



AMERICAN
ENGINEERING
TESTING, INC.

CONSULTANTS
• GEOTECHNICAL
• MATERIALS
• ENVIRONMENTAL

April 2, 1993

RECEIVED

APR 5 1993

ONR-WD

Ms. Barbara J. Palecek
Hazardous Waste Specialist
Department of Natural Resources
3550 Mormon Coulee Road
La Crosse, WI 54601

Dear Ms. Palecek:

I am writing to present you with an update of our continued work at the L.B. White Company, Inc. facility in Onalaska, Wisconsin. This letter summarizes all work performed at the site since the Remedial Investigation/Feasibility Study report was submitted November 1992. Our additional work scope is as described in our workplan (January 26, 1993) with some minor revisions specified in your February 2, 1993 conditional approval letter.

WORK TO DATE

February 8 - 12, 1993

The additional monitoring well (MW-9) and two piezometers (MW-7A & MW-9A) were installed at the locations shown on the attached site map.

February 15 - 17, 1993

The new wells were developed and all wells, including the facility well, were sampled. All well locations and elevations were surveyed by a professional surveyor on February 17, 1993. All previous water table measurements were adjusted to the revised surveyed well elevations. The attached table summarizes groundwater table elevations measured during each sampling interval. Water samples were submitted to Pace Laboratories of Minneapolis, Minnesota February 18, 1993. Laboratory results are attached.

March 22 - 23, 1993

All wells, including the facility well, were sampled. Groundwater samples were submitted to Pace Laboratories March 24, 1993 for chemical analysis.

"AN AFFIRMATIVE ACTION EMPLOYER"

2102 University Ave. W. • St. Paul, MN 55114 • 612-659-9001 • Fax 612-659-1379
4431 West Michigan Street, Suite #4 • Duluth, MN 55807 • 218-628-1518 • Fax 218-628-1580
1730 First Avenue • Mankato, MN 56001 • 507-387-2222 • Fax 507-387-6999

Ms. Barbara J. Palecek
April 2, 1993
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PRELIMINARY RESULTS

Laboratory results of the first round of groundwater sampling are attached. Concentrations of VOC's have, in nearly all cases, continued to decrease at previously tested wells. 1,1,1-Trichloroethane was detected at MW-7A and MW-9A below the Preventative Action Limit. 1,1-Dichloroethylene was detected at MW-7A below the Enforcement Standard. Vinyl Chloride was not detected at the method detection limit of 0.2 ppb at any of the well locations.

I have also included a groundwater table elevation map of the site which includes groundwater levels from the newly installed monitoring well and piezometers. Both computer generated and manually generated maps are enclosed. As noted in the groundwater elevations table, the water level measurements taken at MW-9 and MW-9A in February were measured to the nearest 0.1 feet. Thus, the groundwater elevation for MW-9 shown on the map may not be as accurate as the other wells. All groundwater levels were measured to the nearest 0.01 feet in March. Groundwater elevations are referenced to the revised well, top of riser, elevations obtained from the surveyor. Based on these revised well elevations the groundwater gradient at the site is shown to be toward the southwest.

A full report of all data and our recommendations will be submitted after the chemical analysis report for the most recent round of sampling is received. We are anticipating final laboratory results by the end of April.

If you have any questions or comments please feel free to contact me at (612) 659-1319.

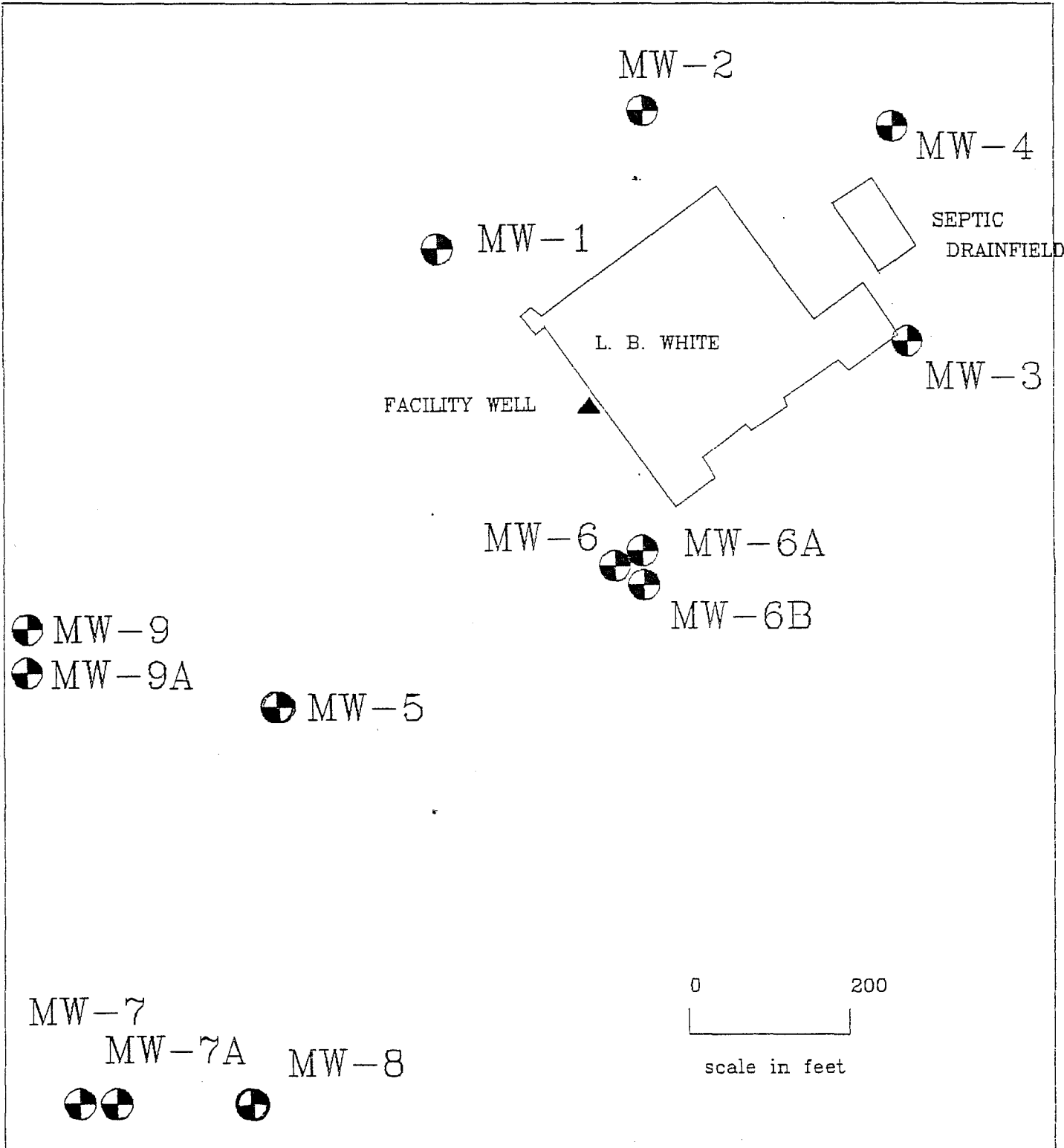
Sincerely,



Daniel R. Pingel
Hydrogeologist

DRP/jg
Enclosure

c.c. Mr. Anthony Wilson, L.B. White Co., Inc.
Mr. Doug Joseph, District Hydrogeologist, WDNR



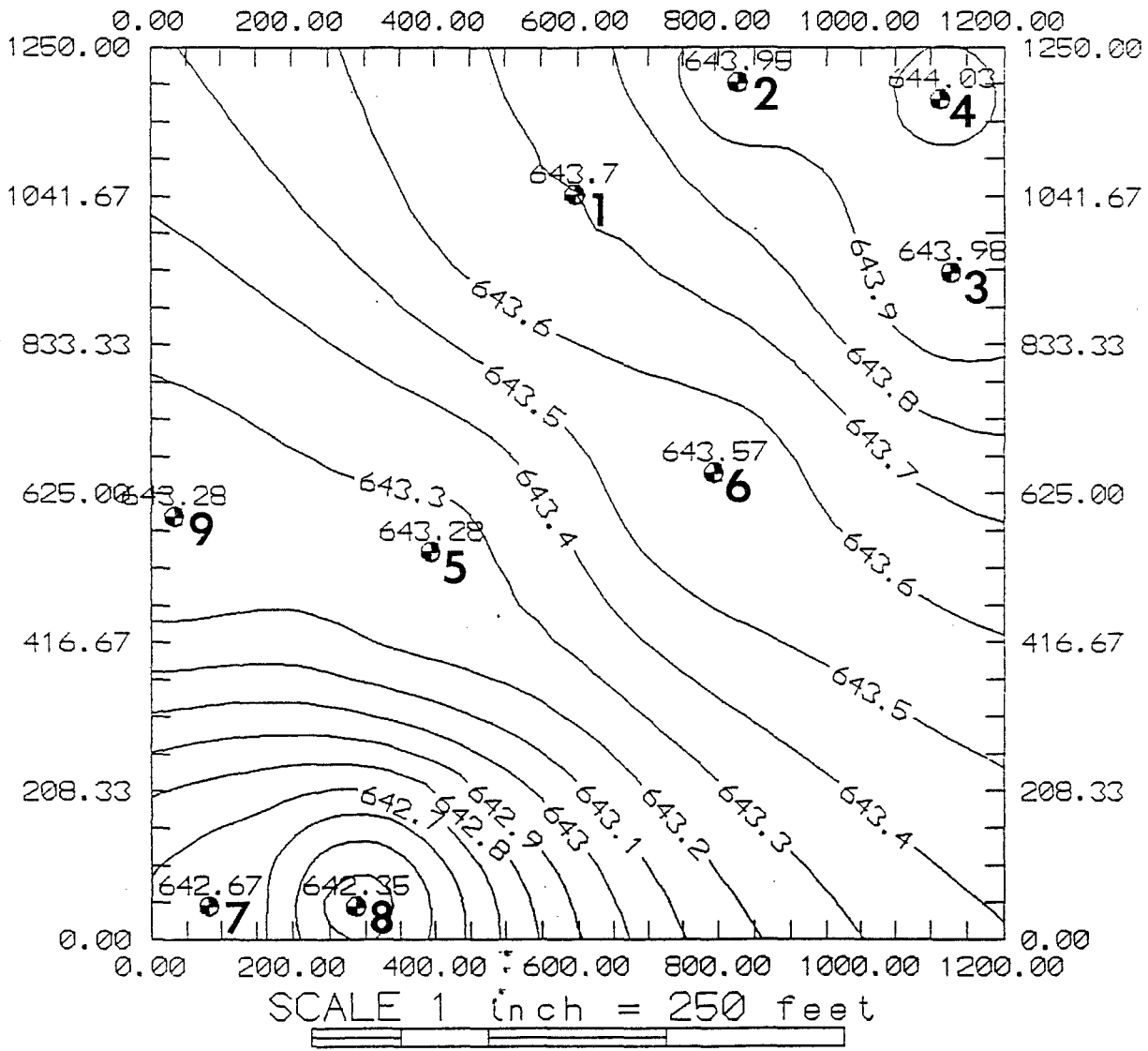
GROUNDWATER ELEVATIONS L.B. WHITE COMPANY, INC. ONALASKA, WISCONSIN											
Monitoring Well Number	Elevation of Top of Riser (ft)	July 7-9, 1992 *		August 12-13, 1992		September 10-11, 1992		February 15-17, 1993		March 22-23, 1993	
		Depth to Water Table (ft)	Elevation of Water Table (ft)	Depth to Water Table (ft)	Elevation of Water Table (ft)	Depth to Water Table (ft)	Elevation of Water Table (ft)	Depth to Water Table (ft)	Elevation of Water Table (ft)	Depth to Water Table (ft)	Elevation of Water Table (ft)
MW-1	716.73	73.22	643.51	73.09	643.64	-	-	73.03	643.70	73.21	643.52
MW-2	717.52	75.73	643.79	73.63	643.89	-	-	73.57	643.95	73.77	643.75
MW-3	719.12	75.31	643.81	75.20	643.92	-	-	75.14	643.98	75.37	643.75
MW-4	708.13	64.24	643.89	64.15	643.98	-	-	64.10	644.03	64.29	643.84
MW-5	727.78	84.65	643.13	84.55	643.23	85.08	642.70	84.50	643.28	84.68	643.10
MW-6	715.89	72.44	643.45	72.35	643.52	72.22	643.67	72.32	643.57	72.50	643.39
MW-6A	716.08	72.66	643.42	72.56	643.52	72.47	643.61	72.52	643.56	72.71	643.37
MW-6B	715.19	-	-	-	-	71.51	643.68	71.62	643.57	71.79	643.40
MW-7	735.60	93.03	642.57	92.97	642.63	92.99	642.61	92.93	642.67	93.10	642.50
MW-7A	735.46	-	-	-	-	-	-	92.86	642.60	93.00	642.46
MW-8	722.88	80.15	642.73	80.82	642.06	79.98	642.90	80.53	642.35	80.23	642.65
MW-9	751.88	-	-	-	-	-	-	108.6*	643.28	108.87	642.81
MW-9A	751.48	-	-	-	-	-	-	108.6*	642.88	108.69	642.79

- = not measured

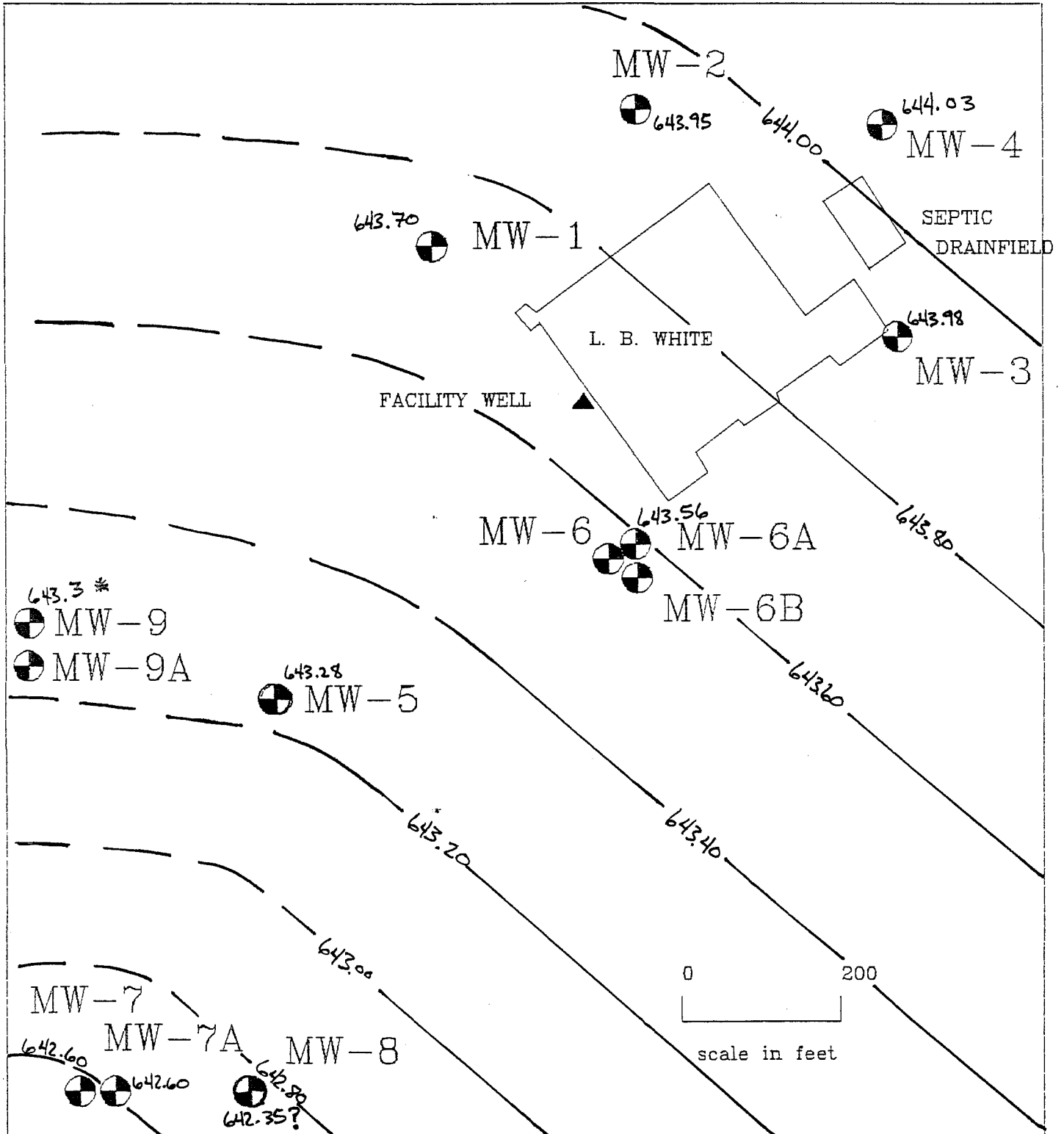
* = measured to the nearest 0.1 feet

Notes: All other measurements to the nearest 0.01 feet with an electronic measuring device. All measurements made from north side of top of riser.

GROUNDWATER TABLE ELEVATIONS (FEBRUARY 1993)

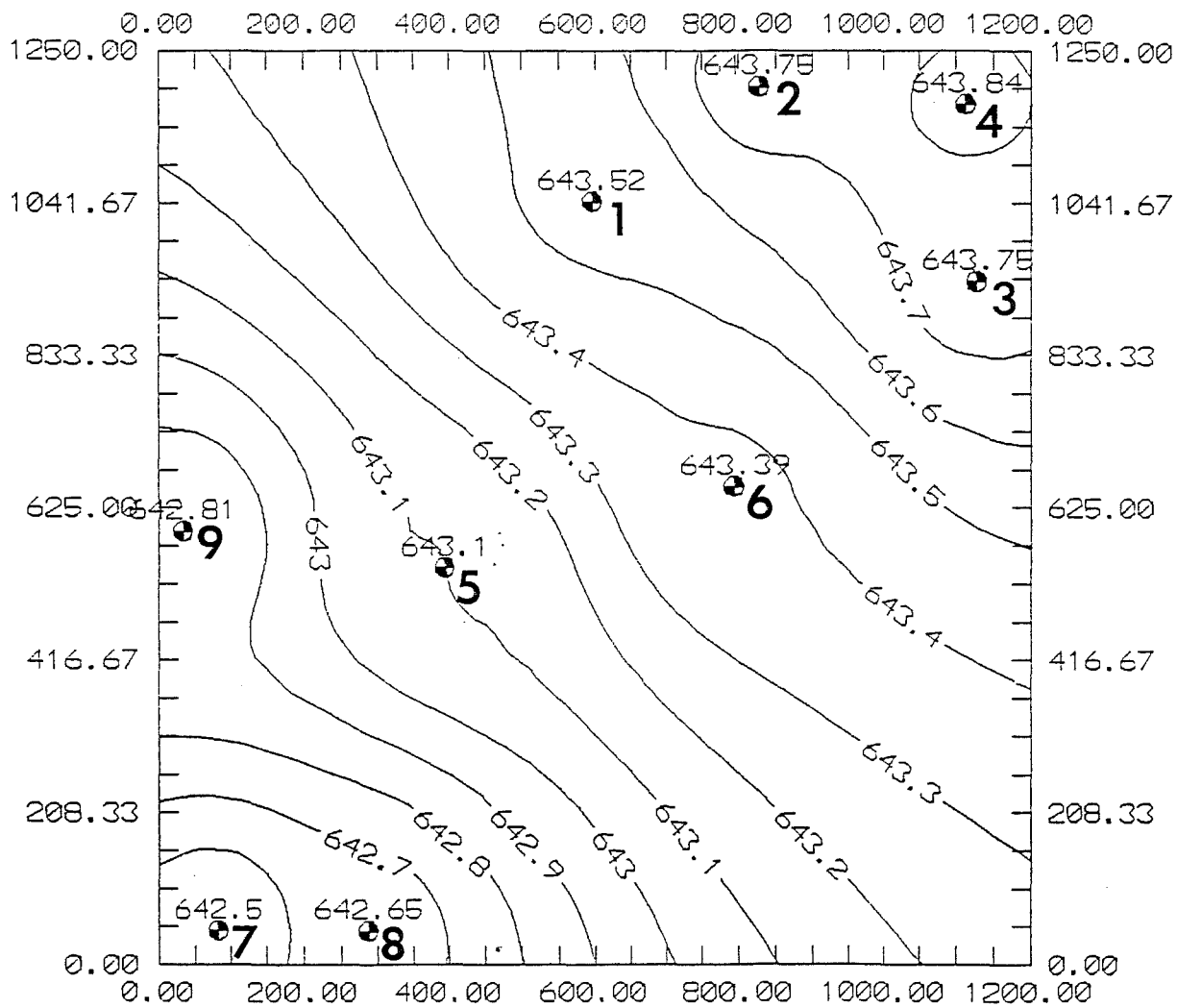


GROUNDWATER TABLE ELEVATIONS (FEBRUARY 1993)
 (feet above sea level)

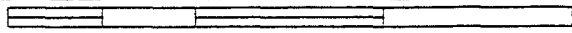


*Note: Measured to the nearest 0.1'
 All others measured to the nearest 0.01'

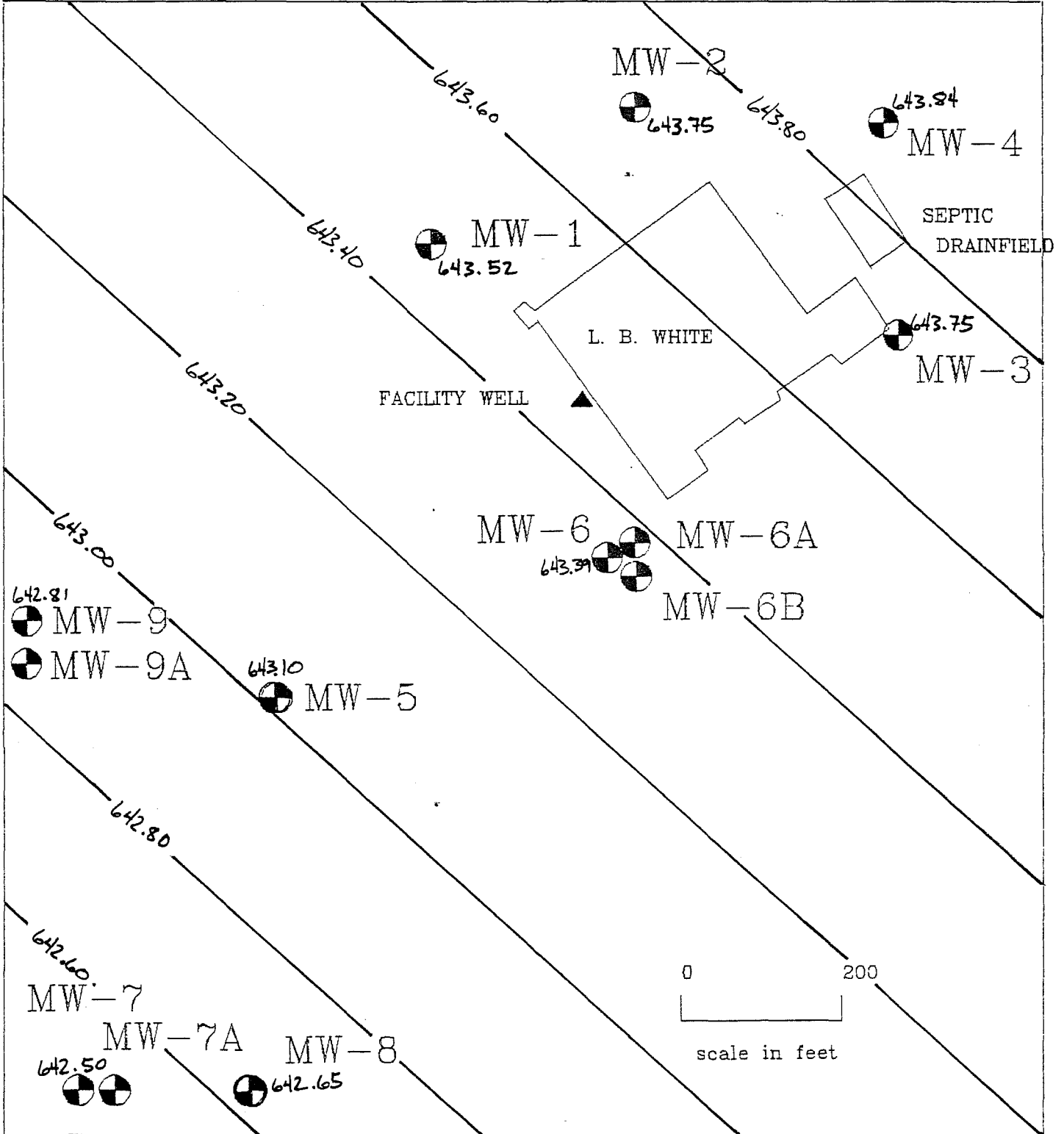
GROUNDWATER TABLE ELEVATIONS (MARCH 1993)



SCALE 1 inch = 250 feet



GROUNDWATER TABLE ELEVATIONS (MARCH 1993)
(feet above sea level)





REPORT OF LABORATORY ANALYSIS

American Engineering Testing
 2102 University Avenue West
 St. Paul, MN 55114

March 12, 1993
 PACE Project Number: 930218505

Attn: Mr. Dan Pingel

Client Reference: 93-162

PACE Sample Number:	10 0031011	10 0031020	10 0031038
Date Collected:	02/16/93	02/16/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-1	MW-2	MW-3

<u>Parameter</u>	<u>Units</u>	<u>MDI</u>			
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ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601

			D 02/26/93	D 02/26/93	D 02/26/93
Date Analyzed					
Chloromethane	ug/L	1.0	ND	ND	ND
Bromomethane	ug/L	1.5	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.5	ND	ND	ND
Vinyl chloride	ug/L	1.5	ND	ND	ND
Chloroethane	ug/L	1.0	ND	ND	ND
Methylene chloride	ug/L	1.0	ND	ND	ND
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.3	ND	ND	ND
1,1-Dichloroethane	ug/L	0.2	ND	ND	0.6
trans-1,2-Dichloroethylene	ug/L	0.3	ND	ND	ND
Chloroform	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.2	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.5	13	11	20
Carbon tetrachloride	ug/L	0.3	ND	ND	ND
Bromodichloromethane	ug/L	0.2	ND	ND	ND
1,2-Dichloropropane	ug/L	0.2	ND	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethylene	ug/L	0.5	ND	0.8	ND
Dibromochloromethane	ug/L	1.0	ND	ND	ND
1,1,2-Trichloroethane	ug/L	1.0	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	ND	ND
2-Chloroethylvinyl ether	ug/L	5.0	ND	ND	ND
Bromoform	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	ND	ND
Chlorobenzene	ug/L	1.0	ND	ND	ND
1,3-Dichlorobenzene	ug/L	4.0	ND	ND	ND
1,2-Dichlorobenzene	ug/L	4.0	ND	ND	ND

Mr. Dan Pingel
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March 12, 1993
 PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:		10 0031011	10 0031020	10 0031038
Date Collected:		02/16/93	02/16/93	02/16/93
Date Received:		02/18/93	02/18/93	02/18/93
Client Sample ID:		MW-1	MW-2	MW-3
Parameter	Units	MDL		

ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601
 1,4-Dichlorobenzene
 cis-1,2-Dichloroethylene

ug/L	4.0	ND	ND	ND
ug/L	0.5	ND	ND	ND

Mr. Dan Pingel
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March 12, 1993
 PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031046	10 0031054	10 0031062
Date Collected:	02/16/93	02/16/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-5	MW-6	MW-6A

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>			
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ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601

			D 02/26/93	L 02/28/93	L 02/28/93
Date Analyzed					
Chloromethane	ug/L	1.0	ND	-	-
Chloromethane	ug/L	2.0	-	-	ND
Chloromethane	ug/L	5.0	-	ND	-
Bromomethane	ug/L	1.5	ND	-	-
Bromomethane	ug/L	3.0	-	-	ND
Bromomethane	ug/L	7.5	-	ND	-
Dichlorodifluoromethane	ug/L	1.5	ND	-	-
Dichlorodifluoromethane	ug/L	3.0	-	-	ND
Dichlorodifluoromethane	ug/L	7.5	-	ND	-
Vinyl chloride	ug/L	1.5	ND	-	-
Vinyl chloride	ug/L	3.0	-	-	ND
Vinyl chloride	ug/L	7.5	-	ND	-
Chloroethane	ug/L	1.0	ND	-	-
Chloroethane	ug/L	2.0	-	-	ND
Chloroethane	ug/L	5.0	-	ND	-
Methylene chloride	ug/L	1.0	ND	-	-
Methylene chloride	ug/L	2.0	-	-	ND
Methylene chloride	ug/L	5.0	-	ND	-
Trichlorofluoromethane	ug/L	0.4	ND	-	-
Trichlorofluoromethane	ug/L	0.80	-	-	ND
Trichlorofluoromethane	ug/L	2.0	-	ND	-
1,1-Dichloroethylene	ug/L	0.3	ND	-	-
1,1-Dichloroethylene	ug/L	0.60	-	-	5.6
1,1-Dichloroethylene	ug/L	1.5	-	5.1	-
1,1-Dichloroethane	ug/L	0.2	ND	-	-
1,1-Dichloroethane	ug/L	0.40	-	-	1.6
1,1-Dichloroethane	ug/L	1.0	-	1.4	-
trans-1,2-Dichloroethylene	ug/L	0.3	ND	-	-
trans-1,2-Dichloroethylene	ug/L	0.60	-	-	ND
trans-1,2-Dichloroethylene	ug/L	1.5	-	ND	-

Mr. Dan Pingel
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March 12, 1993
 PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031046	10 0031054	10 0031062
Date Collected:	02/16/93	02/16/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-5	MW-6	MW-6A

<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	<u> </u>	<u> </u>	<u> </u>
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ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601

Chloroform	ug/L	0.5	ND	-	-
Chloroform	ug/L	1.0	-	-	ND
Chloroform	ug/L	2.5	-	ND	-
1,2-Dichloroethane	ug/L	0.2	ND	-	-
1,2-Dichloroethane	ug/L	0.40	-	-	ND
1,2-Dichloroethane	ug/L	1.0	-	ND	-
1,1,1-Trichloroethane	ug/L	0.5	4.2	-	-
1,1,1-Trichloroethane	ug/L	1.0	-	-	98
1,1,1-Trichloroethane	ug/L	2.5	-	130	-
Carbon tetrachloride	ug/L	0.3	ND	-	-
Carbon tetrachloride	ug/L	0.60	-	-	ND
Carbon tetrachloride	ug/L	1.5	-	ND	-
Bromodichloromethane	ug/L	0.2	ND	-	-
Bromodichloromethane	ug/L	0.40	-	-	ND
Bromodichloromethane	ug/L	1.0	-	ND	-
1,2-Dichloropropane	ug/L	0.2	ND	-	-
1,2-Dichloropropane	ug/L	0.40	-	-	ND
1,2-Dichloropropane	ug/L	1.0	-	ND	-
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	-	-
cis-1,3-Dichloro-1-propene	ug/L	1.0	-	-	ND
cis-1,3-Dichloro-1-propene	ug/L	2.5	-	ND	-
1,1,2-Trichloroethylene	ug/L	0.5	ND	-	-
1,1,2-Trichloroethylene	ug/L	1.0	-	-	ND
1,1,2-Trichloroethylene	ug/L	2.5	-	ND	-
Dibromochloromethane	ug/L	1.0	ND	-	-
Dibromochloromethane	ug/L	2.0	-	-	ND
Dibromochloromethane	ug/L	5.0	-	ND	-
1,1,2-Trichloroethane	ug/L	1.0	ND	-	-
1,1,2-Trichloroethane	ug/L	2.0	-	-	ND
1,1,2-Trichloroethane	ug/L	5.0	-	ND	-
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	-	-

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031046	10 0031054	10 0031062
Date Collected:	02/16/93	02/16/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-5	MW-6	MW-6A
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	

ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601

trans-1,3-Dichloro-1-propene	ug/L	0.60	-	-	ND
trans-1,3-Dichloro-1-propene	ug/L	1.5	-	ND	-
2-Chloroethylvinyl ether	ug/L	10	-	-	ND
2-Chloroethylvinyl ether	ug/L	25	-	ND	-
2-Chloroethylvinyl ether	ug/L	5.0	ND	-	-
Bromoform	ug/L	1.0	ND	-	-
Bromoform	ug/L	2.0	-	-	ND
Bromoform	ug/L	5.0	-	ND	-
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	-	-
1,1,2,2-Tetrachloroethane	ug/L	2.0	-	-	ND
1,1,2,2-Tetrachloroethane	ug/L	5.0	-	ND	-
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	-	-
1,1,2,2-Tetrachloroethylene	ug/L	2.0	-	-	ND
1,1,2,2-Tetrachloroethylene	ug/L	5.0	-	ND	-
Chlorobenzene	ug/L	1.0	ND	-	-
Chlorobenzene	ug/L	2.0	-	-	ND
Chlorobenzene	ug/L	5.0	-	ND	-
1,3-Dichlorobenzene	ug/L	20	-	ND	-
1,3-Dichlorobenzene	ug/L	4.0	ND	-	-
1,3-Dichlorobenzene	ug/L	8.0	-	-	ND
1,2-Dichlorobenzene	ug/L	20	-	ND	-
1,2-Dichlorobenzene	ug/L	4.0	ND	-	-
1,2-Dichlorobenzene	ug/L	8.0	-	-	ND
1,4-Dichlorobenzene	ug/L	20	-	ND	-
1,4-Dichlorobenzene	ug/L	4.0	ND	-	-
1,4-Dichlorobenzene	ug/L	8.0	-	-	ND
cis-1,2-Dichloroethylene	ug/L	0.5	ND	-	-
cis-1,2-Dichloroethylene	ug/L	1.0	-	-	ND
cis-1,2-Dichloroethylene	ug/L	2.5	-	ND	-

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031070	10 0031089	10 0031097
Date Collected:	02/16/93	02/16/93	02/15/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-6B	MW-4	MW-7
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	

ORGANIC ANALYSIS

PURGEABLE HALOCARBONS-601

Date Analyzed			F 02/28/93	-	-
Chloromethane	ug/L	1.0	ND	-	-
Bromomethane	ug/L	1.5	ND	-	-
Dichlorodifluoromethane	ug/L	1.5	ND	-	-
Vinyl chloride	ug/L	1.5	ND	-	-
Chloroethane	ug/L	1.0	ND	-	-
Methylene chloride	ug/L	1.0	ND	-	-
Trichlorofluoromethane	ug/L	0.4	ND	-	-
1,1-Dichloroethylene	ug/L	0.3	ND	-	-
1,1-Dichloroethane	ug/L	0.2	ND	-	-
trans-1,2-Dichloroethylene	ug/L	0.3	ND	-	-
Chloroform	ug/L	0.5	ND	-	-
1,2-Dichloroethane	ug/L	0.2	ND	-	-
1,1,1-Trichloroethane	ug/L	0.5	ND	-	-
Carbon tetrachloride	ug/L	0.3	ND	-	-
Bromodichloromethane	ug/L	0.2	ND	-	-
1,2-Dichloropropane	ug/L	0.2	ND	-	-
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	-	-
1,1,2-Trichloroethylene	ug/L	0.5	ND	-	-
Dibromochloromethane	ug/L	1.0	ND	-	-
1,1,2-Trichloroethane	ug/L	1.0	ND	-	-
trans-1,3-Dichloro-1-propene	ug/L	0.3	ND	-	-
2-Chloroethylvinyl ether	ug/L	5.0	ND	-	-
Bromoform	ug/L	1.0	ND	-	-
1,1,2,2-Tetrachloroethane	ug/L	1.0	ND	-	-
1,1,2,2-Tetrachloroethylene	ug/L	1.0	ND	-	-
Chlorobenzene	ug/L	1.0	ND	-	-
1,3-Dichlorobenzene	ug/L	4.0	ND	-	-
1,2-Dichlorobenzene	ug/L	4.0	ND	-	-
1,4-Dichlorobenzene	ug/L	4.0	ND	-	-
cis-1,2-Dichloroethylene	ug/L	0.5	ND	-	-

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031070	10 0031089	10 0031097
Date Collected:	02/16/93	02/16/93	02/15/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-6B	MW-4	MW-7
Parameter	Units	MDI	

ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

Date Analyzed			-	D 03/01/93	D 03/01/93
Chloromethane	ug/L	0.8	-	ND	ND
Bromomethane	ug/L	1.2	-	ND	ND
Dichlorodifluoromethane	ug/L	1.2	-	ND	ND
Vinyl chloride	ug/L	0.2	-	ND	ND
Chloroethane	ug/L	0.8	-	ND	ND
1,1-Dichloroethylene	ug/L	0.5	-	ND	ND
Trichlorofluoromethane	ug/L	0.4	-	ND	ND
Methylene chloride	ug/L	1.0	-	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.4	-	ND	ND
1,1-Dichloroethane	ug/L	0.6	-	ND	ND
2,2-Dichloropropane	ug/L	0.5	-	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.4	-	ND	ND
Bromochloromethane	ug/L	1.1	-	ND	ND
Chloroform	ug/L	1.2	-	ND	ND
Dibromomethane	ug/L	0.9	-	ND	ND
1,1,1-Trichloroethane	ug/L	0.7	-	ND	ND
Carbon tetrachloride	ug/L	0.5	-	ND	ND
1,2-Dichloroethane	ug/L	0.5	-	ND	ND
1,1,2-Trichloroethylene	ug/L	1.0	-	ND	ND
1,1-Dichloro-1-propene	ug/L	0.8	-	ND	ND
1,2-Dichloropropane	ug/L	0.7	-	ND	ND
Bromodichloromethane	ug/L	0.8	-	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.4	-	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	-	ND	ND
1,1,2-Trichloroethane	ug/L	0.4	-	ND	ND
1,3-Dichloropropane	ug/L	0.7	-	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.6	-	ND	ND
Dibromochloromethane	ug/L	0.9	-	ND	ND
1,2-Dibromoethane	ug/L	4.0	-	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	0.4	-	ND	ND

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031070	10 0031089	10 0031097
Date Collected:	02/16/93	02/16/93	02/15/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-6B	MW-4	MW-7

Parameter	Units	MDL			
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ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

Bromoform	ug/L	1.0	-	ND	ND
1,2,3-Trichloropropane	ug/L	0.9	-	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.7	-	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.8	-	ND	ND
Hexachlorobutadiene	ug/L	1.1	-	ND	ND
Methyl tert-butyl ether	ug/L	1.0	-	ND	ND
Benzene	ug/L	0.4	-	ND	ND
Toluene	ug/L	0.6	-	ND	ND
Chlorobenzene	ug/L	0.7	-	ND	ND
Ethyl benzene	ug/L	0.8	-	ND	ND
Xylenes	ug/L	1.3	-	ND	ND
Styrene	ug/L	0.8	-	ND	ND
Cumene	ug/L	1.2	-	ND	ND
Bromobenzene	ug/L	1.0	-	ND	ND
n-Propylbenzene	ug/L	0.9	-	ND	ND
2-Chlorotoluene	ug/L	1.0	-	ND	ND
4-Chlorotoluene	ug/L	1.4	-	ND	ND
1,3,5-Trimethylbenzene	ug/L	0.7	-	ND	ND
tert-Butylbenzene	ug/L	2.0	-	ND	ND
1,2,4-Trimethylbenzene	ug/L	0.7	-	ND	ND
1,3-Dichlorobenzene	ug/L	0.9	-	ND	ND
sec-Butylbenzene	ug/L	0.8	-	ND	ND
1,4-Dichlorobenzene	ug/L	0.9	-	ND	ND
p-Cymene	ug/L	0.9	-	ND	ND
1,2-Dichlorobenzene	ug/L	1.0	-	ND	ND
n-Butylbenzene	ug/L	1.2	-	ND	ND
1,2,4-Trichlorobenzene	ug/L	1.1	-	ND	ND
Naphthalene	ug/L	1.6	-	ND	ND
1,2,3-Trichlorobenzene	ug/L	1.1	-	ND	ND
Fluorobenzene (Surrogate)	%		-	99.7	101

Mr. Dan Pingel
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March 12, 1993
 PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031100	10 0031119	10 0031127
Date Collected:	02/16/93	02/15/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-7A	MW-8	MW-9
<u>Parameter</u>	<u>Units</u>	<u>MDL</u>	

ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

Date Analyzed			D 03/02/93	D 03/01/93	D 03/01/93
Chloromethane	ug/L	0.8	ND	ND	ND
Bromomethane	ug/L	1.2	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.2	ND	ND	ND
Vinyl chloride	ug/L	0.2	ND	ND	ND
Chloroethane	ug/L	0.8	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.5	1.9	ND	ND
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
Methylene chloride	ug/L	1.0	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.4	ND	ND	ND
1,1-Dichloroethane	ug/L	0.6	ND	ND	ND
2,2-Dichloropropane	ug/L	0.5	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.4	ND	ND	ND
Bromochloromethane	ug/L	1.1	ND	ND	ND
Chloroform	ug/L	1.2	ND	ND	ND
Dibromomethane	ug/L	0.9	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.7	23	ND	ND
Carbon tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethylene	ug/L	1.0	ND	ND	ND
1,1-Dichloro-1-propene	ug/L	0.8	ND	ND	ND
1,2-Dichloropropane	ug/L	0.7	ND	ND	ND
Bromodichloromethane	ug/L	0.8	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.4	ND	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.4	ND	ND	ND
1,3-Dichloropropane	ug/L	0.7	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.6	ND	ND	ND
Dibromochloromethane	ug/L	0.9	ND	ND	ND
1,2-Dibromoethane	ug/L	4.0	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	0.4	ND	ND	ND

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:	10 0031100	10 0031119	10 0031127
Date Collected:	02/16/93	02/15/93	02/16/93
Date Received:	02/18/93	02/18/93	02/18/93
Client Sample ID:	MW-7A	MW-8	MW-9

<u>Parameter</u>	<u>Units</u>	<u>MDI</u>	<u> </u>	<u> </u>	<u> </u>
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ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

Bromoform	ug/L	1.0	ND	ND	ND
1,2,3-Trichloropropane	ug/L	0.9	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.7	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.8	ND	ND	ND
Hexachlorobutadiene	ug/L	1.1	ND	ND	ND
Methyl tert-butyl ether	ug/L	1.0	ND	ND	ND
Benzene	ug/L	0.4	ND	ND	ND
Toluene	ug/L	0.6	ND	ND	ND
Chlorobenzene	ug/L	0.7	ND	ND	ND
Ethyl benzene	ug/L	0.8	ND	ND	ND
Xylenes	ug/L	1.3	ND	ND	ND
Styrene	ug/L	0.8	ND	ND	ND
Cumene	ug/L	1.2	ND	ND	ND
Bromobenzene	ug/L	1.0	ND	ND	ND
n-Propylbenzene	ug/L	0.9	ND	ND	ND
2-Chlorotoluene	ug/L	1.0	ND	ND	ND
4-Chlorotoluene	ug/L	1.4	ND	ND	ND
1,3,5-Trimethylbenzene	ug/L	0.7	ND	ND	ND
tert-Butylbenzene	ug/L	2.0	ND	ND	ND
1,2,4-Trimethylbenzene	ug/L	0.7	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.9	ND	ND	ND
sec-Butylbenzene	ug/L	0.8	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.9	ND	ND	ND
p-Cymene	ug/L	0.9	ND	ND	ND
1,2-Dichlorobenzene	ug/L	1.0	ND	ND	ND
n-Butylbenzene	ug/L	1.2	ND	ND	ND
1,2,4-Trichlorobenzene	ug/L	1.1	ND	ND	ND
Naphthalene	ug/L	1.6	ND	ND	ND
1,2,3-Trichlorobenzene	ug/L	1.1	ND	ND	ND
Fluorobenzene (Surrogate)	%		99.3	99.3	101

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:			10 0031135	10 0031143	10 0031151
Date Collected:			02/17/93	02/16/93	02/17/93
Date Received:			02/18/93	02/18/93	02/18/93
Client Sample ID:			MW-9A	Facility	FieldBlank
Parameter	Units	MDL		Well	

ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

Date Analyzed			D 03/01/93	D 03/01/93	D 03/01/93
Chloromethane	ug/L	0.8	ND	ND	ND
Bromomethane	ug/L	1.2	ND	ND	ND
Dichlorodifluoromethane	ug/L	1.2	ND	ND	ND
Vinyl chloride	ug/L	0.2	ND	ND	ND
Chloroethane	ug/L	0.8	ND	ND	ND
1,1-Dichloroethylene	ug/L	0.5	ND	ND	ND
Trichlorofluoromethane	ug/L	0.4	ND	ND	ND
Methylene chloride	ug/L	1.0	ND	ND	ND
trans-1,2-Dichloroethylene	ug/L	0.4	ND	ND	ND
1,1-Dichloroethane	ug/L	0.6	ND	ND	ND
2,2-Dichloropropane	ug/L	0.5	ND	ND	ND
cis-1,2-Dichloroethylene	ug/L	0.4	ND	ND	ND
Bromochloromethane	ug/L	1.1	ND	ND	ND
Chloroform	ug/L	1.2	ND	ND	ND
Dibromomethane	ug/L	0.9	ND	ND	ND
1,1,1-Trichloroethane	ug/L	0.7	9.9	ND	ND
Carbon tetrachloride	ug/L	0.5	ND	ND	ND
1,2-Dichloroethane	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethylene	ug/L	1.0	ND	ND	ND
1,1-Dichloro-1-propene	ug/L	0.8	ND	ND	ND
1,2-Dichloropropane	ug/L	0.7	ND	ND	ND
Bromodichloromethane	ug/L	0.8	ND	ND	ND
trans-1,3-Dichloro-1-propene	ug/L	0.4	ND	ND	ND
cis-1,3-Dichloro-1-propene	ug/L	0.5	ND	ND	ND
1,1,2-Trichloroethane	ug/L	0.4	ND	ND	ND
1,3-Dichloropropane	ug/L	0.7	ND	ND	ND
1,1,2,2-Tetrachloroethylene	ug/L	1.6	ND	ND	ND
Dibromochloromethane	ug/L	0.9	ND	ND	ND
1,2-Dibromoethane	ug/L	4.0	ND	ND	ND
1,1,1,2-Tetrachloroethane	ug/L	0.4	ND	ND	ND

Mr. Dan Pingel
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March 12, 1993
 PACE Project Number: 930218505

Client Reference: 93-162

PACE Sample Number:		10 0031135	10 0031143	10 0031151
Date Collected:		02/17/93	02/16/93	02/17/93
Date Received:		02/18/93	02/18/93	02/18/93
Client Sample ID:		MW-9A	Facility	FieldBlank
Parameter	Units	MDL	Well	

ORGANIC ANALYSIS

VOLATILE ORGANICS IN WATER-8021

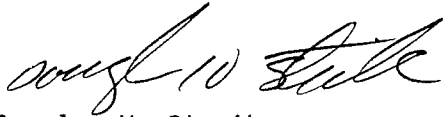
Bromoform	ug/L	1.0	ND	ND	ND
1,2,3-Trichloropropane	ug/L	0.9	ND	ND	ND
1,1,2,2-Tetrachloroethane	ug/L	0.7	ND	ND	ND
1,2-Dibromo-3-chloropropane	ug/L	0.8	ND	ND	ND
Hexachlorobutadiene	ug/L	1.1	ND	ND	ND
Methyl tert-butyl ether	ug/L	1.0	ND	ND	ND
Benzene	ug/L	0.4	ND	ND	ND
Toluene	ug/L	0.6	ND	ND	ND
Chlorobenzene	ug/L	0.7	ND	ND	ND
Ethyl benzene	ug/L	0.8	ND	ND	ND
Xylenes	ug/L	1.3	ND	ND	ND
Styrene	ug/L	0.8	ND	ND	ND
Cumene	ug/L	1.2	ND	ND	ND
Bromobenzene	ug/L	1.0	ND	ND	ND
n-Propylbenzene	ug/L	0.9	ND	ND	ND
2-Chlorotoluene	ug/L	1.0	ND	ND	ND
4-Chlorotoluene	ug/L	1.4	ND	ND	ND
1,3,5-Trimethylbenzene	ug/L	0.7	ND	ND	ND
tert-Butylbenzene	ug/L	2.0	ND	ND	ND
1,2,4-Trimethylbenzene	ug/L	0.7	ND	ND	ND
1,3-Dichlorobenzene	ug/L	0.9	ND	ND	ND
sec-Butylbenzene	ug/L	0.8	ND	ND	ND
1,4-Dichlorobenzene	ug/L	0.9	ND	ND	ND
p-Cymene	ug/L	0.9	ND	ND	ND
1,2-Dichlorobenzene	ug/L	1.0	ND	ND	ND
n-Butylbenzene	ug/L	1.2	ND	ND	ND
1,2,4-Trichlorobenzene	ug/L	1.1	ND	ND	ND
Naphthalene	ug/L	1.6	ND	ND	ND
1,2,3-Trichlorobenzene	ug/L	1.1	ND	ND	ND
Fluorobenzene (Surrogate)	%		100	96.0	100

Mr. Dan Pingel
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March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

These data have been reviewed and are approved for release.



Douglas W. Streiber
Project Manager

Mr. Dan Pingel
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FOOTNOTES
for pages 1 through 13

March 12, 1993
PACE Project Number: 930218505

Client Reference: 93-162

MDL Method Detection Limit
ND Not detected at or above the MDL.



AMERICAN
ENGINEERING
TESTING, INC.

2102 University Ave. W.
St. Paul, MN 55114
Telephone: (612) 659-9001

1534

CHAIN-OF-CUSTODY RECORD

AET Job #: 93-162

P.O. #: 4767

AET Project Manager: Don Pingel

Sampled By (PRINT): Daniel R. Pingel & Steve Vranicar

Sampler Signature: [Signature] Date Sampled: 2/15-2/16-2/17/93

ANALYSIS

8021

MDL = 0.2 ppb for Vinyl Chloride

NO. OF CONTAINERS	PRESERVATIVES				
	UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA	HCL

ITEM NO.	SAMPLE DESCRIPTION	TIME	SAMPLE TYPE	SAMPLE METHOD	NO. OF CONTAINERS	UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA	HCL	REMARKS
1	MW-4 3108.9	2/16 10:40am	Water	Boiler	3	✓				✓	* Low Detection limit for Vinyl Chloride MDL = 0.2 ppb
2	MW-7 3109.7	2/15 5:15pm	Water	Boiler	3	✓				✓	
3	MW-7A 3110.0	2/16 1:15pm	Water	Pump	3	✓				✓	
4	MW-8 3111.9	2/15 5:20pm	Water	Boiler	3	✓				✓	
5	MW-9 3112.7	2/16 5:30pm	Water	Pump	3	✓				✓	
6	MW-9A 3113.5	2/17 12:09pm	Water	Pump	3	✓				✓	
7	Facility Well 3114.3	2/16 2:15pm	Water	Faucet	3	✓				✓	
8	Field Blank 3115.1	2/17 4:00pm	Water	Boiler	3	✓				✓	
9											
10											
11											
12											

ITEM NUMBER	RELINQUISHED BY/AFFILIATION	ACCEPTED BY/AFFILIATION	DATE	TIME
	<u>[Signature]</u>	<u>[Signature]</u>	<u>2/16/93</u>	<u>1:55</u>



AMERICAN
ENGINEERING
TESTING, INC.

2102 University Ave. W.
St. Paul, MN 55114
Telephone: (612) 659-9001

1533

CHAIN-OF-CUSTODY RECORD

AET Job #: 93-162

930218.505

P.O. #: 4767

AET Project Manager: Don Pingel

Sampled By (PRINT): Daniel B. Pingel & Steve Vranicar

Sampler Signature: [Signature]

Date Sampled: 2/16/93 & 2/17/93

ANALYSIS											
/											

ITEM NO.	SAMPLE DESCRIPTION	TIME	SAMPLE TYPE	SAMPLE METHOD	NO. OF CONTAINERS	PRESERVATIVES					REMARKS		
						UNPRESERVED	H ₂ SO ₄	HNO ₃	VOA	HCL			
1	MW-1	3101.1	1:09pm	Water	Bailer	3						✓	
2	MW-2	3102.0	11:45am	Water	Bailer	3						✓	
3	MW-3	3103.8	5:55pm	Water	Bailer	3						✓	
4	MW-5	3104.6	2:59pm	Water	Bailer	3						✓	
5	MW-6	3105.4	2:20pm	Water	Bailer	3						✓	
6	MW-6A	3106.2	3:40pm	Water	Bailer	3						✓	
7	MW-6B	3107.0	10:00pm	Water	Pump	3						✓	
8													
9													
10													
11													
12													

ITEM NUMBER	RELINQUISHED BY/AFFILIATION:	ACCEPTED BY/AFFILIATION:	DATE	TIME
	<u>[Signature]</u>	<u>[Signature]</u>	<u>2/16/93</u>	<u>12:55</u>