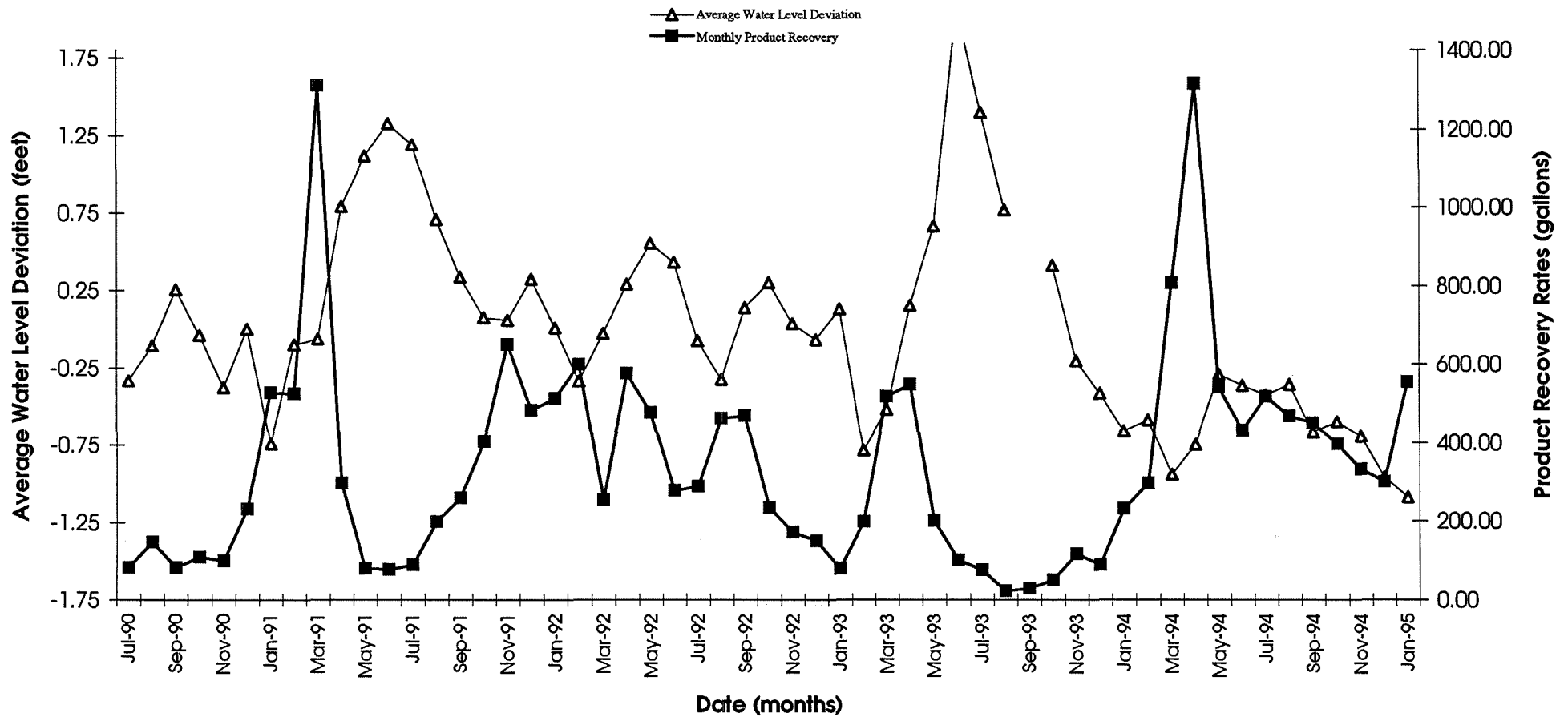


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates





MONTGOMERY WATSON

1/30/95

January 30, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhineland, Wisconsin 54501

Re: December Progress Report
WAULECO, Inc.
Wausau, Wisconsin
Administrative Order No. NCD-91-04

Dear Ms. Sukup:

On behalf of WAULECO, Montgomery Watson is submitting two copies (enclosed) of the December Progress Report for the WAULECO, Inc. site in Wausau, Wisconsin. This report is submitted in fulfillment of Paragraph 41 of Administrative Order No. NCD-91-04.

If you have any questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON AMERICAS, INC.

John D. Dadisman
Environmental Chemist

Douglas J. Bach, P.E.
Project Manager

Enclosures: As Stated

cc: Section Chief - WDNR (Madison, WI) - w/2 encl.
Wastewater Engineer - WDNR (Wausau, WI) - w/1 encl.
J. Gehin - Wausau Utilities Director - w/1 encl.
C. Fribance - w/1 encl.
R. Kammer - w/1 encl.
P. Peshek - w/1 encl.

JDD/djd/DJB
J:\41130010\WPALTR\999_SUKU
1536801/159
4113.0010-MD

**WAULECO INCORPORATED
WAUSAU, WISCONSIN
MONTHLY REPORT
DECEMBER 1994**

SUMMARY OF DECEMBER 1994 ACTIVITIES

Groundwater Extraction and Treatment System Operation

Treatment system performance data for this reporting period are summarized in Table 1. PCP concentrations in the system effluent samples, which represent the discharge water to the municipal sewer, continued to be below permit level of 10 ug/L (PCP) during the reporting period. PCP influent concentrations ranged from 3,833 ug/L to 31,460 ug/L during December 1994 (Table 1). PCP concentrations for samples collected at the Fluidized Bed Reactor (FBR) influent and effluent are presented graphically in Figure 1. Daily groundwater flow through the treatment system and discharge to the City of Wausau POTW is shown in Table 2 for the reporting period.

Product Recovery

Product recovery data for the reporting period is presented in Table 3. Historic product recovery (since July 1990) compared to average water level deviation is presented in Figure 2. Average water levels and product recoveries have shown a slight downward trend since May 1994 (Figure 2). Product recovery for December was 300 gal compared to the 332 gal recovered during November. Recovery wells PW4, PW5, PW10, and PW11 were redeveloped from December 19 through 22 to improve groundwater pumping rates and product recovery rates.

Groundwater Monitoring

Groundwater elevation and product thickness data for October, November, and December are summarized in Table 4. The fourth round of quarterly groundwater monitoring for 1994 was completed on January 5, 1995.

Air Sparging/Soil Vapor Extraction Pilot Test

The air sparging (AS) and soil vapor extraction (SVE) pilot test conducted in the area of the existing seepage beds was completed on September 30th; limited post-test monitoring is continuing. A summary of the pilot test results is included with this Monthly Report

JDD/djd/DJB/KJQ
J:\41130010\WP\LTR\99_MNTH
4113.0010-MD
1536801/159

TABLE 1

1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
#2 Fuel Oil (mg/L)	30-NOV-94	< .25	< .25	< .25
Chemical Oxygen Demand (mg/L)	07-NOV-94	40	0	0
	14-NOV-94	110	50	20
	21-NOV-94	45	30	0
	28-NOV-94	60	30	0
	30-NOV-94	47	31	< 20
	02-DEC-94	55	20	0
	12-DEC-94	40	30	0
	19-DEC-94	50	30	0
	26-DEC-94	55	20	0
	30-DEC-94	60	15	0
Chloride (mg/L)	07-NOV-94	124	127	
	14-NOV-94	112	117	
	21-NOV-94	116	82	
	30-NOV-94	119	130	127
Dissolved Oxygen (mg/L)	02-NOV-94	6	2.5	1
	04-NOV-94	5.4	3.2	1.8
	07-NOV-94	5.2	2.2	1.8
	09-NOV-94	4.4	2.4	1
	11-NOV-94	5.8	3.6	1.8
	14-NOV-94	4.6	2.4	1.1
	16-NOV-94	5.8	4	2
	18-NOV-94	5.9	2.2	1.4
	21-NOV-94	6.5	2.5	1.6
	24-NOV-94	6.4	3.4	1.8
	28-NOV-94	5.8	4.2	2
	30-NOV-94	3.8	3	1.4
	02-DEC-94	4.8	2.8	1.6
	05-DEC-94	5.8	2.7	1.6
	07-DEC-94	5.6	3.2	1.6
	09-DEC-94	6	2.9	1.3
	12-DEC-94	5.2	3.2	1.2
	14-DEC-94	6.6	3.6	1.3
	16-DEC-94	5.2	3.4	1.8
	19-DEC-94	5	3.2	1.8
	21-DEC-94	4.2	2.8	1.6
	23-DEC-94	5.2	4.2	1.8
	26-DEC-94	4.8	2.8	1.6
	28-DEC-94	4.4	3.4	1.8
	30-DEC-94	5.5	2.5	1.2
Gasoline (mg/L)	30-NOV-94	< .25	< .25	< .25

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT) -----	SAMPLED -----	FBR INFLUENT -----	FBR EFFLUENT -----	SYSTEM EFFLUENT -----
Kerosene (mg/L)	30-NOV-94	< .25	< .25	< .25
Mineral Spirits (mg/L)	30-NOV-94	.86	< .25	< .25
Nitrogen, Ammonia (mg/L)	02-NOV-94	4	1	
	04-NOV-94	3	1	
	07-NOV-94	3	1	
	09-NOV-94	3	1	
	11-NOV-94	3	1	
	14-NOV-94	3	1	
	16-NOV-94	3	1	
	18-NOV-94	3	1	
	21-NOV-94	5	1	
	24-NOV-94	3	1	
	28-NOV-94	1	0	
	30-NOV-94	6	2	
	02-DEC-94	3	1	
	05-DEC-94	3	1	
	07-DEC-94	3	1	
	09-DEC-94	3	0	
	12-DEC-94	2	1	
	14-DEC-94	6	0	
	16-DEC-94	5	0	
	19-DEC-94	3	1	
	21-DEC-94	4	1	
	23-DEC-94	3	1	
	26-DEC-94	4	2	
	28-DEC-94	3	1	
	30-DEC-94	4	1	

FBR - Fluidized Bed Reactor

TABLE 1

3

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Nitrogen, Nitrate (mg/L)				
	02-NOV-94	3	3	
	04-NOV-94	4	4	
	07-NOV-94	4	5	
	09-NOV-94	4	4	
	11-NOV-94	4	4	
	14-NOV-94	5	5	
	16-NOV-94	4	4	
	18-NOV-94	3	3	
	21-NOV-94	3	5	
	24-NOV-94	4	4	
	28-NOV-94	4	3	
	30-NOV-94	4	4	
	02-DEC-94	3	3	
	05-DEC-94	3	3	
	07-DEC-94	3	3	
	09-DEC-94	3	3	
	12-DEC-94	3	3	
	14-DEC-94	3	3	
	16-DEC-94	3	3	
	19-DEC-94	3	3	
	21-DEC-94	3	3	
	23-DEC-94	3	3	
	26-DEC-94	4	4	
	28-DEC-94	3	3	
	30-DEC-94	3	3	
Nitrogen, Nitrate + Nitrite (mg/L)				
	30-NOV-94	1.88	5.97	4.9
Nitrogen, Total Kjeldahl (mg/L)				
	30-NOV-94	6.39	1.16	9.61
Oil and Grease (mg/L)				
	30-NOV-94	18	< 2	< 2

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)				
	01-NOV-94			1
	02-NOV-94	13579	473	0
	03-NOV-94			1
	04-NOV-94	12051	57	3
	05-NOV-94			2
	06-NOV-94			2
	07-NOV-94	7666	694	0
	08-NOV-94			1
	09-NOV-94	12500	590	2
	10-NOV-94			1
	11-NOV-94	17400	730	0
	12-NOV-94			0
	13-NOV-94			2
	14-NOV-94	17385	793	0
	15-NOV-94			1
	16-NOV-94	23265	880	1
	17-NOV-94			1
	18-NOV-94	26448	563	1
	19-NOV-94			2
	20-NOV-94			1
	21-NOV-94	20266	580	1
	22-NOV-94			2
	23-NOV-94			2
	24-NOV-94	5000	607	0
	25-NOV-94			1
	26-NOV-94			2
	27-NOV-94			0
	28-NOV-94	5500	480	0
	29-NOV-94			1
	30-NOV-94	1500	302	0
	01-DEC-94			1
	02-DEC-94	3833	745	1
	03-DEC-94			1
	04-DEC-94			1
	05-DEC-94	12666	1056	0
	06-DEC-94			0
	07-DEC-94	22320	636	0
	08-DEC-94			0
	09-DEC-94	15650	708	0
	10-DEC-94			0
	11-DEC-94			2
	12-DEC-94	15840	516	1
	13-DEC-94			1
	14-DEC-94	12123	925	1
	15-DEC-94			0
	16-DEC-94	23657	814	0
	17-DEC-94			0
	18-DEC-94			1
	19-DEC-94	10750	831	0
	20-DEC-94			0

FBR - Fluidized Bed Reactor

TABLE 1

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
Pentachlorophenol-Screen (ug/L)	21-DEC-94	31460	1101	1
	22-DEC-94			0
	23-DEC-94	11200	868	0
	24-DEC-94			1
	25-DEC-94			1
	26-DEC-94	8546	800	1
	27-DEC-94			0
	28-DEC-94	20932	697	1
	29-DEC-94			1
	30-DEC-94	10254	568	1
	31-DEC-94			0
Phosphorus, Ortho (mg/L)	30-NOV-94	1.23	1.1	1.12
Phosphorus, Phosphate (mg/L)	02-NOV-94	2.1	1.3	
	04-NOV-94	3.3	2.3	
	07-NOV-94	3	1.3	
	09-NOV-94	3.3	1	
	11-NOV-94	1.5	1.3	
	14-NOV-94	2	4.3	
	16-NOV-94	3.3	3.3	
	18-NOV-94	3.3	3.3	
	21-NOV-94	4.5	2.6	
	24-NOV-94	3	2	
	28-NOV-94	3.3	1	
	30-NOV-94	3.3	1.5	
	02-DEC-94	1.1	.9	
	05-DEC-94	1.8	.9	
	07-DEC-94	3.3	1.6	
	09-DEC-94	2.5	1.7	
	12-DEC-94	3.3	1.6	
	14-DEC-94	2	1.5	
	16-DEC-94	1.3	1	
	19-DEC-94	1	.7	
	21-DEC-94	3.3	1.8	
	23-DEC-94	3	3	
	26-DEC-94	3	1	
	28-DEC-94	3.3	2.6	
	30-DEC-94	3.5	2	
Solids, Total Suspended (mg/L)	30-NOV-94	7	10	< 2

FBR - Fluidized Bed Reactor

TABLE 1

6

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

PARAMETER (UNIT)	SAMPLED	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
pH (S.U.)				
	02-NOV-94	7.2	7.4	7.1
	04-NOV-94	7.4	7.4	7.2
	07-NOV-94	7.4	7.2	7
	09-NOV-94	7.5	7.6	7.2
	11-NOV-94	7.5	7.6	7.2
	14-NOV-94	7.2	7.3	7
	16-NOV-94	6.9	6.9	6.9
	18-NOV-94	7.2	7.1	7
	21-NOV-94	6.9	7	7
	24-NOV-94	7	7	6.9
	28-NOV-94	6.9	7	7
	30-NOV-94	6.7	6.7	6.8
		6.93	6.9	6.9
	02-DEC-94	7.2	7.2	7
	05-DEC-94	7.3	7.2	7.1
	07-DEC-94	6.9	7.2	7.4
	09-DEC-94	7.1	7.2	6.9
	12-DEC-94	7.4	7.5	7.1
	14-DEC-94	7	7.1	6.9
	16-DEC-94	7	6.9	6.9
	19-DEC-94	7	7	7
	21-DEC-94	6.9	6.9	6.9
	23-DEC-94	7.3	7.3	7.3
	26-DEC-94	7.2	7	6
	28-DEC-94	7	7	6.9
	30-DEC-94	7	7	6.9

FBR - Fluidized Bed Reactor

TABLE 1

7

Above Ground Treatment System Data
Wauleco, Inc.
Wausau, Wisconsin

SAMPLED	PARAMETER (UNIT)	FBR INFLUENT	FBR EFFLUENT	SYSTEM EFFLUENT
30-NOV-94	2,3,4,6-Tetrachlorophenol (ug/L)	730	< 10	< 1
	2,4,5-Trichlorophenol (ug/L)	< 500	< 20	< 1
	2,4,6-Trichlorophenol (ug/L)	< 250	< 10	< 1
	2,4-Dichlorophenol (ug/L)	< 250	< 10	< 1
	2,4-Dimethylphenol (ug/L)	< 250	< 10	< 10
	2,4-Dinitrophenol (ug/L)	< 500	< 20	< 1
	2,6-Dichlorophenol (ug/L)	< 250	< 10	< 1
	2-Nitrophenol (ug/L)	< 250	< 10	< 1
	4,6-Dinitro-2-methylphenol (ug/L)	< 250	< 10	< 1
	4-Chloro-3-methylphenol (ug/L)	< 250	< 10	< 10
	4-Nitrophenol (ug/L)	< 500	< 20	< 1
	Dinoseb (ug/L)	< 250	< 10	< 1
	Pentachlorophenol (ug/L)	7300	14	< 1
	Phenol/2-Chlorophenol (ug/L)	< 500	< 20	< 20
	m & p-Cresol (ug/L)	< 500	< 20	< 20
	o-Cresol (ug/L)	< 250	< 10	< 10

TABLE 2

Treatment System Flows
Wauleco, Inc.
Wausau, Wisconsin

Date	Influent (1) Groundwater Flow Rate (gpm)	POTW (1) Discharge Flow Rate (gpm)	POTW Totalized Discharge (gallons)	Seepage Bed (1) Discharge Flow Rate (gpm)
12/01/94	26.90	26.90	6673210	0.00
12/02/94	26.40	26.40	6711230	0.00
12/03/94	28.04	28.04	6751610	0.00
12/04/94	28.04	28.04	6791990	0.00
12/05/94	25.30	25.30	6799340	0.00
12/06/94	26.48	26.48	6837470	0.00
12/07/94	26.24	26.24	6875250	0.00
12/08/94	26.65	26.65	6913620	0.00
12/09/94	25.25	25.25	6949980	0.00
12/10/94	25.25	25.25	6986340	0.00
12/11/94	25.25	25.25	7022700	0.00
12/12/94	17.15	17.15	7047400	0.00
12/13/94	22.28	22.28	7079480	0.00
12/14/94	22.28	22.28	7111560	0.00
12/15/94	24.32	24.32	7146580	0.00
12/16/94	25.48	25.48	7183270	0.00
12/17/94	25.48	25.48	7219960	0.00
12/18/94	26.50	26.50	7242900	0.00
12/19/94	28.15	28.15	7287280	0.00
12/20/94	23.15	23.15	7309810	0.00
12/21/94	23.15	23.15	7343146	0.00
12/22/94	23.15	23.15	7376482	0.00
12/23/94	25.65	25.65	7409818	0.00
12/24/94	26.09	26.09	7447390	0.00
12/25/94	26.09	26.09	7484962	0.00
12/26/94	25.42	25.42	7513960	0.00
12/27/94	27.35	27.35	7553340	0.00
12/28/94	24.64	24.64	7588820	0.00
12/29/94	24.64	24.64	7624300	0.00
12/30/94	23.03	23.03	7657470	0.00
12/31/94	26.87	26.87	7690640	0.00
AVERAGE:	25.18	25.18		0.00
TOTAL (2):			1017430	

Footnotes:

- (1) Influent, POTW, and Seepage Bed flow rates are daily averages.
(2) Total is the cumulative POTW discharge during the reporting period.

TABLE 3

Product Removal
(gallons per day)
Wauleco, Inc.
Wausau, Wisconsin

<u>Date</u>	<u>PW04</u>	<u>PW05</u>	<u>PW06</u>	<u>PW07</u>	<u>PW09</u>	<u>PW10</u>	<u>PW11</u>	<u>PW12</u>	<u>PW13</u>	<u>PW14</u>	<u>Total</u>
12/1/94	1	0	0	0	0	2	1.72	0	2.5	1	8.22
12/2/94	6.88	1.72	0	0	0	4.3	3.44	0	12.04	0	28.38
12/3/94	3.44	1.72	0	3.44	0	4.3	0	0	0	1.72	14.62
12/4/94	3.44	0	0	0.86	0	3.44	0	0	0	3.44	11.18
12/5/94	1.72	1.72	0	0.86	0	3.44	0	0	0	0	7.74
12/6/94	1.72	0	0	0	0	1.72	0	0	1.72	0	5.16
12/7/94	1.72	0	0	0	0	3.44	0	0	2.58	0	7.74
12/8/94	1.72	0	0	0	0	0.86	0	0	1.72	0.86	5.16
12/9/94	1.72	0	0	0	0	0.86	0	0	3.44	0	6.02
12/10/94	1.72	0	0	0	0	1.72	0	0	2.58	0.86	6.88
12/11/94	1.72	0	0	0	0	1.72	0	0	3.44	0	6.88
12/12/94	1.72	0	0	0	0	1.72	0	0	3.44	0	6.88
12/13/94	3.4	0	0	0	0	1.72	0	0	1.72	1.72	8.56
12/14/94	3.44	0	0	0	0	1.72	0	0	1.72	0	6.88
12/15/94	3.44	0	0	0	0	0	0	0	1.72	0	5.16
12/16/94	0	1.72	0	1.72	0	0	0	0	1.72	0.86	6.02
12/17/94	1.72	0	0	0	0	0	0	0	0	0.86	2.58
12/18/94	1.72	0	0	1.72	0	0	0	0	3.44	0.86	7.74
12/19/94	1.72	0	0	0	0	0	0	0	3.44	0.86	6.02
12/20/94	1.72	1.72	0	0	0	0	0	0	6.88	0	10.32
12/21/94	3.44	0	0	0	0	0	0	0	6.88	0	10.32
12/22/94	3.44	0	0	0.86	0	0	0	0	3.44	0.43	8.17
12/23/94	3.44	0	0	0.86	0	0	0	0	4.3	0.43	9.03
12/24/94	3.44	0	0	1.72	0	1.72	3.44	0	3.44	2.58	16.34
12/25/94	3.44	0	0	0	0	1.72	3.44	0	4.3	1.72	14.62
12/26/94	3.44	0	0	1.72	0	1.72	3.44	0	5.16	3.44	18.92
12/27/94	3.44	0	0	0.86	0	1.72	5.16	0	5.16	0	16.34
12/28/94	6.88	0	0	3.44	0	0.86	2.58	0	1.72	1.72	17.20
12/29/94	0.86	0	0	0	0	0.86	2.58	0	3.86	1.72	9.88
12/30/94	2.58	0	0	0	0	2.58	1.72	0	2.58	1.72	11.18
12/31/94	0	0	0	0	0	0	0	0	0	0	0.00
Total:	80.08	8.60	0.00	18.06	0.00	44.14	27.52	0.00	94.94	26.80	300.14

TABLE 4

Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

Well	October 26, 1994		November 29, 1994		December 29, 1994	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
PW01	0.18	1162.46	0.27	1162.28	0.30	1162.15
PW02	----	1162.60	----	1162.58	----	1162.47
PW03	----	1162.85	----	1162.63	----	1162.53
PW3S	0.51	1160.30	0.45	1160.36	0.53	1159.91
PW04	2.52	1154.98	0.52	1155.70	0.90	1157.60
PW05	0.94	1154.18	2.00	1151.73	0.95	1158.93
PW06	----	1156.94	----	1157.01	----	1157.44
PW07	1.58	1154.86	1.00	1154.90	0.55	1155.50
PW08	----	1160.81	----	1160.67	----	1160.57
PW9I	----	1159.04	----	1159.45	----	1158.28
PW9O	1.05	1160.74	0.02	1161.97	----	1160.54
PW10	2.41	1156.86	1.00	1158.66	0.20	1159.66
PW11	1.47	1159.90	0.12	1161.33	1.50	1159.75
PW12	----	1161.31	----	1161.24	----	1161.61
PW13	1.34	1159.56	1.25	1159.70	1.50	1157.20
PW14	----	1146.86	1.55	1141.46	0.46	1141.22
P01	0.53	1161.28	0.55	1161.26	0.55	1160.91
OW01	----	1162.85	----	1162.69	----	1162.59
W01A	----	1162.91	----	1162.81	----	1162.66
W01B	----	1162.93	----	1162.79	----	1162.69
W02	----	1162.22	----	1162.08	----	1161.98
W03A	----	1161.41	----	1161.29	----	1161.16
W03B	----	1161.44	----	1161.37	----	1161.29
W04A	0.85	1161.33	0.81	1161.33	0.85	1161.11
W04B	0.66	1161.52	0.60	1161.53	0.60	1161.33
W05	0.69	1161.13	0.75	1161.08	0.65	1160.78
W06R	0.28	1162.59	0.28	1162.46	0.25	1162.34
W07	----	1161.53	----	1162.55	0.37	1162.10
W08	----	1171.08	----	1170.58	----	1170.21
W09	----	1162.22	----	1162.02	----	1161.79
W10A	----	1161.14	----	1160.96	----	1161.00
W10B	----	1161.11	----	1160.99	----	1160.99
W11	----	1160.90	----	1160.83	----	1160.83
W12	----	1160.51	----	1160.49	----	1160.41
W13	----	1161.39	----	1161.25	----	1161.20
W14	----	damaged	----	1159.43	----	1159.41
W16	----	1161.50	----	1161.52	----	1161.38
W17	0.32	1161.15	0.40	1160.92	----	1160.76
W18	----	1161.15	----	1161.00	----	1160.99
W19	----	1162.60	----	1162.48	----	1162.31

TABLE 4
Groundwater Elevation Data
Wauleco, Inc.
Wausau, Wisconsin

<u>Well</u>	October 26, 1994		November 29, 1994		December 29, 1994	
	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation	Oil Thickness	Water Elevation
W21	----	1160.84	----	1160.74	----	1160.54
W22	----	1161.47	----	1161.41	----	1161.27
W23	----	1160.70	----	1160.62	----	1160.57
W24A	----	1160.67	----	1160.57	----	1160.53
W25	----	1162.99	----	1162.88	----	1162.75
W26	----	1160.96	----	1160.90	----	1160.90
W27	----	1161.31	----	1161.25	----	1161.19
W28	----	1161.16	----	1161.01	----	1161.03
W29	----	1160.94	----	1160.85	----	1160.70
W30	1.00	1160.79	1.12	1160.67	1.20	1160.24
W31	----	1161.00	----	1160.85	----	1160.91
W32	----	1161.00	----	1160.85	----	1160.92
W33	0.01	1161.92	----	Under Snow	----	Under Snow
W34	0.18	1161.69	----	Under Snow	----	Under Snow
W35	0.80	1160.94	0.85	1161.04	0.35	1160.99
W36	0.12	1161.72	0.10	1161.74	0.22	1161.32
W39	----	1161.86	0.05	1161.77	0.03	1161.69
W40	0.48	1161.63	----	Under Snow	----	Under Snow
W41	----	1161.80	----	1161.77	----	1161.65
W42	----	1162.47	----	1162.37	0.02	1162.22
W44	0.54	1161.31	1.40	1160.53	0.27	1161.25
W45	0.06	1161.84	----	1161.88	0.50	1160.98
W46	0.72	1161.14	0.80	1161.02	1.05	1160.32
W47	1.19	1160.30	0.75	1160.69	0.81	1160.48
W48	0.40	1161.18	----	Under Snow	0.35	1161.03
W49	1.69	1159.95	----	Under Snow	0.24	1160.57
W66	----	1162.63	----	1162.51	----	1162.44
W67	----	1162.50	----	1162.40	----	1162.35
W68A	0.30	1162.45	0.65	1162.00	0.49	1162.04
W68B	----	1162.57	----	1162.46	----	1162.42
W69	0.78	1161.38	0.65	1161.40	0.70	1161.20
W70B	----	1162.65	----	1162.61	----	1162.47
River	----	1160.99	----	Frozen	----	Frozen

FIGURE 1
FBR INFLUENT/EFFLUENT
PCP CONCENTRATIONS

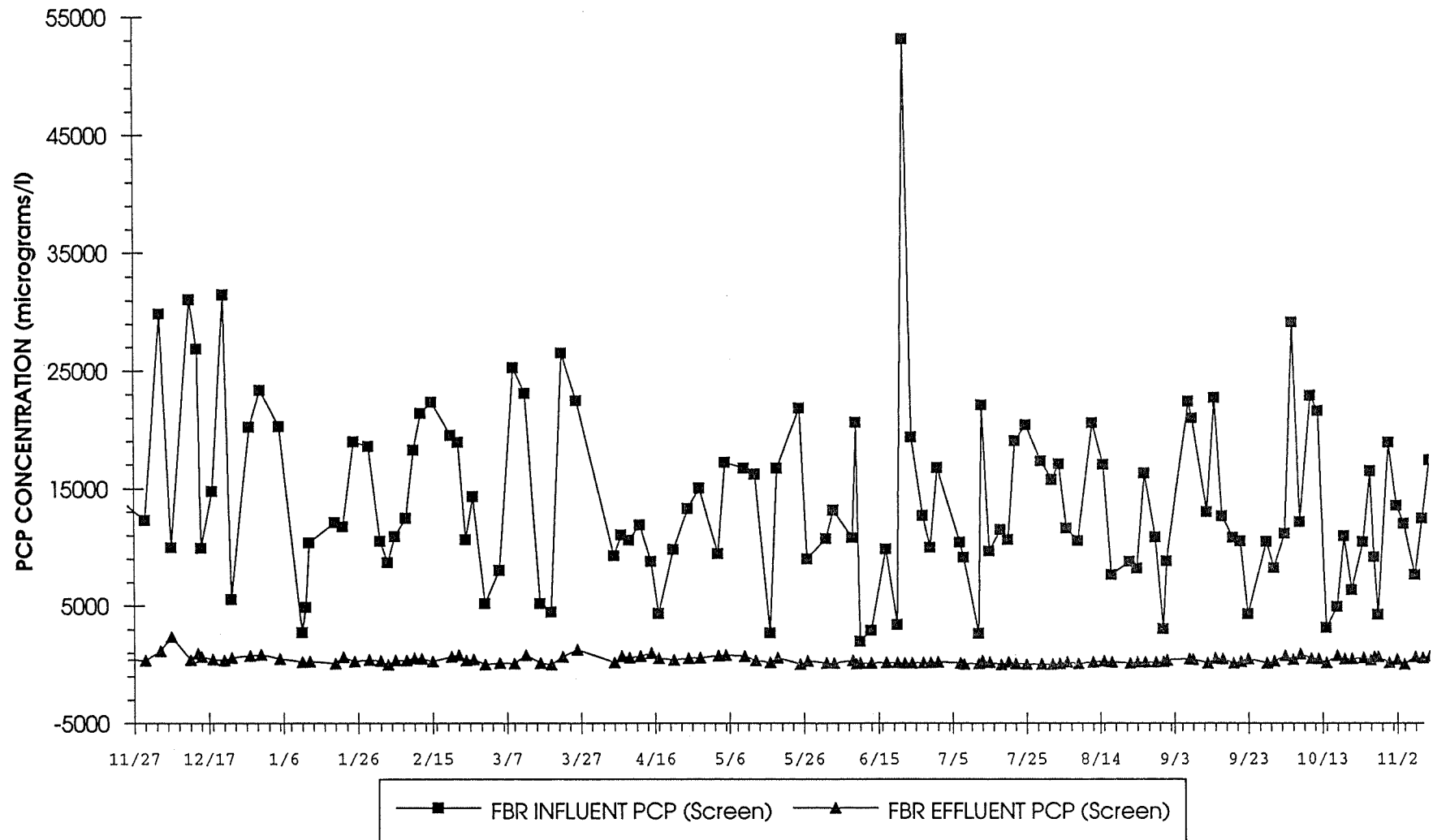
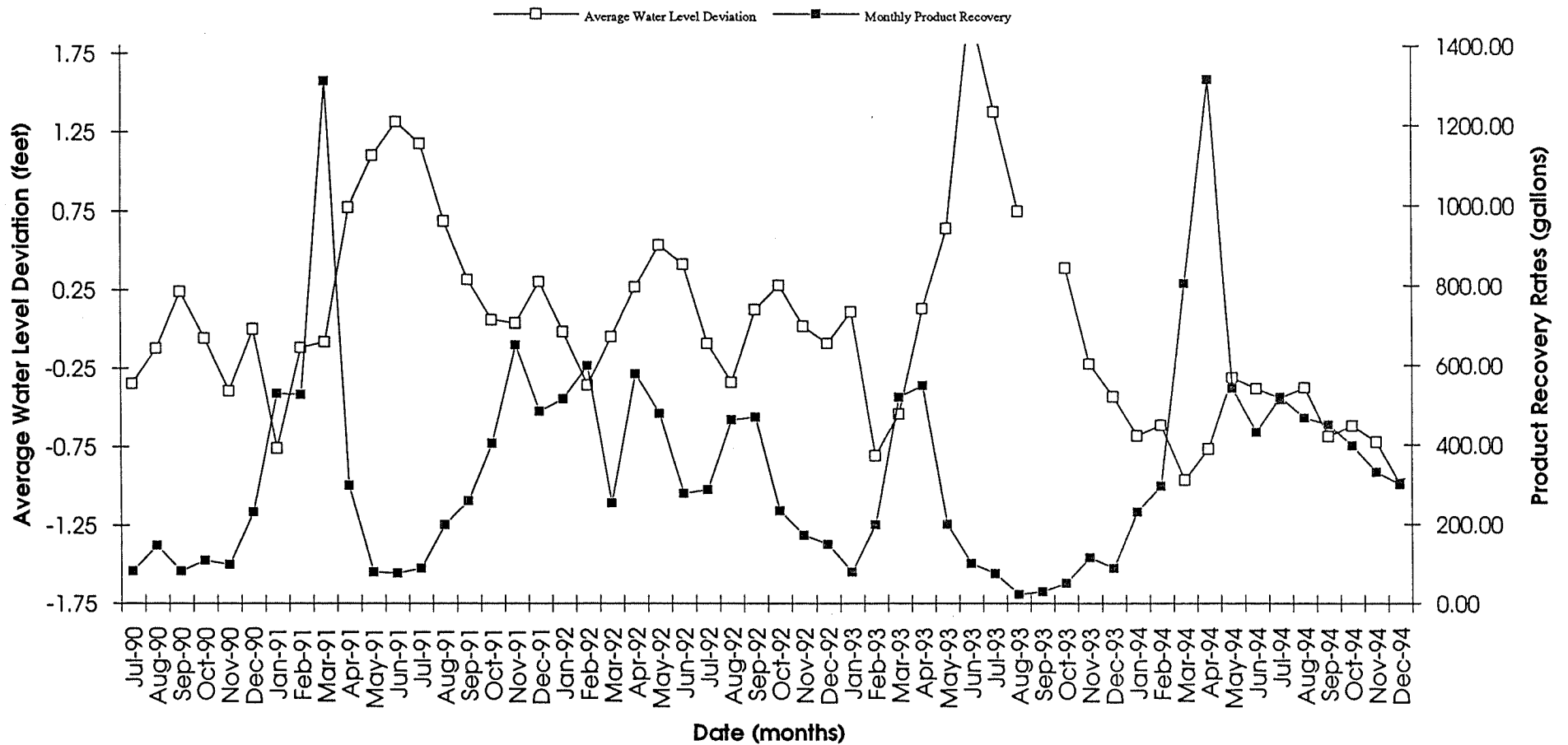


FIGURE 2
Average Water Level Deviation Versus Product Recovery Rates



1/95
1/30/95

AIR SPARGING AND SOIL VAPOR EXTRACTION PILOT TEST

WAULECO, INC.
WAUSAU, WISCONSIN

JANUARY 1995

PREPARED FOR:
WAULECO, INC.
WAUSAU, WISCONSIN

• • •
PREPARED BY:
MONTGOMERY WATSON AMERICAS, INC.
MADISON, WISCONSIN

PROJECT NO. 1536813/155-4113.0020

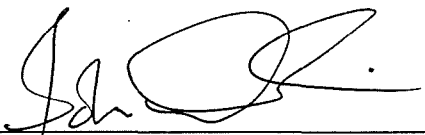


MONTGOMERY WATSON

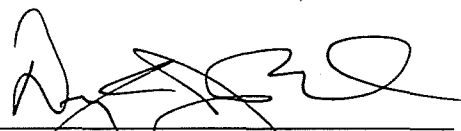
AIR SPARGING AND SOIL VAPOR EXTRACTION PILOT TEST

WAULECO, INC.
WAUSAU, WISCONSIN

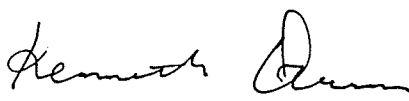
JANUARY 1995



John D. Dadisman
Environmental Chemist



Douglas J. Bach
Project Manager



Kenneth J. Quinn
Principal Hydrogeologist

By SDD

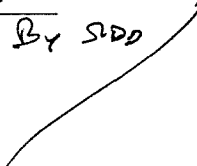


TABLE OF CONTENTS

OBJECTIVE AND BACKGROUND	1
DESCRIPTION OF PILOT TEST ACTIVITIES	1
Stage 1	2
Stage 2	2
Stage 3	2
RESULTS	2
RECOMMENDATION	3

TABLES

Table 1	Air Sparging/SVE Pilot Test Monitoring Parameters
---------	---

DRAWINGS

Drawing 1536813-B21	Locations of Test Wells
Drawing 1536813-A1	AS/SVE Pilot Test Schematic

ATTACHMENTS

Attachment A	Test Results
Attachment B	Dissolved Oxygen Time Trend Graph
Attachment C	Microbial Population

J:\41130020\WP\RPT999X_TOC.WPD

AIR SPARGING AND SOIL VAPOR EXTRACTION PILOT TEST WAULECO, INC. WAUSAU, WISCONSIN

OBJECTIVE AND BACKGROUND

Montgomery Watson completed an air sparging (AS) and soil vapor extraction (SVE) pilot test for the WAULECO, Inc. site in Wausau, Wisconsin. The purpose of the test was to evaluate the feasibility of using AS and SVE at some future time to enhance in situ bioremediation of PCP and mineral spirits contaminated soil and groundwater at the site. In general, the data collected during this pilot test were favorable indicating that a longer term test is appropriate.

The intent of the SVE/AS pilot test was to evaluate the potential for use of in situ bioremediation of PCP contaminated soils and groundwater at the Wauleco site. Engineered in situ bioremediation seeks to enhance environmental conditions in an effort to promote biological degradation of site contaminants. Generally, this can be accomplished through the addition on one or more factors that under unaided conditions would be limiting. The success of the fluidized bed reactor (FBR) in treating PCP contaminated groundwater under aerobic conditions suggests that the addition of oxygen to the underground environment would promote in situ biological activity. The AS/SVE system designed for the pilot test was intended to deliver oxygen to an area of contaminated groundwater and subsurface soils.

DESCRIPTION OF PILOT TEST ACTIVITIES

The AS and SVE pilot test was conducted in the area of the existing seepage beds. Existing well W7 was initially used as the SVE well and well W-70B was used as the AS well. Midway through the test, the SVE was moved to monitoring well PZ1, which had been used to monitor soil moisture when seepage beds were operational at the site. PZ1, which is located further from the AS well, is more appropriate as an SVE well location. Recovery wells PW-1 and PW-2, and groundwater monitoring wells OW-1, W-35, and W-69 were used to monitor various parameters during the course of the test (see Drawing B21 for well locations). A schematic of the AS/SVE pilot test set-up is shown in Drawing A1.

The test was conducted in three stages over a 6-week period and utilized procedures consistent with the WDNR "Guidance for Design, Installation, and Operation of In-Situ Air Sparging Systems" (PUBL-SW186 93). Prior to the start of the test, baseline monitoring was conducted on August 15, 1994, at the SVE well, AS well, and each of the monitoring wells. Test results are contained in Attachment A.

Stage 1

Following collection of the baseline measurements, the first stage of the pilot test was initiated August 17, 1994. This involved operating the SVE blower at well W7 for a period of three days to establish a baseline of soil vapor concentrations and subsurface pressures prior to initiating the AS part of the test.

Stage 2

The second stage of the test began on August 20th and involved operating the AS well simultaneously with the SVE well. This stage of the test was operated for approximately 3½ weeks to September 14, 1994. Refer to Table 1 for a description of the monitoring schedule and parameters performed during this stage of the test. The purpose of this stage of the test was to evaluate the effectiveness of continuous air sparging. During this stage of the test the SVE was moved to well PZ1.

Stage 3

The third stage of the test was initiated during weeks five and six. This stage of the pilot test involved pulsed operation of the AS and SVE wells. During week 5 (starting September 14th), the AS well was operated for 8 hours and then shut off for 16 hours each day. The SVE well continued to operate during this same period. During week 6 (starting September 21st), both the AS and SVE wells were operated for 8 hours and then shut down for 16 hours each day. Table 1 contains the description of the monitoring schedule and parameters during this stage of the test. The purpose of this stage of the pilot test was to evaluate if a pulsed approach is as effective, or more effective than the constant flow approach. Advantages to pulsed operation include minimizing energy usage of the AS and SVE equipment as well as minimizing emissions of VOCs from the SVE well. The SVE/AS equipment was turned off on September 30th, at the end of week 6. Monitoring of dissolved oxygen (DO) continued through week 12 at wells W7, W70B, OW1, PW1, and PW2.

RESULTS

Results of the field and laboratory measurements collected during the AS/SVE pilot test are contained in Attachment A. The most notable effect of the AS/SVE pilot test was the increase in dissolved oxygen (DO) levels in groundwater. Graphics showing DO level at individual well locations over time are included in Attachment B. These results show a substantial increase in DO levels in groundwater immediately following startup of the AS system. As expected, DO levels were most influenced at wells W7 and W70B where concentrations up to 9 mg/L were recorded. However, the data also show some DO level increases in wells PW1 and OW1, 20 ft

and 75 ft away from the AS well, respectively. These data indicate that the AS/SVE system can effectively introduce oxygen into the subsurface environment at the site, and that individual sparge points may be capable of influencing a relatively large area.

Ideally, the AS/SVE pilot test would have shown a measurable decrease in PCP concentrations in test area; this was not the case. Given the mass of contaminant available in the area, the test duration (6 weeks), was probably too short to significantly reduce concentrations. However there was some indication of PCP degradation in response to the pilot test; the ratio of total non-PCP phenolic compounds (as PCP) compared to PCP in well W70B at the beginning of the test was 8.3% compared to 36.4% at the end of the test.

In addition, the following observations suggest increased microbial activity following the startup of the AS/SVE system:

- The microbial population of potential PCP degraders increased substantially (Attachment C)
- DO levels decreased slightly several days after the system startup, and substantially after system shutdown, possibly due to increased consumption by microbial respiration.

RECOMMENDATION

Based on the completion of the AS/SVE pilot test, a longer duration test with minor modifications to the existing test system is recommended. The pilot test results indicate that an AS/SVE system can effectively introduce oxygen to the subsurface environment, apparently benefiting potential PCP degraders. However, given the mass of contaminant in the test area, a longer duration test would be needed to document actual decreases in PCP concentrations. The 6 week pilot test provided information that would lead to modifications to the monitoring program during a longer term test, and indicated that potential air emissions should not be a hinderance to a longer term test.

JDD/vlr/DJB/KJQ
J:\41130020\WP\RPT\999_AIR
1536813/155
4113.0020-MD

Table 1
Air Sparging/SVE Pilot Test
Monitoring Parameters
Wauleco, Inc. Site
Wausau, Wisconsin

Location	Groundwater Monitoring Parameters										Soil Vapor Monitoring Parameters						
	Phenols	PCP (field)	TPH	Cl	Nutrients	Microbes	Field DO	Field pH	Water Level	Product Thickness	TPH	PCP (field)	Benzene	O2	CO2	SVE Rate	Pressure
W-7 (SVE well)	Baseline weeks 1,2,4,6	Baseline Daily days 4-7 2x/wk thereafter	Baseline weeks 1,2,4,6	Baseline weeks 1,2,4,6	Baseline weeks 1,2,4,6	Baseline weeks 1,2,4,6	Baseline Daily days 4-7 2x/wk thereafter	Baseline Daily days 4-7 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter	3x 1st day 2x next 2 days weekly thereafter	3x 1st day 2x next 2 days weekly thereafter	3x 1st day 2x next 2 days weekly thereafter	Baseline Daily 1st week 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter	Hourly 1st 8 hrs Daily 1st week 2x/wk thereafter	Baseline Hourly 1st 8hrs Daily 1st week 2x/wk thereafter
W-70B (Sparge well)	Baseline week 6	Baseline weeks 1,2,4,6	Baseline week 6	Baseline week 6	Baseline week 6	Baseline week 6	Baseline Daily days 4-7 2x/wk thereafter	Baseline week 6	Baseline Daily 1st week 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter							Baseline Hourly 1st 8hrs Daily 1st week 2x/wk thereafter
PZ-1														Baseline Daily 1st week 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter		Baseline Hourly 1st 8hrs Daily 1st week 2x/wk thereafter
PW-1, PW-2, OW-1, W-35, W-69							Baseline Daily days 4-7 2x/wk thereafter		Baseline Daily 1st week 2x/wk thereafter	Baseline Daily 1st week 2x/wk thereafter							Baseline Daily 1st week 2x/wk thereafter

Nutrients = TKN, NH4, NO3, ortho-PO4, K

CO2 and O2 will be measured using the LANDTEC GEM-500 Landfill Monitor

Microbes = total heterotrophs and PCP/mineral splits degraders

MSR/msr/DJB/KJQ

j:\wauleco\pilot\as_param.xls

Management Review
Other

7-28-94

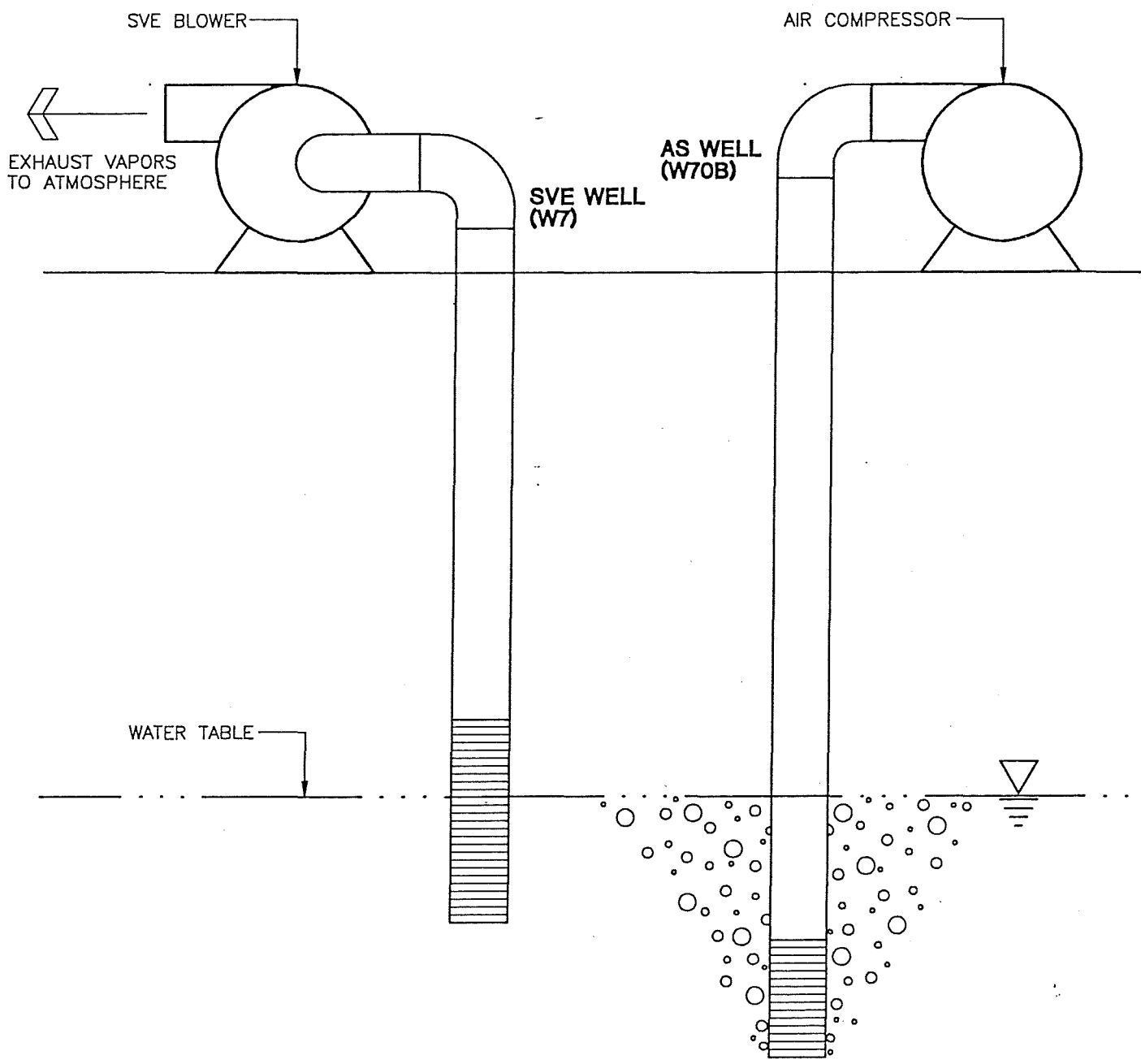
Technical Review
Project Manager DJB

7-28-94
7-28-94

Graphic Standards TMS
Lead Professional MSR

QUALITY
CONTROL

This document has been developed for a specific application and may not be used without the written approval of Warzyn Inc.



NO SCALE

Developed By MSR
Approved By *[Signature]* S. Z. *[Signature]*
Reference
Revisions

Drawn By TMS
Date 7.28.94

AIR SPARGING/SVE PILOT TEST SCHEMATIC

AIR SPARGING/SVE PILOT TEST WORK PLAN
WAULECO INCORPORATED
125 ROSECRANS STREET
WAUSAU, WISCONSIN

Drawing Number 1536813 **A1**

WARZYN

A horizontal scale bar with a black background and white markings. The bar is divided into three segments: the first segment from 0 to 10 feet is further divided into four equal sub-segments, and the second segment from 10 to 20 feet is a single continuous block. The numbers 0, 10, and 20 are printed in white above the bar. Below the bar, the text 'SCALE IN FEET' is printed in white.

ATTACHMENT A

TEST RESULTS

W-70B (Sparge Well)

			Field Measurements								
			Groundwater			Soil Vapor					
			DO	pH	Water Elevation	O2	CO2 %	AS Rate	Gas Temp	Well Head Pressure	AS Rate
Date	Time		(mg/L)	(S.U.)	(ft msl)	(%)		(cfm)	(°C)	(psig/"H2O)	(scfm)
Baseline	8/15/94	10:50	0.8	6.2	1162.97					0	
Day 1, t=0	8/17/94	12:00								0	
t=15 min	8/17/94	12:15								13"H2O	
t=1 hr	8/17/94	13:00			dry					12"H2O	
t=2 hr	8/17/94	14:00								0	
t=3 hr	8/17/94	15:05								0	
t=4 hr	8/17/94	16:15			1162.87					.5"H2O	
t=5 hr	8/17/94	17:20								1"H2O	
t=6 hr	8/17/94	18:05								3.5"H2O	
t=7hr	8/17/94	19:00								1.8"H2O	
t=8 hr	8/17/94	19:55			1162.75	20.6%	0.15%			.25"H2O	
Day 2	8/18/94	13:40			1162.82	20.2%	0.70%			1.4"H2O	
Day 3	8/19/94	13:20			1163.07	19.0%	1.00%			0	
Day 4	8/20/94	11:30	0.8	6.4	1162.95	20.0%	0.40%	0		-0.02	0
Day 4	8/20/94	12:30			dry			10	83	10	13.8831
Day 4	8/20/94	15:30			dry			10.5	82	8	13.4345
Day 4	8/20/94	19:30			dry			11	81	7	13.4921
Day 5	8/21/94	11:05	8	6.2	dry	20.7%	0.20%	10	75	8	13.0521
Day 6	8/22/94	9:00	9.2	6.8	dry	20.7%	0.15%	10.5	70	6	12.6792
Day 7	8/23/94	11:20	7.5	7.2	dry	20.7%	0.10%	10.5	85	8	13.3219
Week 2	8/26/94	12:05	6.8	6.65	dry	20.7%	0.00%	11.5	93	5	12.3853
Week 2	8/30/94	10:00	7.2	7.6	dry	20.7%	0.00%	10	68	5	11.5594
Week 3	9/2/94	14:30	6.4	7.3	dry	20.7%	0.06%	11	80	5	12.2831
Week 3	9/6/94	11:00	6.8	7.25	dry	20.7%	0.00%	10	80	6	11.7334
Week 4	9/9/94	9:30	9	8.5	dry	20.7%	0.00%	10	82	5	11.1035
Week 4	9/13/94	13:30	9	8.75	dry	20.7%	0.00%	10	90	5	10.8588
Week 5	9/16/94	15:00	9.2	8.6	dry	20.7%	0.00%	9	80	8	11.5805
Week 5	9/20/94	10:20	8.6	7.4	dry	20.7%	0.00%	9.5	80	9	12.7625
Week 6	9/23/94	11:50	8.5	7.6	dry	20.7%	0.00%	9	80	8	11.5805
Week 6 (End Test)	9/27/94	11:00	7.8	7.8	dry	20.7%	0.15%	11.5	64	7	14.8169
Week 7	10/4/94	10:30	2.5			20.7%	0.00%				
Week 7	10/7/94	13:00	3.5			20.7%	0.10%				
Week 8	10/11/94	15:00	3			20.7%	0.25%				
Week 8	10/14/94	14:15	2.9			20.7%	0.20%				
Week 9	10/18/94	15:00	2.5			20.5%	0.10%				
Week 9	10/21/94	14:15	2.7			20.5%	0.20%				
Week 10	10/25/94	15:00	2.7			20.7%	0.10%				
Week 11	11/1/94	16:30	1.6								
Week 12	11/8/94	17:00	0.8								

W-70B (Sparge Well)

			Analytical Parameters																															
			Groundwater												Soil Vapor																			
			Total Phenols as PCP (Method 8040)	PCP (Method 8040)	PCP (field), ppb	TPH as Mineral Spirits	Cl	TKN	NH4	NO2 + NO3	ortho -PO4	K	Total Microbes	Degrader Microbes	TPH as Mineral Spirits				PCP (field)	VOCs (Method 8010/8020)														
Date	Time		Baseline	8/15/94	11:30	141	1,700	5,142	2.2	128	0.68	1.47	1.20	0.50	8.42	6.01E+06	(5.00E+02)																	
Day 1																																		
Day 1																																		
Day 1																																		
Day 2																																		
Day 3																																		
Day 4																																		
Day 5																																		
Day 6																																		
Day 7	8/23/94	12:45																																
Week 2																																		
Week 2	8/30/94	13:00																																
Week 3																																		
Week 3																																		
Week 4																																		
Week 4	9/13/94	14:00																																
Week 5																																		
Week 5																																		
Week 6																																		
Week 6 (End Tes	9/27/94	11:00																		1636	4,500	5375	6.9	125	6.17	5.05	2.59	1.53	4.24	6.64E+06	1.63E+05			

W-7 (SVE Well)

			Field Measurements										
			Groundwater				Soil Vapor						
			DO (mg/L)	pH (S.U.)	Water Elevation (ft msl)	Product Thickness (ft)	O2	(%)	CO2 %	Gas Velocity (fpm)	Gas Temp (°C)	Well	Barometric Pressure (°Hg)
Head Pressure (° H2O)													
Date	Time												
Baseline	8/15/94	16:40	0.6	6.65	1162.76	0.05	20.5%	0.25%			0	30.73	
Day 1, t=0	8/17/94	12:00							0	100	0	30.04	0.00
t=15 min	8/17/94	12:15							1400	90	-46		23.06
t=1 hr	8/17/94	13:00			1162.36	0.15	20.5%	0.50%	1400	92	-46		22.93
t=2 hr	8/17/94	14:00							1400	95	-46		22.75
t=3 hr	8/17/94	15:00							1450	98	-46		23.37
t=4 hr	8/17/94	16:00			1162.71	0.3	20.5%	0.60%	1450	90	-46		23.88
t=5 hr	8/17/94	17:10							1450	88	-46		24.02
t=6 hr	8/17/94	18:00							1450	89	-46		23.95
t=7hr	8/17/94	18:55							1450	88	-46		24.02
t=8 hr	8/17/94	20:30			1162.86	0.25	20.5%	0.80%	1450	86	-46		24.15
Day 2	8/18/94	13:55			1162.51	0.25	19.0%	0.70%	1450	80	-46	30.01	24.56
Day 3	8/19/94	13:15			1162.66	0.45	19.0%	0.80%	1500	80	-46	29.95	25.41
Day 4	8/20/94	10:50	0.5	6.7	1162.46	0.4	20.0%	0.70%	1450	74	-46	29.95	24.98
Day 5	8/21/94	11:20	2.5	6.7	1162.57	0.4	20.5%	0.60%	1500	75	-46	29.92	25.77
Day 6	8/22/94	8:40	6	6.95	1162.51	0.2	20.0%	0.90%	1500	73	-46	30.1	25.92
Day 7	8/23/94	11:00	7.2	6.95	1162.61		20.0%	1.00%	1500	86	-46	30.08	24.98
Week 2	8/26/94	12:30	5.2	6.5	1162.01	0.05	20.5%	0.60%	1450	91	-48	30.04	23.69
Week 2 (End SVE)	8/30/94	9:40	6.8	7.05	1163.01	0.03	20.5%	0.30%	1450	70	-50	29.91	25.00
Week 3	9/2/94	14:50	6.5	6.8	1162.13	0.02	20.7%	0.13%			0	29.05	0.00
Week 3	9/6/94	10:50	5.1	6.8	1162.71	0.02	20.7%	0.20%			0	30.1	0.00
Week 4	9/9/94	9:40	5.8	6.65	1162.73	0.01	20.5%	0.25%			0.02	30.06	0.00
Week 4	9/13/94	13:40	5	6.7	1162.68	0	20.5%	0.20%			0.02		0.00
Week 5	9/16/94	15:15	4.2	7.3	1162.31	0.02	20.5%	0.30%			0	29.76	0.00
Week 5	9/20/94	10:15	4.2	6.75	1162.73	0.02	20.5%	0.50%			0	30.1	0.00
Week 6	9/23/94	11:30	3.2	6.7	1162.21	0	20.5%	0.30%			0	29.93	0.00
Week 6 (End Test)	9/26/94	11:15	5.2	6.85	1161.65	0	20.7%	0.20%			0	29.75	0.00
Week 7	10/4/94	10:30	0.6				20.7%	0.10%					
Week 7	10/7/94	13:00	1.5				5.0%	6.20%					
Week 8	10/11/94	15:00	1.9				18.0%	1.00%					
Week 8	10/14/94	14:15	2				13.0%	2.80%					
Week 9	10/18/94	15:00	2				20.0%	0.80%					
Week 9	10/21/94	14:15	2				13.0%	4.00%					
Week 10	10/25/94	15:00	2.2				20.7%	0.10%					
Week 11	11/1/94	16:30	1.7										
Week 12	11/8/94	17:00	0.8										

W-7 (SVE Well)

			Analytical Parameters														Not	
			Groundwater											Soil Vapor			Analytical	
			Total Phenols as PCP (Method 8040)	PCP (Method 8040)	PCP (field), ppb	TPH as Mineral Spirits	Cl	TKN	NH4	NO2 + NO3	ortho -PO4	K	Total Microbes	Degrader Microbes	TPH as Mineral Spirits	PCP- ug/L (Method 8040)	VOCs (Method 8010/8020)	PID, ppm
Date	Time		ND	44,000	5,225	1,100	119	6.68	0.20	0.25	<0.10	7.16	6.14E+06	(5.00E+02)				
Baseline	8/15/94	15:00																
Day 1	8/17/94	13:00															ND	5
Day 1	8/17/94	16:00															ND	5
Day 1	8/17/94	20:00															ND	4
Day 2	8/18/94	14:15															ND	3
Day 3	8/19/94	14:00													ND	ND	ND	0
Day 4	8/20/94	12:00			16,581													
Day 5	8/21/94	11:00			9,367													
Day 6	8/22/94	10:30			8,448													
Day 7	8/23/94	14:00	225,516	7,500	6,545		105	6.18	1.05	0.29	0.29	5.61	5.99E+06	6.46E+04				
Week 2	8/26/94	14:00			5,898													
Week 2 (End SVE	8/30/94	11:00			13,748		105	11.1	1.92	0.32	<0.10	4.61	5.47E+06	9.65E+04	ND	ND	ND	
Week 2	8/31/94	16:00													ND	ND	ND	
Week 3	9/2/94	14:45			16,446													
Week 3	9/6/94	13:00			17,933										ND	ND	ND	
Week 4	9/9/94	13:00			22,378													
Week 4	9/13/94	11:00	30,416	8,500	21,729	200	112	4.17	0.44	0.29	0.02	4.34	1.85E+06	1.41E+04	ND	ND	ND	
Week 5	9/16/94	16:00			18,476													
Week 5	9/20/94	11:00			17,523										ND	ND	ND	
Week 6	9/23/94	13:00			13,756													
Week 6	9/27/94	11:00	231,717	24,000	14,488	290	110	7.42	0.52	0.50	0.12	4.71	7.47E+06	1.01E+05		10		
Week 6	9/28/94	14:30													ND		ND	

PZ-1 (SVE Well)

			Soil Vapor					
			O2 (%)	CO2 (%)	Well Head Pressure (psig/"H2O)	Gas Velocity (fpm)	Gas Temp (°C)	SVE Rate (scfm)
Date	Time							
Baseline	8/15/94	15:45	0.0%	10.0%	0			
Day 1, t=0	8/17/94	12:00						
t=15 min	8/17/94	12:15						
t=1 hr	8/17/94	13:05			0.15			0.00
t=2 hr	8/17/94	14:00			0.12			0.00
t=3 hr	8/17/94	15:03			0			0.00
t=4 hr	8/17/94	16:07			-0.01			0.00
t=5 hr	8/17/94	17:10			-0.02			0.00
t=6 hr	8/17/94	17:55			-0.015			0.00
t=7hr	8/17/94	18:55			0			0.00
t=8 hr	8/17/94	20:18	2.0%	10.0%	-0.025			0.00
Day 2	8/18/94	13:00	0.0%	11.0%	-0.02			0.00
Day 3	8/19/94	12:45	0.0%	11.0%	0.16			0.00
Day 4	8/20/94	10:45	0.0%	7.0%	-0.05			0.00
Day 5	8/21/94	10:00	0.0%	8.0%	-0.09			0.00
Day 6	8/22/94	9:15	0.0%	11.0%	0			0.00
Day 7	8/23/94	10:50	5.0%	10.0%	0.14			0.00
Week 2	8/26/94	12:00	17.0%	5.0%	0			0.00
Week 2	8/30/94	9:40	19.5%	3.0%	0.1			0.00
Week 2 (SVE applied)	8/30/94	15:00	19.0%	3.0%	-50	700	70	12.07
Week 3	9/2/94	14:15	17.0%	3.5%	-50	550	80	9.21
Week 3	9/6/94	11:15	17.0%	4.0%	-50	800	77	13.52
Week 4	9/9/94	10:00	17.0%	4.0%	-50	700	80	11.73
Week 4	9/13/94	13:45	14.0%	3.5%	-50	600	83	9.97
Week 5	9/16/94	15:30	12.0%	4.0%	-50	600	80	10.05
Week 5	9/20/94	10:30	8.0%	5.0%	-50	900	80	15.08
Week 6	9/23/94	12:00	8.0%	5.5%	-50	650	80	10.89
Week 6 (End Test)	9/26/94	11:00	10.0%	5.5%	-50	550	70	9.48
Week 7	10/4/94	10:30	20.7%	0.1%				
Week 7	10/7/94	13:00	16.0%	1.5%				
Week 8	10/11/94	15:00	10.0%	3.8%				
Week8	10/14/94	14:15	8.0%	4.4%				
Week 9	10/18/94	15:00	8.0%	5.0%				
Week 9	10/21/94	14:15	8.0%	4.0%				
Week 10	10/25/94	15:00	8.0%	5.0%				

W-69

			Field Measurements					
			Groundwater				Soil Vapor	
			DO (mg/L)	pH (S.U.)	Water Elevation (ft msl)	Product Thickness (ft)	O2 (%)	CO2 (ppm)
Date	Time							
Baseline	8/15/94	11:35	0.6		1161.67	0.7		0
Day 1, t=0	8/17/94	12:00						
t=15 min								
t=1 hr								
t=2 hr								
t=3 hr								
t=4 hr								
t=5 hr								
t=6 hr								
t=7hr								
t=8 hr	8/17/94	20:13			1161.62	0.73		-0.02
Day 2	8/18/94	13:20			1161.64	0.75		0.03
Day 3	8/19/94	13:05			1161.72	0.7		0.23
Day 4	8/20/94	10:20	0.8		1161.62	0.75		-0.02
Day 5	8/21/94	10:45	0.8		1161.65	0.76		0
Day 6	8/22/94	9:25	1		1161.63	0.71		0.04
Day 7	8/23/94	10:35			1161.62	0.72		0.06
Week 2	8/26/94	11:47	0.8		1161.62	0.72		0.08
Week 2	8/30/94	9:26			1161.62	0.72		-0.02
Week 3	9/2/94	14:05	0.5		1161.54	0.76		0.07
Week 3	9/6/94	10:30	0.8		1161.6	0.77		0.03
Week 4	9/9/94	10:20			1161.53	0.74		0
Week 4	9/13/94	13:15	1		1161.47	0.74		0.08
Week 5	9/16/94	10:45	1		1161.47	0.73		0.04
Week 5	9/20/94	9:45	1.2		1161.55	0.72		0
Week 6	9/23/94	11:05	0.9		1161.5	0.75		-0.02
Week 6 (End Test)	9/26/94	10:40			1161.51	0.72		0.11

OW-1

			Field Measurements					
			Groundwater			Soil Vapor		
			DO (mg/L)	pH (S.U.)	Water Elevation (ft msl)	O2 (%)	CO2 (ppm)	Well Head Pressure (" H2O)
Date	Time							
Baseline	8/15/94	10:50	0.9		1162.98			0
Day 1, t=0	8/17/94	12:00						
t=15 min								
t=1 hr								
t=2 hr								
t=3 hr								
t=4 hr								
t=5 hr								
t=6 hr								
t=7hr								
t=8 hr	8/17/94	20:10			1162.98			0
Day 2	8/18/94	13:10			1162.98			-0.015
Day 3	8/19/94	12:50			1163			0.25
Day 4	8/20/94	10:10	1		1162.98			0
Day 5	8/21/94	10:15	1		1162.99			0
Day 6	8/22/94	9:15	3		1162.96			0
Day 7	8/23/94	10:20	2		1162.98			0
Week 2	8/26/94	11:40	4.5		1162.98			0.08
Week 2	8/30/94	9:20	1.5		1163			0.02
Week 3	9/2/94	14:00	2.8		1162.87			0.03
Week 3	9/6/94	10:20	4.6		1162.93			-0.01
Week 4	9/9/94	9:00	3.4		1162.91			-0.01
Week 4	9/13/94	13:00	3.2		1162.84			0
Week 5	9/16/94	10:30	2.4		1162.91			0
Week 5	9/20/94	9:30	2		1162.93			0
Week 6	9/23/94	11:00	2		1162.9			0
Week 6 (End Test)	9/26/94	10:25	3.2		1162.89			0
Week 7	10/4/94	10:30	0.9					
Week 7	10/7/94	13:00	2					
Week 8	10/11/94	15:00	2.5					
Week8	10/14/94	14:15	2.7					
Week 9	10/18/94	15:00	3					
Week 9	10/21/94	14:15	2.9					
Week 10	10/25/94	15:00	3					
Week 11	11/1/94	16:30	2.5					
Week 12	11/8/94	17:00	2					

W-35

			Field Measurements					
			Groundwater				Soil Vapor	
			DO	pH	Water Elevation	Product Thickness	O2	Well Head Pressure
Date	Time		(mg/L)	(S.U.)	(ft msl)	(ft)	(%)	(ppm) (" H2O)
Baseline	8/15/94	11:30	0.5		1160.93	1.16		0
Day 1, t=0	8/17/94	12:00						
t=15 min								
t=1 hr								
t=2 hr								
t=3 hr								
t=4 hr								
t=5 hr								
t=6 hr								
t=7hr								
t=8 hr	8/17/94	20:15			1160.89	1.2		-0.01
Day 2	8/18/94	13:25			1160.87	1.22		0
Day 3	8/19/94	13:10			1160.99	1.15		0.02
Day 4	8/20/94	10:30	0.7		1160.89	1.2		-0.03
Day 5	8/21/94	10:35	0.7		1160.91	1.2		-0.02
Day 6	8/22/94	9:25	1		1160.89	1.2		0.01
Day 7	8/23/94	10:40			1160.89	1.2		0.06
Week 2	8/26/94	11:50	0.8		1160.89	1.16		0.03
Week 2	8/30/94	9:30			1160.89	1.17		-0.01
Week 3	9/2/94	14:07	1		1160.79	1.22		0.02
Week 3	9/6/94	10:40	1		1160.91	1.23		0.01
Week 4	9/9/94	9:20			1160.89	1.1		0
Week 4	9/13/94	13:18	1.2		1160.89	1		0.03
Week 5	9/16/94	10:55			1160.89	1.05		0
Week 5	9/20/94	9:55	1.1		1160.87	1.22		0
Week 6	9/23/94	11:00	1		1160.79	1.1		-0.02
Week 6	9/26/94	10:45			1160.94	0.95		0.01

PW-1

	Date	Time	Field Measurements				
			Groundwater			Soil Vapor	
			DO (mg/L)	pH (S.U.)	Depth to Water (ft)	Product Thickness (ft)	Well Head Pressure (" H ₂ O)
Baseline	8/15/94	10:30	1.3		34.9	34.75	0
Day 1, t=0	8/17/94						
t=15 min							
t=1 hr							
t=2 hr							
t=3 hr							
t=4 hr							
t=5 hr							
t=6 hr							
t=7hr							
t=8 hr	8/17/94	19:45			34.92	34.75	0
Day 2	8/18/94	13:30			34.92	34.75	0
Day 3	8/19/94	13:10			34.9	34.73	0.01
Day 4	8/20/94	10:40	1		34.93	34.76	0
Day 5	8/21/94	10:10	0.9		34.92	34.75	0
Day 6	8/22/94	9:30	1		34.95	34.75	3.2
Day 7	8/23/94	11:43	2.5		35	34.82	1.8
Week 2	8/26/94	11:52	3.5		35.03	34.85	1.3
Week 2	8/30/94	9:45	4		34.95	34.75	0.5
Week 3	9/2/94	14:10	2		35	34.8	0.6
Week 3	9/6/94	10:45	1.8		34.99	34.78	0
Week 4	9/9/94	9:25	3.2		35	34.8	0
Week 4	9/13/94	13:20	3.5		35.18	34.84	0.02
Week 5	9/16/94	11:05			35.12	34.88	0.8
Week 5	9/20/94	10:10	2		35.03	34.88	1.1
Week 6	9/23/94	10:45	1.5		35.37	35.2	1
Week 6 (End Test)	9/27/94	10:50	1		35.25	34.95	2.6
Week 7	10/4/94	10:30	1				
Week 7	10/7/94	13:00	0.5				
Week 8	10/11/94	15:00	1				
Week8	10/14/94	14:15	2.5				
Week 9	10/18/94	15:00	4.6				
Week 9	10/21/94	14:15	3.3				
Week 10	10/25/94	15:00	3				
Week 11	11/1/94	16:30	2				
Week 12	11/8/94	17:00	1.2				

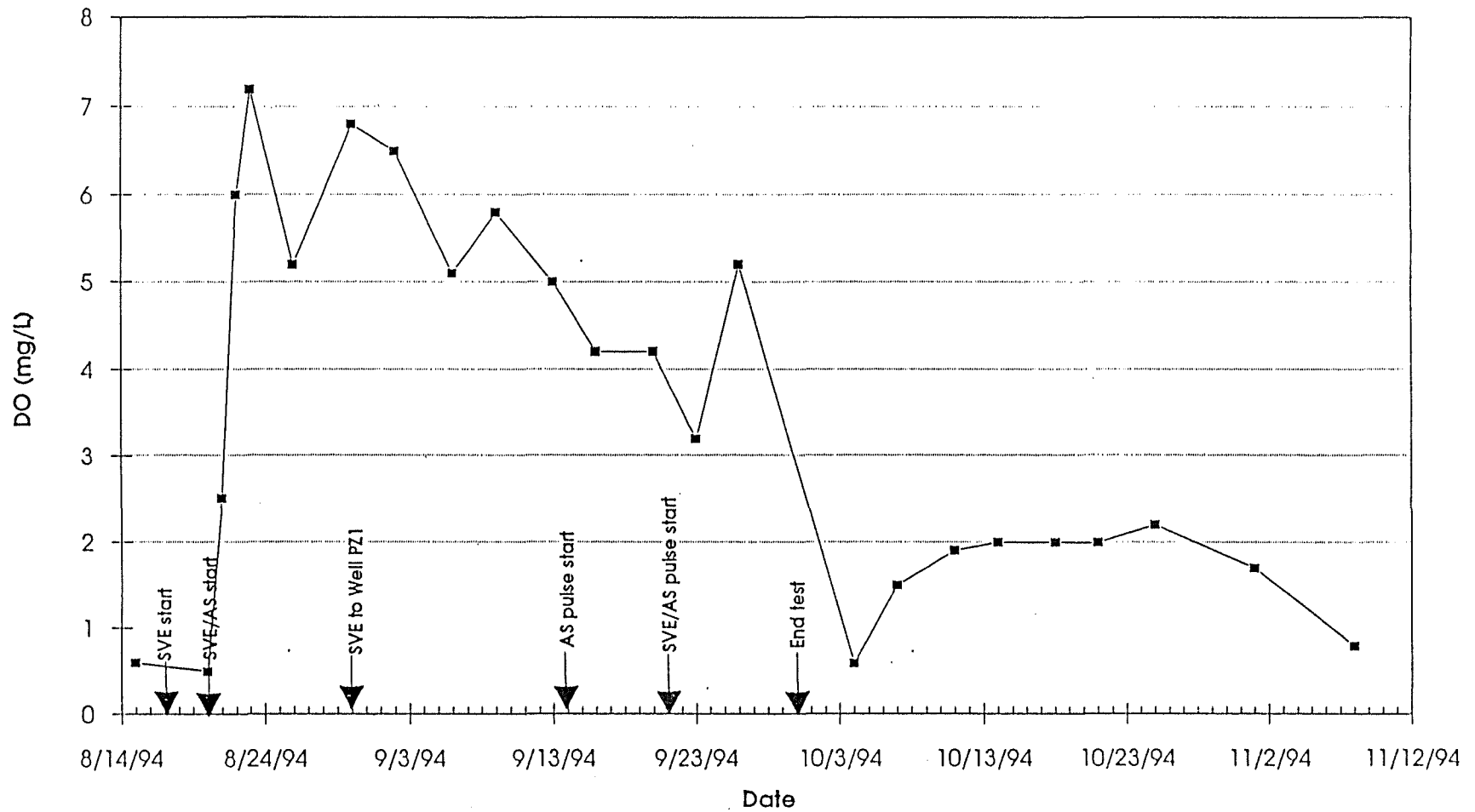
PW-2

			Field Measurements					
			Groundwater			Soil Vapor		
			DO (mg/L)	pH (S.U.)	Water Elevation (ft msl)	O2 (%)	CO2 (ppm)	Well Head Pressure (" H2O)
Date	Time							
Baseline	8/15/94	10:00	0.6		1162.8			0
Day 1, t=0	8/17/94	12:00						
t=15 min								
t=1 hr								
t=2 hr								
t=3 hr								
t=4 hr								
t=5 hr								
t=6 hr								
t=7hr								
t=8 hr	8/17/94	20:05			1162.77			0
Day 2	8/18/94	13:15			1162.78			0
Day 3	8/19/94	13:00			1162.8			0.25
Day 4	8/20/94	10:00	1.2		1162.78			0.01
Day 5	8/21/94	10:20	0.9		1162.77			0
Day 6	8/22/94	9:20	1.8		1162.82			0.22
Day 7	8/23/94	10:30	3		1162.75			0.25
Week 2	8/26/94	11:45	3.2		1162.75			0.27
Week 2	8/30/94	9:23	0.8		1162.76			0.17
Week 3	9/2/94	14:30	2.4		1162.7			0.15
Week 3	9/6/94	10:30	2.2		1162.72			0.13
Week 4	9/9/94	9:10	2.4		1162.68			0.11
Week 4	9/13/94	13:10	2		1162.61			0.15
Week 5	9/16/94	10:40	1.5		1162.65			0.13
Week 5	9/20/94	9:35	1.5		1162.7			0.15
Week 6	9/23/94	11:00	2		1162.67			0.1
Week 6 (End Test)	9/26/94	10:35	2		1162.66			0.2
Week 7	10/4/94	10:30	0.8					
Week 7	10/7/94	13:00	1.5					
Week 8	10/11/94	15:00	2					
Week8	10/14/94	14:15	2.1					
Week 9	10/18/94	15:00	2.4					
Week 9	10/21/94	14:15	2.2					
Week 10	10/25/94	15:00	2.4					
Week 11	11/1/94	16:30	2					
Week 12	11/8/94	17:00	1.4					

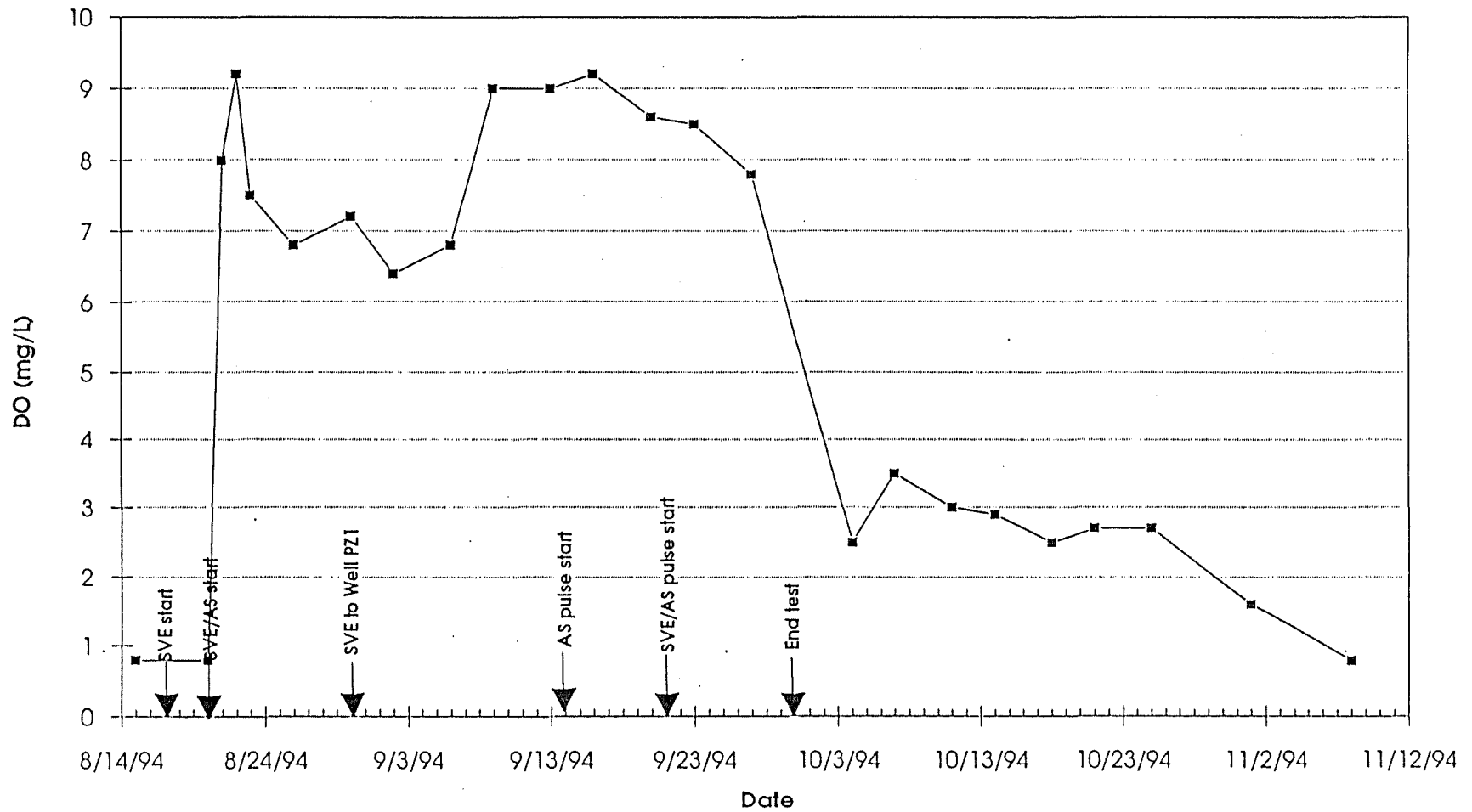
ATTACHMENT B

DISSOLVED OXYGEN TIME TREND GRAPHS

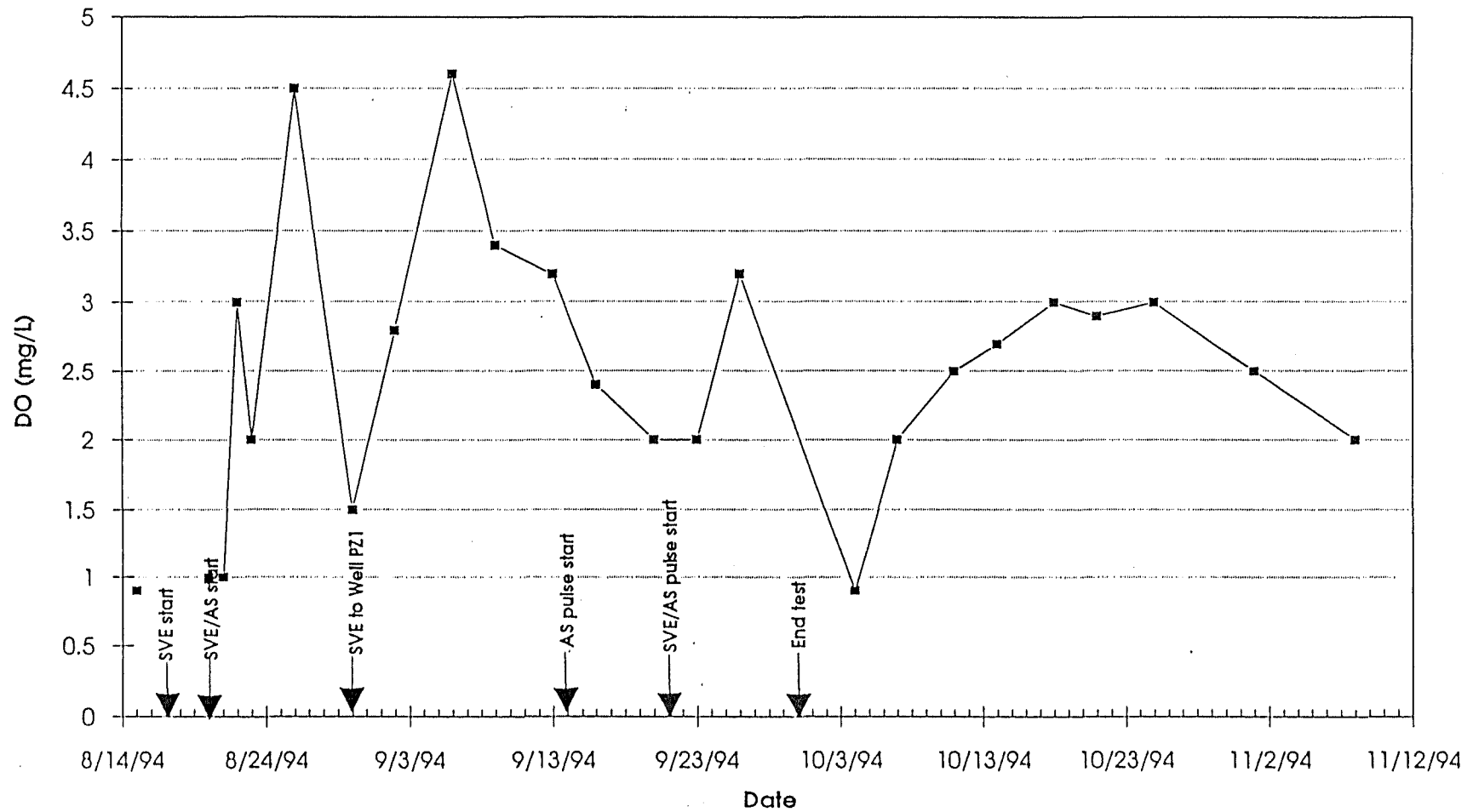
Dissolved Oxygen Well W7



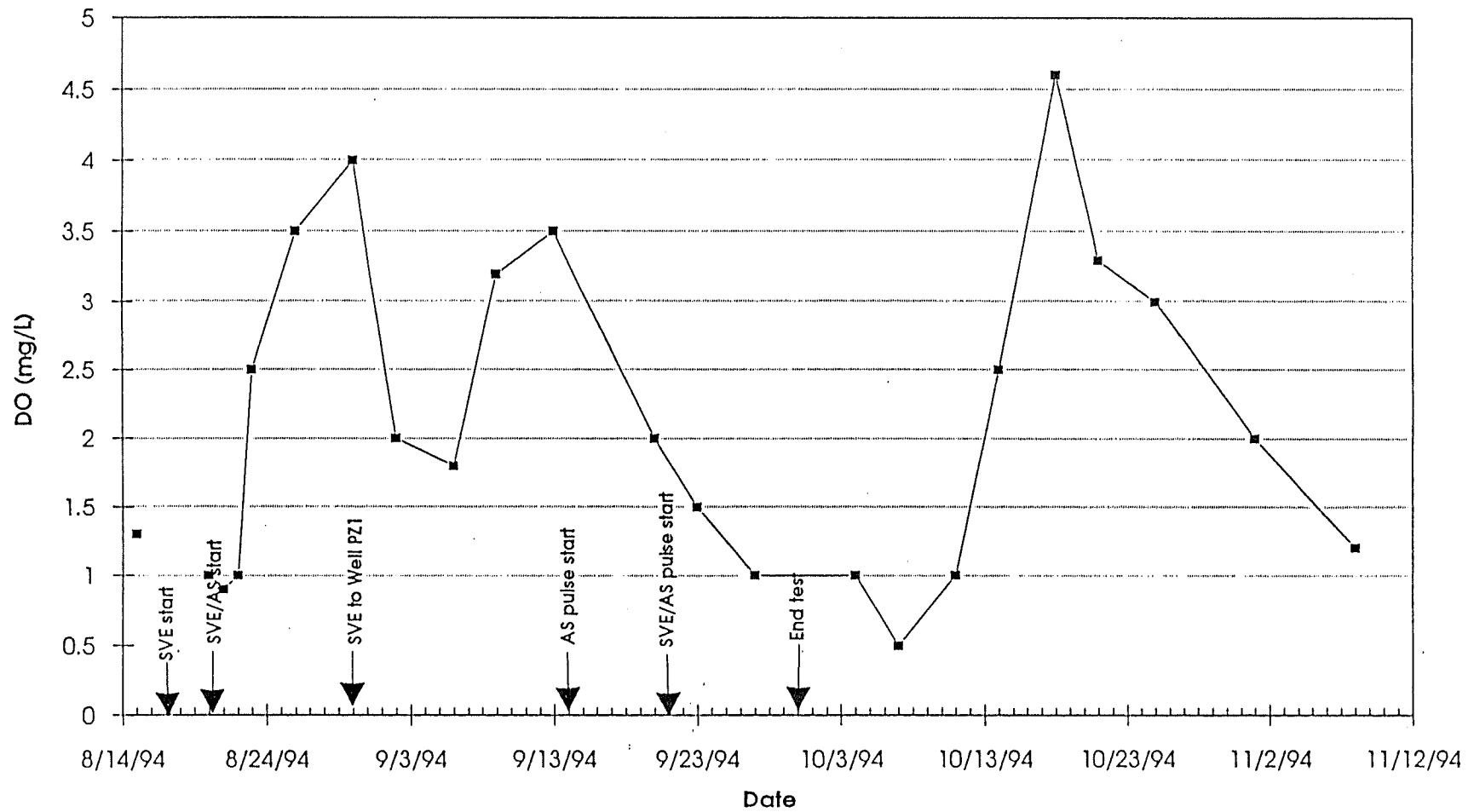
Dissolved Oxygen Well W70B



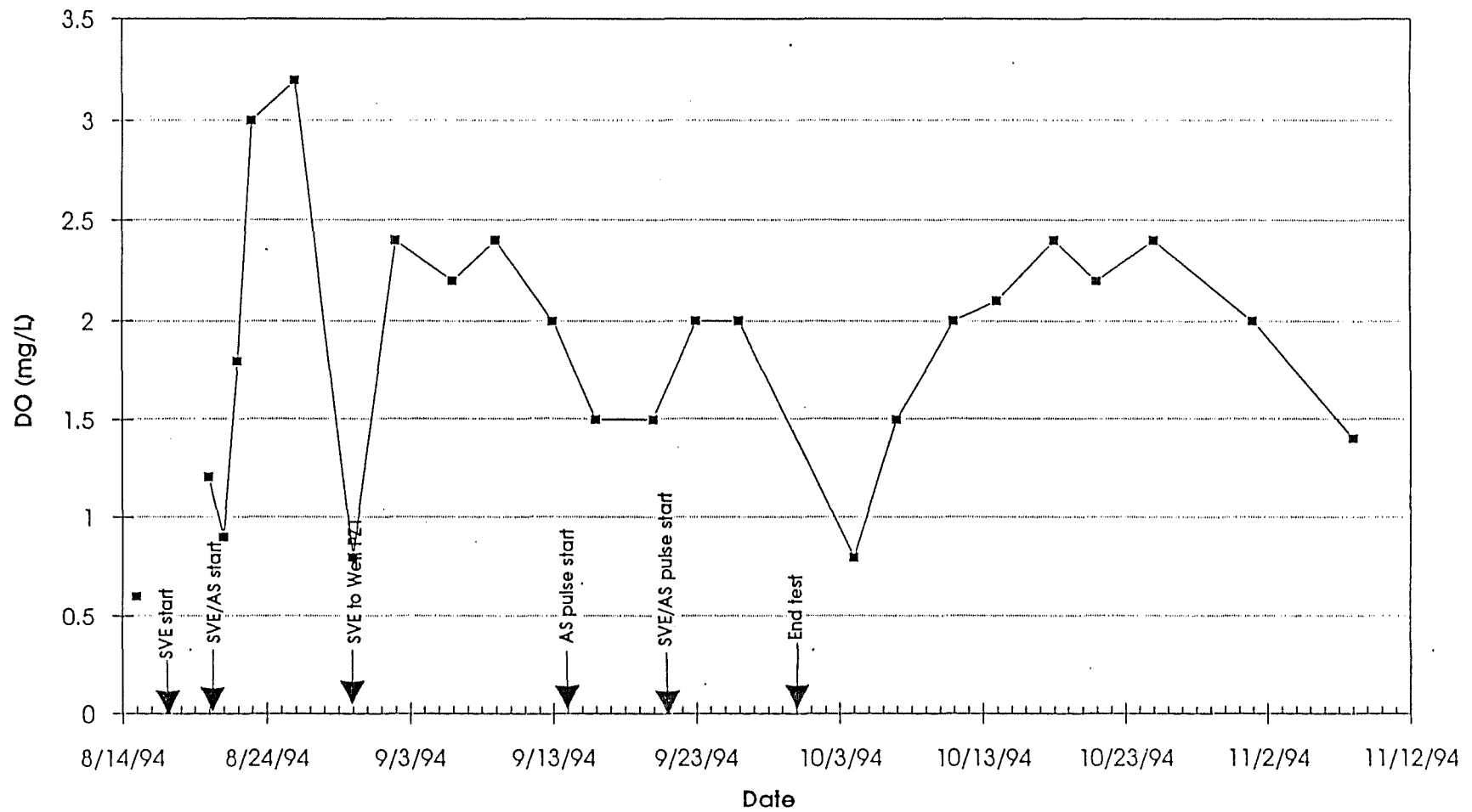
Dissolved Oxygen Well OW1



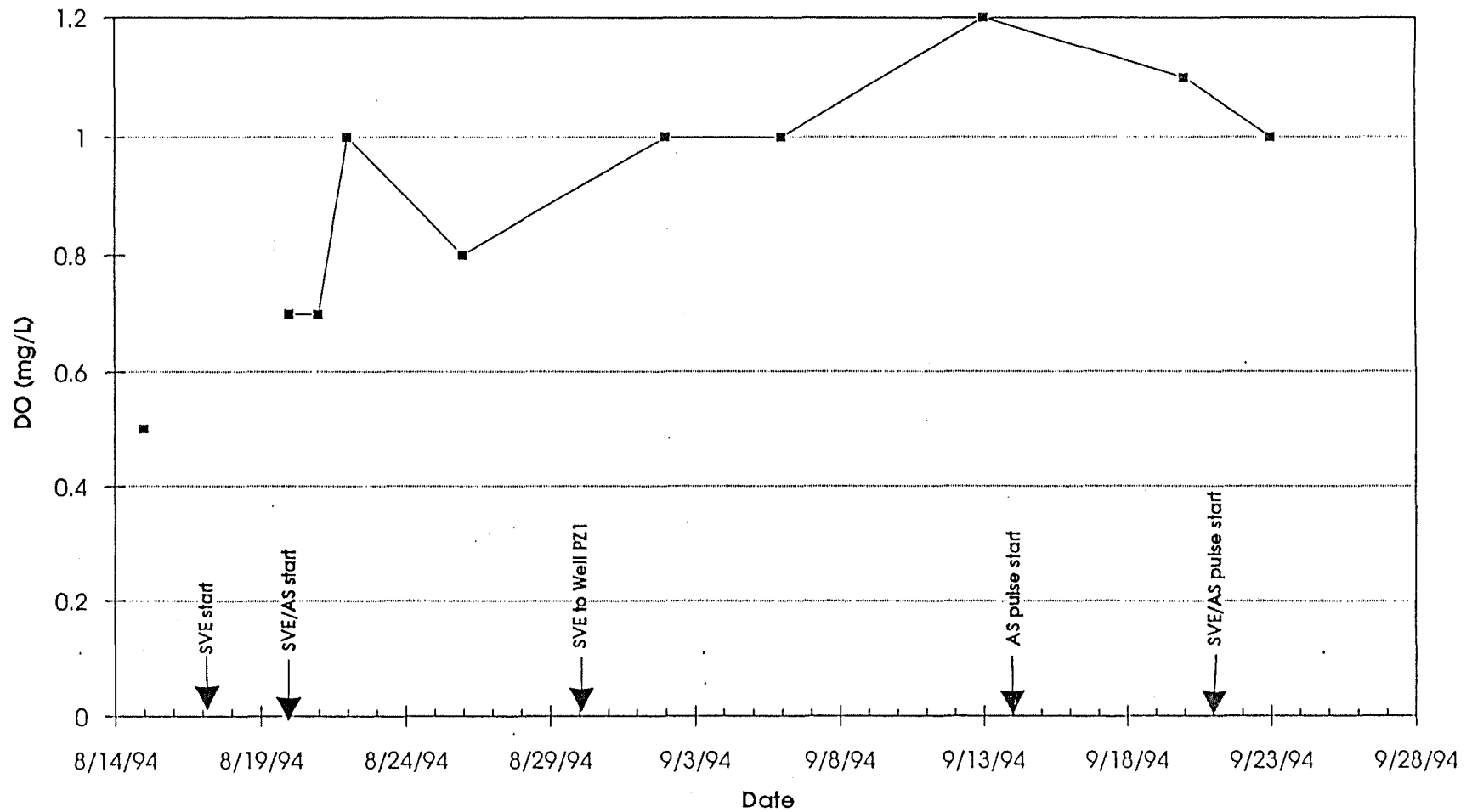
Dissolved Oxygen Well PW1



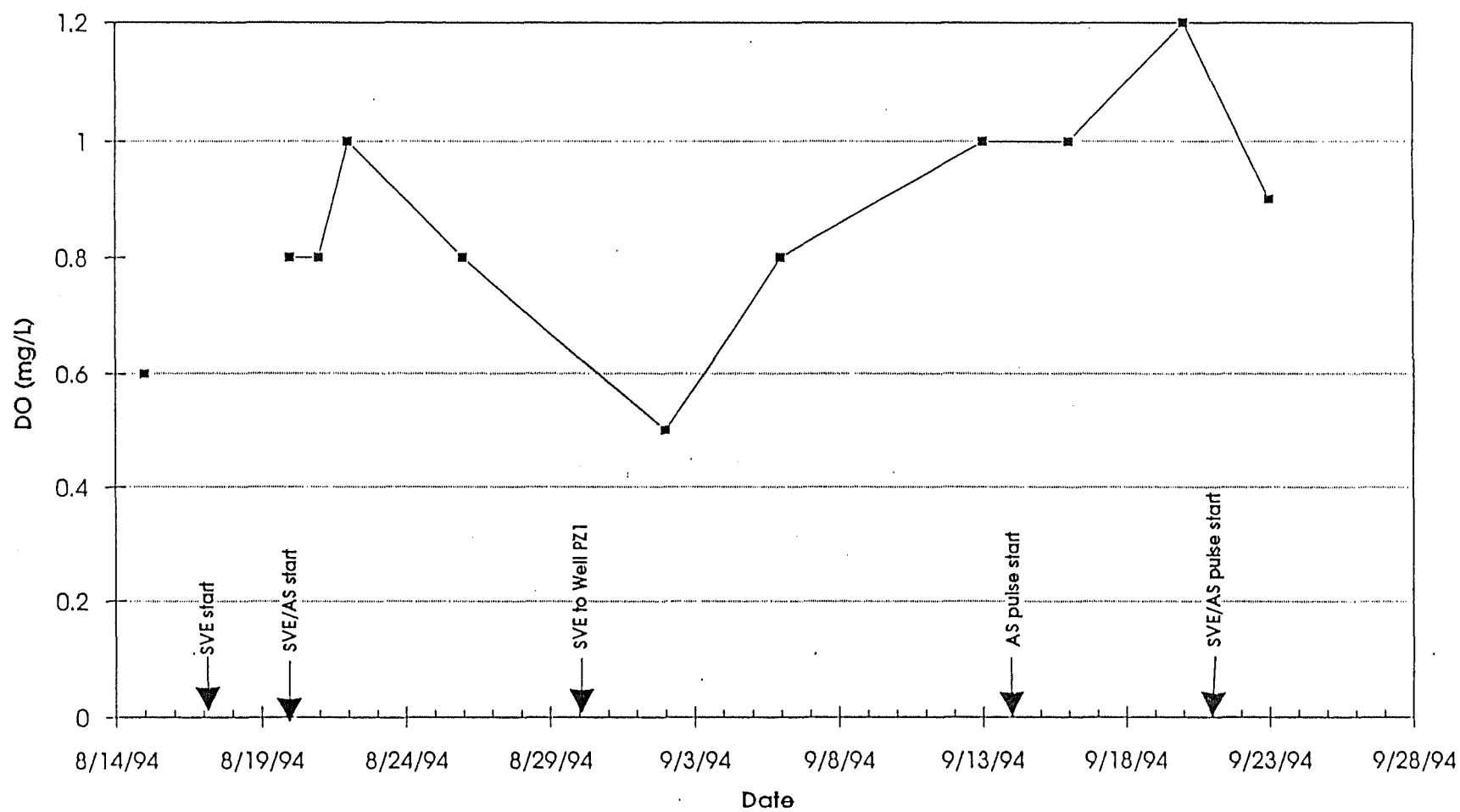
Dissolved Oxygen Well PW2



Dissolved Oxygen Well W35



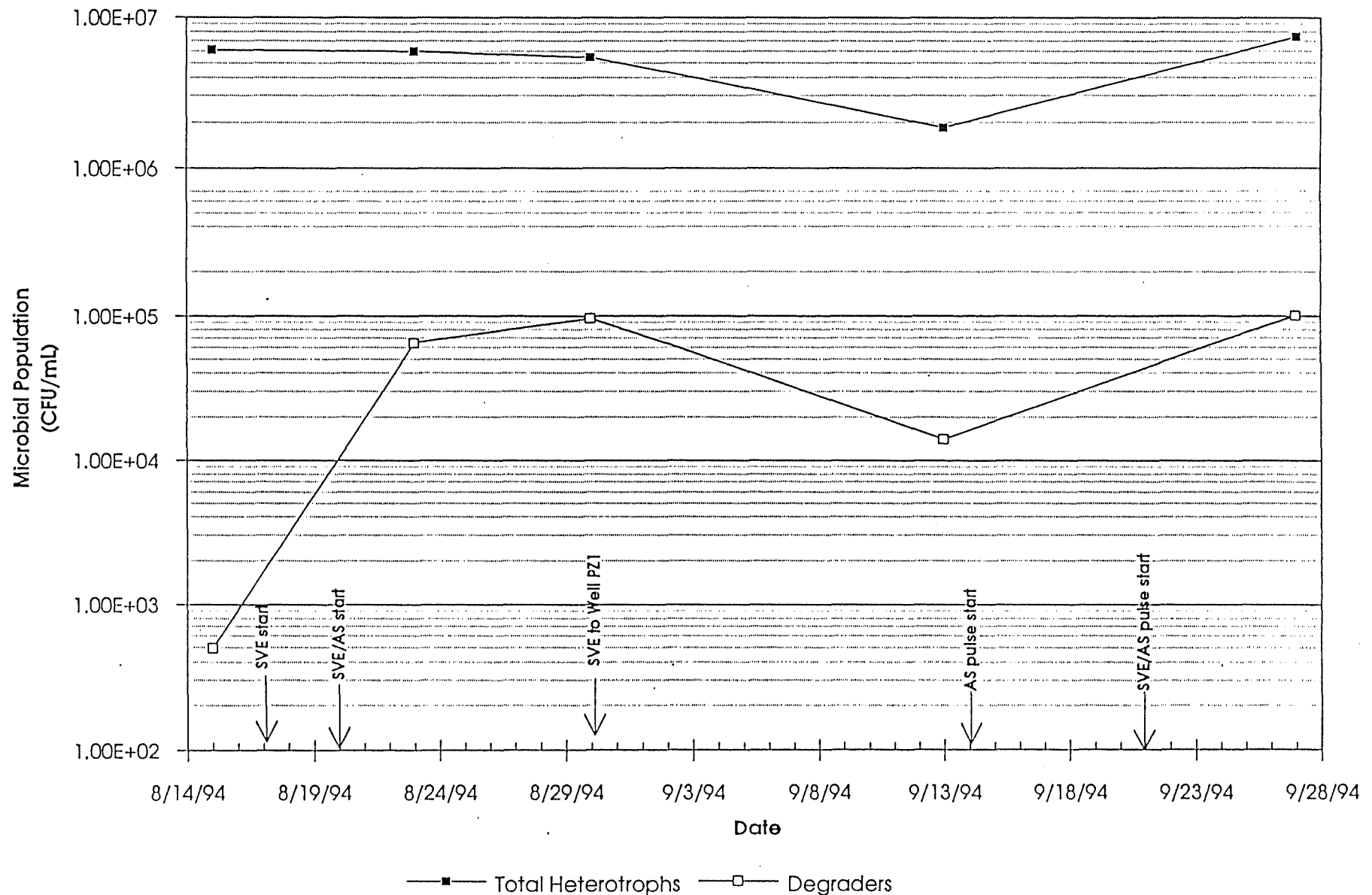
Dissolved Oxygen Well W69



ATTACHMENT C

MICROBIAL POPULATION TIME TREND GRAPHS

Microbial Population Well W7



TO: Laurel Sukup FYI

1/18/95



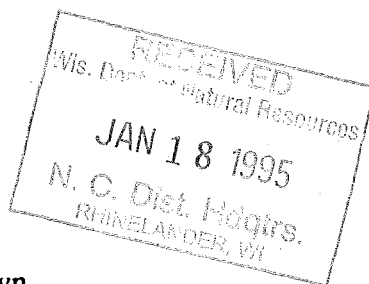
Ground Water

Engineering

Hydrocarbon

Remediation

Education



January 11, 1995

Mr. Richard Brown
Wisconsin Department of Natural Resources
5301 Rib Mountain Drive
Wausau, Wisconsin 54501

RE: Follow-up to Telephone Conversation Regarding Regulatory Status of Pentachlorophenol-Affected Materials at the 3M Downtown Wausau Facility.

Dear Rich:

This letter is a follow-up to our telephone conversation on Tuesday, January 3, 1995 regarding the regulatory status of pentachlorophenol (PCP) affected material generated during remediation activities at 144 Rosecrans in Wausau (the 3M facility). As we discussed, Geraghty & Miller, on behalf of 3M, has installed remediation systems at the facility to address fuel oil and other hydrocarbon products released from former underground storage tanks (USTs) at the site. The 3M facility is located north of the former Wauleco facility. 3M has never used PCP in its production processes or for any other purposes at the Wausau facility. Analytical data suggests that PCP-affected groundwater from Wauleco has migrated onto 3M's property. The plume of PCP affected groundwater is commingling with the plume of free product and dissolved hydrocarbons from 3M.

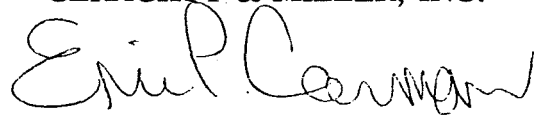
Based on our conversation, it is our understanding that the waste products from the Wauleco project are not currently regulated as a Wisconsin listed hazardous waste (F027 waste), or a federal listed waste. Although a portion of the remediation generated waste materials from Wauleco are characteristically hazardous, lack of information as to the historical source of the PCP has precluded applying listed hazardous waste codes. In addition, since the source of the PCP detected in the remediation generated materials at 3M is Wauleco, it is appropriate to treat PCP affected material from the 3M remediation system in a similar fashion as material from Wauleco. Therefore, we will proceed with the understanding that wastes and incidental materials (such as spent activated carbon) generated during the remediation activities are not listed hazardous waste. Although the concentrations of PCP in groundwater and free product on 3M's property are relatively low, we will perform waste determination analysis prior to off-site removal of the materials to demonstrate that the wastes are not characteristically hazardous.

Mr. Richard Brown
January 11, 1995
Page 2

Thank you for your time, Rich. If you have any questions regarding the 3M project, or if this follow-up does not accurately reflect your understanding of our conversation, please do not hesitate to call me at (414) 276-7742.

Respectfully Submitted,

GERAGHTY & MILLER, INC.



Eric P. Carman
Project Scientist

cc: Bob Renz, 3M, St. Paul
Tom Wood, 3M, Wausau
Pete Hubbard, WDNR, Wausau
Lisa Hrubesky, WDNR, Wausau
Doug Bach, Montgomery Watson, Madison

Dept. of Natural Resources
JAN 17 1995
Wausau DNR Office
Wausau, Wisconsin

1470 3mVI/3mdnrrev.ltr





2/15/95

February 15, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhineland, Wisconsin 54501

Re: Work Plan
Phase II Air Sparging and Soil Vapor Extraction Pilot Test
WAULECO, Inc.
Wausau, Wisconsin

Dear Ms. Sukup:

The purpose of this Work Plan is to provide you with a description of activities associated with the proposed Phase II Air Sparging/Soil Vapor Extraction Pilot Test at the Wauleco, Inc. site in Wausau, Wisconsin. For your convenience, this plan is presented under the following headings:

- Background Information
- Description of Activities
- Potential Air Emissions
- Schedule

BACKGROUND INFORMATION

Montgomery Watson conducted an initial air sparging (AS) and soil vapor extraction (SVE) pilot test at the Wauleco site during August and September 1994. The purpose of the test was to preliminarily evaluate the feasibility of using AS and SVE to enhance in situ bioremediation of PCP and mineral spirits contaminated soil and groundwater at the site. The results of the the pilot test indicated that SVE/AS can successfully introduce oxygen into the subsurface environment, and that the microbial population and PCP degradation may have been enhanced in the AS/SVE area. However, given the mass of contaminant present in the test area, the six week pilot test duration was not sufficient to document an actual decrease in PCP concentration. Therefore, a Phase II SVE/AS test is being proposed that would expand on the scope of the original (Phase I) test. The primary objective of the Phase II test will be to evaluate whether PCP concentrations in contaminated soils and groundwater decrease as a result of AS/SVE application. The Phase II test utilizes a new method to evaluate PCP degradation in soils. This method is designed to minimize sampling problems associated with soil heterogeneity.

As with the original (Phase I) pilot test, the Phase II test will be conducted in the vicinity of the former seepage beds because free product is largely absent in that area. We are not proposing AS and SVE technology for application in areas with free product present at this time.

DESCRIPTION OF ACTIVITIES

The Phase II SVE/AS pilot test will continue to evaluate the effectiveness of this method in reducing PCP and mineral spirits concentrations at the site. The Phase II pilot test area will be enlarged and the test will be performed over a one year period, including baseline data collection. The pilot test modifications and details are as follows, refer to Drawing B22 for well and sampling locations:

- Two AS wells will be utilized: existing well W70B located in the former Phase I seepage bed area, and a new well AS01 to be located in the former dip room area (Phase II seepage bed).
- Three SVE wells will be utilized: existing soil moisture probe PZ1 located in the former seepage bed, and two new soil probes SVE01 and SVE02 (locations shown on Drawing B22).
- Groundwater monitoring will be performed at eight well locations: W1A, W25, and OW1 located upgradient of the test area, W7 located in the test area, and W35, PW1, PW2, and W69 located downgradient of the test area.
- Groundwater samples will be analyzed for the parameters and schedule shown in Table 1.
- Groundwater monitoring wells will be equipped with dedicated pumps to improve the accuracy of dissolved oxygen (DO) measurements and reduce the influence of small amounts of product on PCP and mineral spirits concentrations.
- Soil samples and in situ soil tests will be performed at five locations where previous soil sampling indicated PCP contamination:
 - ST01 located in the former seepage bed area (boring B104) where PCP concentrations were approximately 10,000 ppb.

- ST02 located in the former seepage bed area (boring B308) where PCP concentrations were up to 1300 ppb.
- ST03 located in the former dip room area (boring B1108) where PCP concentrations were up to 190,000 ppb.
- ST04 located in the former dip room area (boring B1107) where PCP concentrations were up to 10,000 ppb.
- ST05, ST06, and ST07 located adjacent to ST04 will be used to evaluate the addition of: nutrients only in ST05, bacteria only in ST06, and nutrients and bacteria in ST07.
- ST08 located approximately 100 ft north of AS01 (boring B1008) where PCP concentrations were up to 200,000 ppb, this location was selected as a control area outside the expected influence area of the SVE/AS test.

The in situ soil tests will employ a technique intended to provide a comparable measure of PCP degradation over time in the unsaturated soils. Previous attempts to evaluate changes in soil PCP concentrations over time have often been unsatisfactory due to the non-homogenous soil conditions, and difficulties in resampling the same general area. The proposed soil test will attempt to overcome these variables by placing a homogenized soil column in situ, and positioning soil sampling devices prior to the test period.

A conceptual plan for the in situ soil test procedure is presented in Drawing B23. The in situ soil test procedure will involve driving casing to the sample depth, removal of the cased soil column, mixing, subsampling and replacing the homogenized soils into the cased test boring. The casing will be pulled back 5 to 10 ft to expose the test soil column, but the casing will be capped and left in place as a guide for future sampling.

At this point the AS/SVE test will be initiated and run for a period of at least six months. Following completion of the AS/SVE test, the casing will be driven back over the test soil column and soil samples removed for analyses. Triplicate soil samples will be collected from the homogenized soils prior to the start and following completion of the AS/SVE test. The soil samples will be analyzed for phenolic compounds, mineral spirits, microbial populations, and nutrients.

Generally, the physical AS/SVE air flow rates will be similar to the Phase I test described in our July 29, 1994 work plan letter. We do not anticipate pulsing the system during the Phase II pilot testing.

Upon completion of the pilot test, a report will be prepared, consistent with the WDNR guidance on air sparging systems. The report will describe the field procedures, field and laboratory test results, and will present conclusions and recommendations.

POTENTIAL AIR EMISSION 5

Because the pilot test involves SVE and will be extracting in excess of 150,000 sq ft in total withdrawal, the test is not exempt from WDNR notification under NR 419.07(3) Wis. Admin. Code. Therefore, maximum potential emission rates for various contaminants which are regulated under NR 445 Wis. Admin. Code, and which were detected in the groundwater at the site, were calculated to determine compliance with regulatory limits. A summary of the calculated emissions rates for each compound detected during the June 1994 groundwater sampling round is presented in Table 2. As shown in the table, no exceedances of regulatory limits are anticipated. Analyses of soil vapor during the Phase I Pilot Test did not indicate detectable levels of organic compounds. However, to meet the testing requirements of NR 419.07(6) Wis. Admin. Code, total petroleum hydrocarbon (TPH) and benzene concentrations will be analyzed for in the blower exhaust gas. These parameters will be monitored according to the following schedule:

- TPH as mineral spirits will be tested for once per day for the first three days of SVE operation, once per week for the next three weeks of operation and once per month for the remainder of the SVE test.
- Benzene will be tested once during the first three days of operation, once during the third week, and at six month intervals for the remainder of the test period.

A copy of this work plan is being submitted to the WDNR Wausau Area Air Program to meet the notification requirements of 419.07(2).

SCHEDULE

A proposed schedule of operation for the pilot test is shown in Table 1. It is anticipated that the baseline monitoring can begin during February 1995 and that the test can begin during July 1995 and run through the end of 1995. To work within this schedule, we request WDNR approval of this Work Plan by February 15, 1995.

If you have any questions regarding this work plan, please call us at (608) 231-4747.

Sincerely,

MONTGOMERY WATSON AMERICAS, INC.



John D. Dadisman
Environmental Chemist



Douglas J. Bach, P.E.
Project Manager

Enclosures: Table 1 - Air Sparging/SVE Pilot Test Project Schedule
Table 2 - Potential Air Emissions
Drawing 1536813-B22 - Phase II Pilot Test
Drawing 1536813-B23 - In Situ Soil Test Conceptual Design

cc: C. Fribance - Wauleco
R. Kammer - Wauleco
P. Peshek - DeWitt, Ross and Stevens
R. O'Leary - WDNR, Wausau

JDD/vlr/DJB/KJQ
J:\41130021\WPLTR\999_SUKU.WPD
4113.0021-MD

Table 1
Project Schedule
Phase II Air Sparging/SVE Pilot Test
WAULECO, Inc.
Wausau, Wisconsin

Project Task	Project Week																			
	wk1	wk2	wk3	wk4	wk5	wk6	wk7	wk8	wk9	wk10	wk11	wk12	wk13	wk14	wk15	wk16	wk17	wk18	wk19	wk20
WDNR Review of Work Plan																				
Groundwater Monitoring (laboratory)																				
Groundwater Monitoring (field)																				
Sparge Well and SVE Probe Installation																				
In Situ Soil Test Initiation/Sampling																				
AS/SVE Operation																				
Soil Vapor Testing																				
End Test Soil Sampling																				

Notes:

Groundwater laboratory parameters = Phenols, total petroleum hydrocarbons, chloride, and nutrients analyzed during each event, and microbial populations measured quarterly. See weeks shaded 

Groundwater field parameters = Dissolved oxygen, pH, water levels, and product thickness.

Soil laboratory parameters = Phenols, total petroleum hydrocarbons, nutrients, and microbial populations.

Soil vapor parameters = Oxygen, carbon dioxide, SVE rate and pressure.

SVE blower exhaust will also be tested for total petroleum hydrocarbons and benzene as described in the work plan text.

Table 1
Project Schedule
Phase II Air Sparging/SVE Pilot Test
WAULECO, Inc.
Wausau, Wisconsin

Project Task	Project Week																			
	wk21	wk22	wk23	wk24	wk25	wk26	wk27	wk28	wk29	wk30	wk31	wk32	wk33	wk34	wk35	wk36	wk37	wk38	wk39	wk40
WDNR Review of Work Plan																				
Groundwater Monitoring (laboratory)																				
Groundwater Monitoring (field)																				
Sparge Well and SVE Probe Installation																				
In Situ Soil Test Initiation/Sampling																				
AS/SVE Operation																				
Soil Vapor Testing																				
End Test Soil Sampling																				

Table 1
Project Schedule
Phase II Air Sparging/SVE Pilot Test
WAULECO, Inc.
Wausau, Wisconsin

Project Task	Project Week																			
	wk41	wk42	wk43	wk44	wk45	wk46	wk47	wk48	wk49	wk50	wk51	wk52	wk53	wk54	wk55	wk56	wk57	wk58	wk59	wk60
WDNR Review of Work Plan																				
Groundwater Monitoring (laboratory)																				
Groundwater Monitoring (field)																				
Sparge Well and SVE Probe Installation																				
In Situ Soil Test Initiation/Sampling																				
AS/SVE Operation																				
Soil Vapor Testing																				
End Test Soil Sampling																				

Table 1
Project Schedule
Phase II Air Sparging/SVE Pilot Test
WAULECO, Inc.
Wausau, Wisconsin

Project Task	Project Week															
	wk61	wk62	wk63	wk64	wk65	wk66	wk67	wk68	wk69	wk70	wk71	wk72	wk73	wk74	wk75	wk76
WDNR Review of Work Plan																
Groundwater Monitoring (laboratory)																
Groundwater Monitoring (field)																
Sparge Well and SVE Probe Installation																
In Situ Soil Test Initiation/Sampling																
AS/SVE Operation																
Soil Vapor Testing																
End Test Soil Sampling																

Table 2
Potential Air Emissions
Phase II Air Sparging/SVE Test
WAULECO, Inc.
Wausau, Wisconsin

Compound	Groundwater Concentration (ug/L)	Henry's Law Constant (atm- m ³ /mol)	Calculated Emission Rate (lbs/hr)	Total Emissions for Test (lbs/yr)	Regulatory Limit
VOCs:					
Benzene	13	5.57E-03	0.0011	10	300 lbs/yr
Ethylbenzene	920	8.04E-03	0.1133	993	36.228 lbs/hr
Chloroform	17	4.05E-03	0.0011	9	250 lbs/yr
Naphthalene	800	1.23E-03	0.0151	132	4.164 lbs/hr
Trichloroethylene	28	1.17E-02	0.0050	44	22.4856 lbs/hr
Xylenes	3,300	5.64E-03	0.2849	2496	36.228 lbs/hr
Trimethylbenzenes	7,200	4.61E-03	0.5087	4457	10.4112 lbs/hr
Tetrachloroethylene	2.8	2.69E-02	0.0012	10	27.9 lbs/hr
Toluene	36	6.36E-03	0.0035	31	31.2312 lbs/hr
Total VOCs:	12,317		0.9339	8181	9.0 lbs/hr
Non-VOCs:					
PCP	51,000	2.75E-06	0.0021	18.8	0.0408 lbs/hr
Cresol	8,400	6.47E-07	0.0001	0.73	1.8312 lbs/hr

Notes:

Groundwater concentrations reported are the highest observed concentrations from site monitoring wells sampled during June 1994.

Henry's law constants for xylenes, trimethylbenzenes, and cresol are arithmetic averages for all isomers

Henry's law constant for PCP is estimated from solubility and vapor pressure data

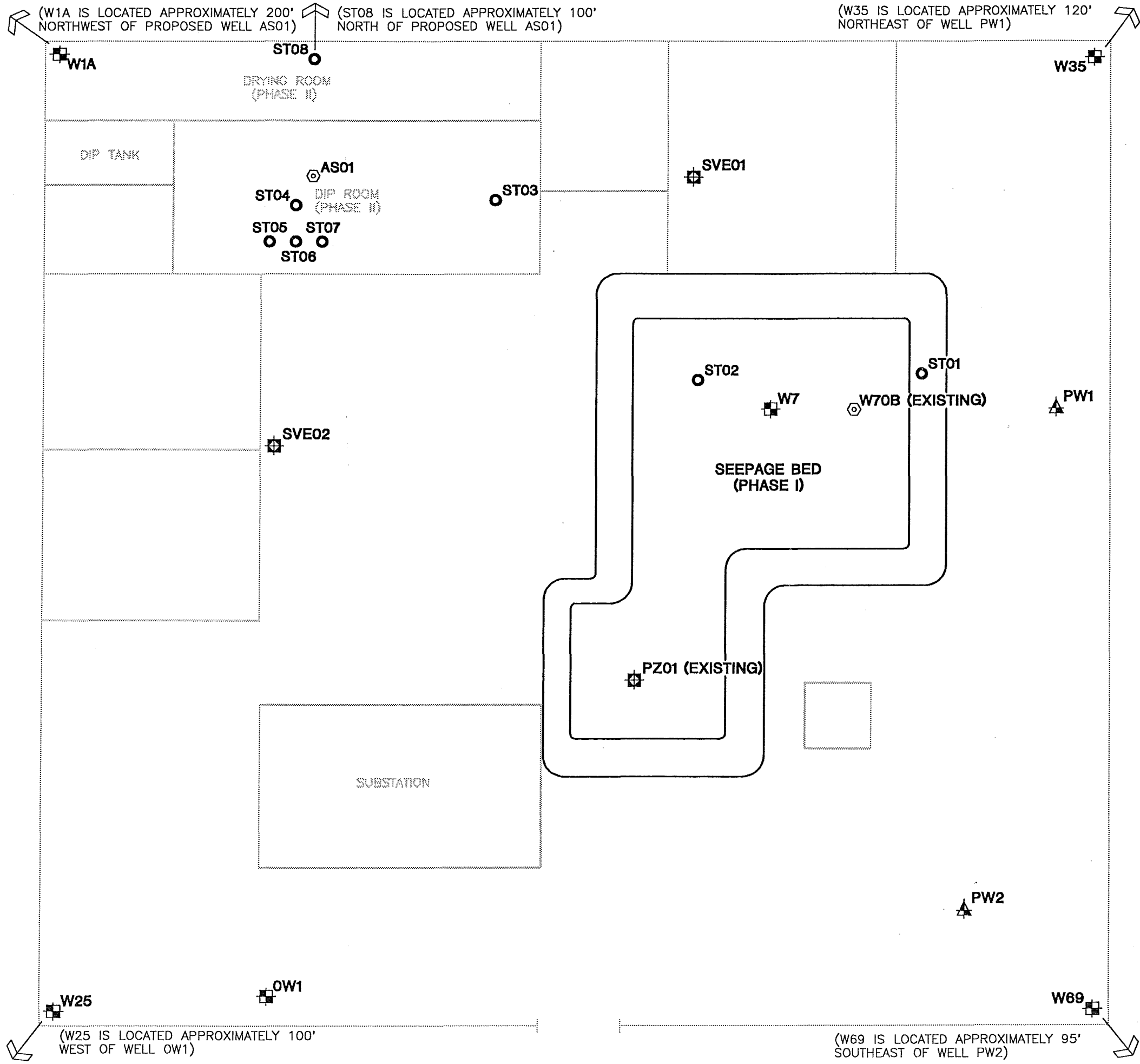
Emission rate assumes 100 scfm discharge rate and a total test duration of 8760 hours

Regulatory limits for individual compounds are from NR 445.

Regulatory limit for total VOCs is from NR 419.

This document has been developed for a specific application and may not be used without the written approval of Montgomery Watson.

QUALITY CONTROL	Graphic Standards DLF	01-23-95	Technical Review	01-24-95	Management Review
	Lead Professional		Project Manager	DJB	Other

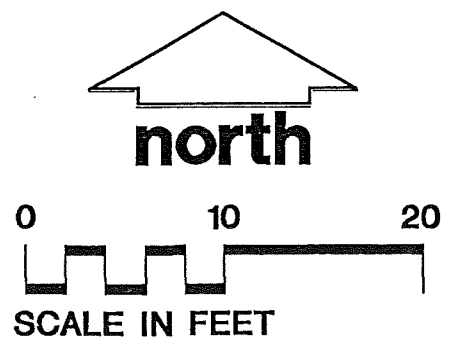


LEGEND

- W7 MONITORING WELL LOCATION AND NUMBER
- PW2 RECOVERY WELL LOCATION AND NUMBER
- AS01 AIR SPARGE WELL LOCATION AND NUMBER
- SVE01 SVE WELL LOCATION AND NUMBER
- ST01 IN-SITU SOIL TEST LOCATIONS AND NUMBER

NOTE

BASE MAP DEVELOPED FROM FIGURE 4-8, 300 SERIES SOIL BORING LOCATIONS, BY KEYSTONE ENVIRONMENTAL RESOURCES, INC. NOT DATED.



PHASE II AIR SPARGING/SVE PILOT TEST WELL AND SOIL LOCATIONS	Developed By	JDD	Drawn By	JLH, LCL
	Approved By	[Signature]	Date	2-14-95
	Reference			
	Revisions			
PHASE II AIR SPARGING/SVE PILOT TEST WORK PLAN				
WAULECO INCORPORATED				
125 ROSECRANS STREET				
WAUSAU, WISCONSIN				
Drawing Number				
1536813 B22				
MONTGOMERY WATSON				

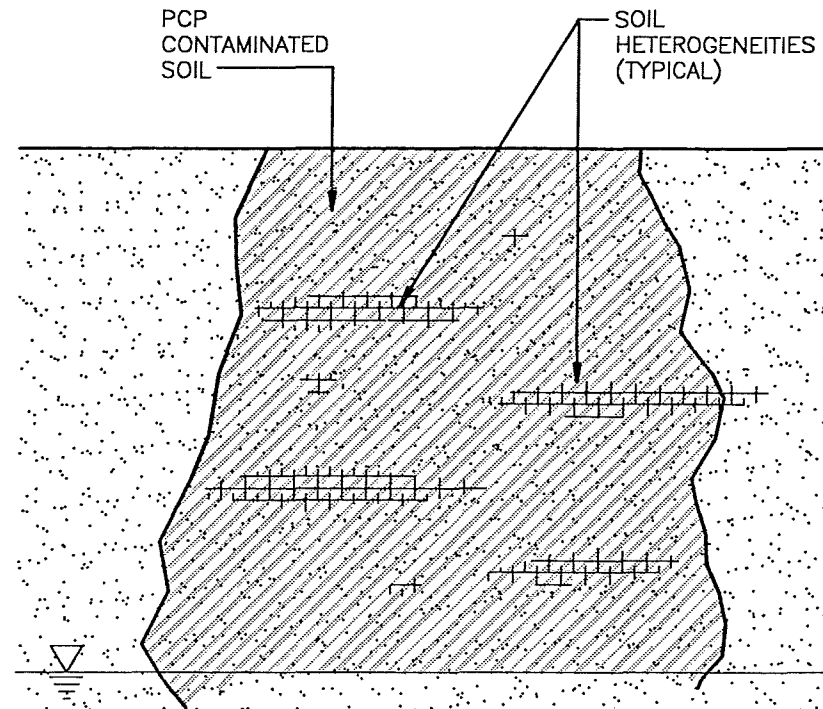


FIGURE 1
ORIGINAL CONDITIONS

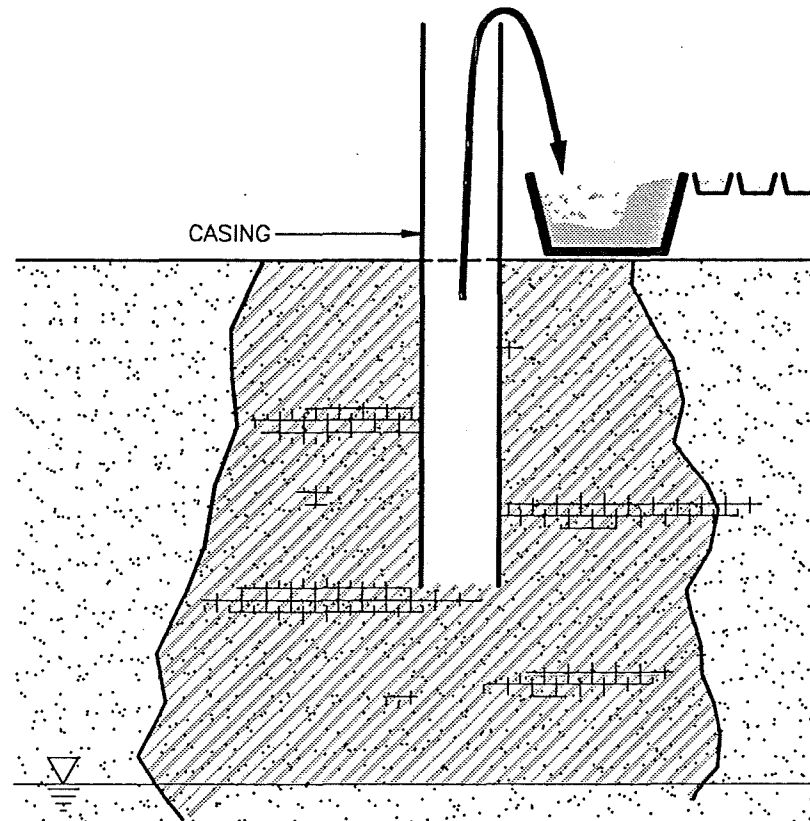


FIGURE 2
CASING BEING DRILLED AND DRIVEN

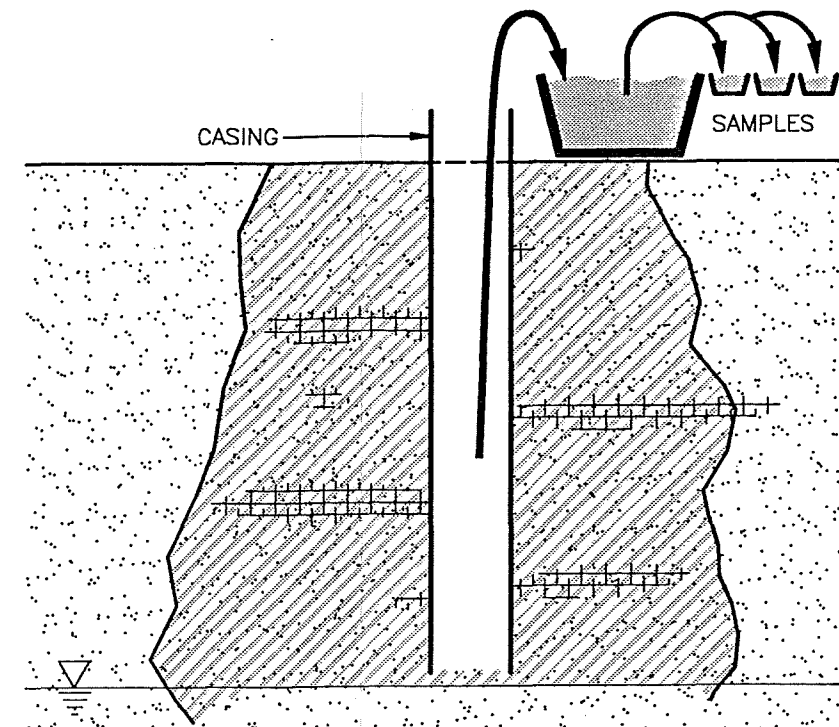


FIGURE 3
SOIL COLUMN REMOVED, MIXED AND SAMPLED

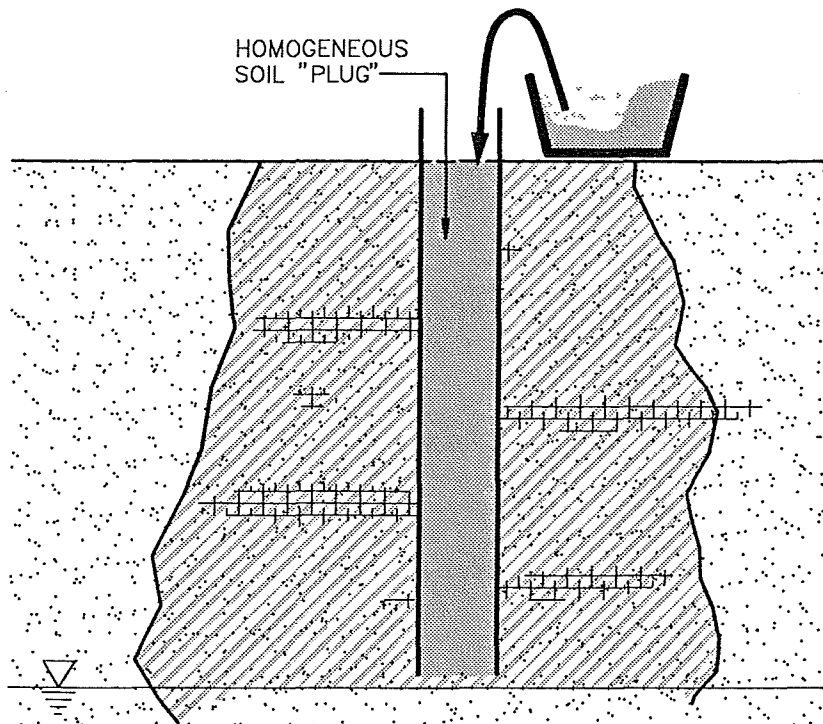


FIGURE 4
MIXED SOIL PLACED BACK INTO BORING AND COMPACTED

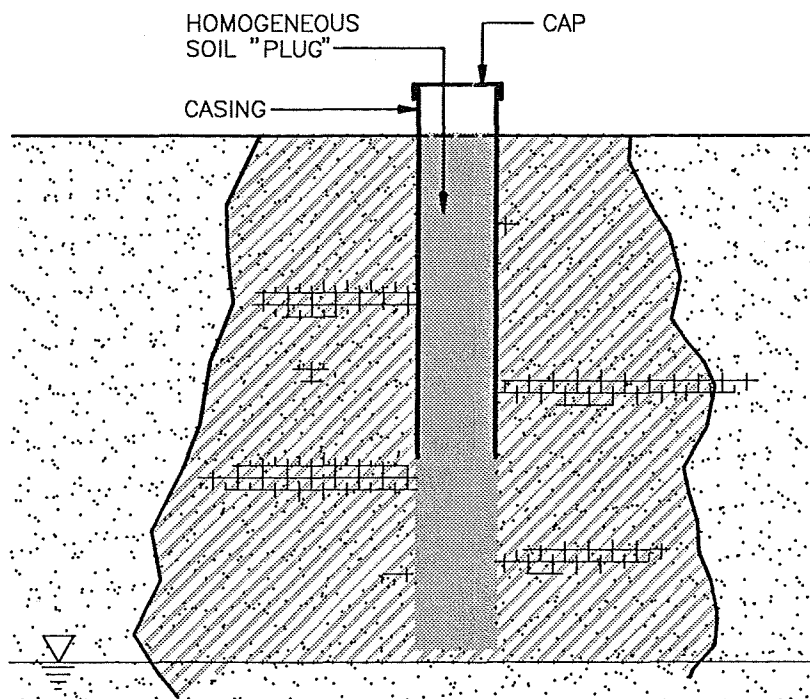


FIGURE 5
CASING PARTIALLY PULLED, LEFT IN PLACE AND CAPPED

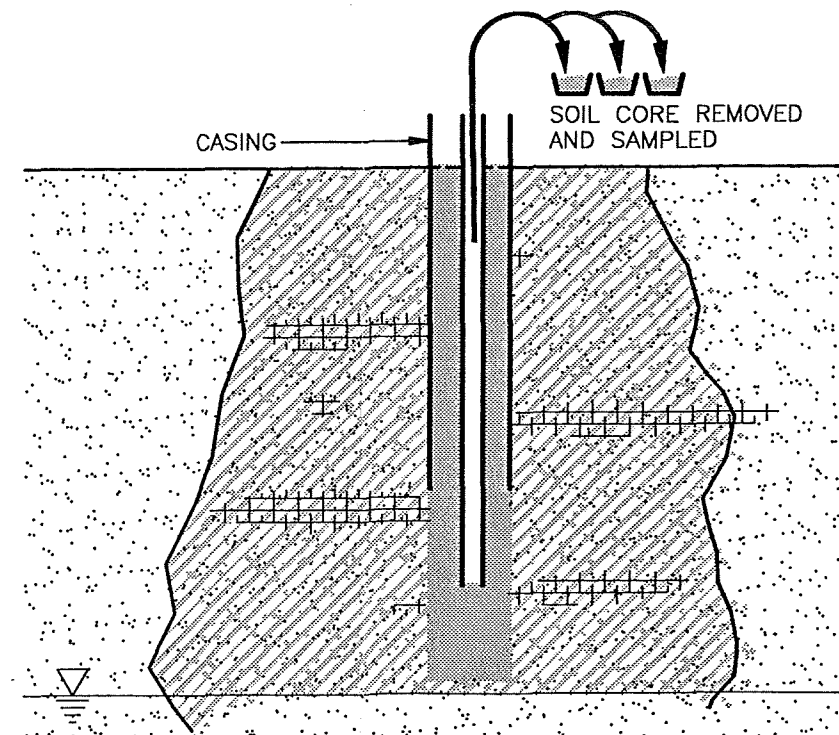


FIGURE 6
SAMPLING OF SOIL "PLUG" ONE YEAR LATER



MONTGOMERY WATSON

January 10, 1995

Ms. Laurel Sukup
Wisconsin Department of Natural Resources
North Central District Headquarters
P.O. Box 818
Rhinelander, Wisconsin 54501

Re: RIMTech Geophysical Survey

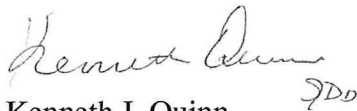
Dear Ms. Sukup:

The enclosed report summarizes the demonstration geophysical survey done on March 1 and 2, 1994 by RIMTech Inc. to determine whether they could map the distribution of free product. The results were mixed, but their summary map shows an area of free product between PW4, W46, W35, and W36. This is the area where the new product recovery wells PW13 and PW14 are located.

If you have questions or comments regarding this information, please call.

Sincerely,

MONTGOMERY WATSON AMERICAS, INC.



Kenneth J. Quinn
Senior Manager



Douglas J. Bach, P.E.
Project Manager

Enclosures: RIMTech Report

KJQ/vlr/KJQ
J:\41130023\WPLTR\999_SUKU.WPD
4113.0023-MD
1536818/155