PEER

Peer Environmental & Engineering Resources, Inc.

Ms. Jessica Ebertz
Minnesota Pollution Control Agency
Hazardous Waste Division
Tanks and Spills Section
520 Lafayette Road
St. Paul, MN 55155

April 12, 1994

RE: Quarterly Ground Water Monitoring Results
University of Minnesota
Oak Street and 5th Street Southeast
Minneapolis, Minnesota
MPCA Site ID #: LEAK00006134

Dear Ms. Ebertz:

Enclosed is a copy of the Site Monitoring Worksheet (Fact Sheet #7) for the above referenced site. The worksheet documents the results of the first round of quarterly ground water sampling which was completed on March 10, 1994.

Laboratory analytical results indicate limited ground water quality impacts. The monitoring wells will be sampled quarterly in accordance with the Minnesota Pollution Control Agency (MPCA) CAD approval letter dated December 29, 1993, to establish a trend in concentrations of target petroleum constituents. Additional recommendations will made based on results of future monitoring events.

Should you have any questions, please feel free to contact us.

Sincerely,

Peer Environmental & Engineering Resources, Inc.

Todd M. Lantto
Environmental Engineer

Stephen T. Jansen, M.S.
Vice President

TML/STJ:ab
Enclosures

pc: Mr. Gordon Girtz, University of Minnesota

7710 Computer Avenue, Suite 101 • Minneapolis, Minnesota 55435 • (612) 831-3341 • Fax (612) 831-4552

SITE MONITORING WORKSHEET
Fact Sheet #7
Minnesota Pollution Control Agency
LUST Cleanup Program
April 1993
(Form retyped by Peer Environmental & Engineering Resources, Inc.)

The Minnesota Pollution Control Agency (MPCA) staff expect this worksheet to simplify the required post-investigation site monitoring reports. Submit this worksheet:

- quarterly, after the remedial investigation (RI) is complete but before corrective action is taken;
- quarterly, during corrective action design (CAD) installation; and
- quarterly, after CAD is operational, along with "CAD System Monitoring Worksheet," (fact sheet #11).

Completion and submittal according to the above schedule fulfills your quarterly site monitoring report requirements. You may include a short cover letter whenever circumstances require. However, you must still submit an annual progress report as described in "Petroleum Tank Release Reports" (fact sheet #3). [NOTE: MPCA staff may reduce the frequency of progress reporting on a site specific basis.]

Where attachments are requested (tables, maps, graphs, etc.), please check off those items attached. The only table not mandatory is that for dissolved oxygen.

MPCA Leak Number: **LEAK00006134, University of Minnesota, Oak St. and 5th St. SE. Minneapolis, Minnesota.**

I. GROUND WATER MONITORING (March 10, 1994)

Please attach the following:

✓* Cumulative table of ground water monitoring results, including all sample blanks.
✓ Copies of most recent laboratory reports for ground water analyses, including a copy of the Chain of Custody.
✓ Cumulative table of ground water elevation and product thickness results.
** Hydrograph for all monitoring and recovery wells.
** Graph(s) showing contaminant concentrations over time for all monitoring and recovery wells.
✓ Ground water contour map based on the most recent ground water elevation data.
N/A Table of dissolved oxygen sample results (if collected).

*** Monitoring wells MW-1, MW-2 and MW-3 were initially sampled on 3/11/93 (GRO, DRO and MDH465D analyses) and 5/21/93 (MDH465D analysis) as part of the remedial investigation by Delta Environmental Consultants, Inc. The sampling results are included in Tables 3 and 4. Target petroleum compounds are listed in Table 2.**

**** Since only one ground water sampling round was conducted, hydrographs and contamination concentration graphs are not included with this worksheet.**

Please describe unusual circumstances that may have influenced the sampling results: **None.**

Please detail significant observations made at the site:
MW-4 had a petroleum odor and slight sheen. MW-1 had a very slight petroleum sheen but no odor. MW-2 and MW-3 had no petroleum odor or sheen.

II. VAPOR IMPACT MONITORING

If vapor impacts were detected during the removal investigation, please attach:

N/A A cumulative table of vapor monitoring results. The table should identify the location of all vapor monitoring points (i.e., sewer manholes, basements, etc.).
N/A A map of vapor monitoring locations.

Sampling instrument used: **N/A**
Sampling method: **N/A**

NOTE: If vapor concentrations exceed 10 percent of the lower explosive limit, exit the building and contact the local fire department immediately. Then contact the MPCA spills unit at voice (612) 297-8610, TDD (612) 297-5353 or Greater Minnesota TDD 1-800-627-3529.

Vapor mitigation is required.

III. RECOMMENDATIONS

Use this space to detail any recommendations for modifying the current monitoring schedule:

Quarterly monitoring is being performed in accordance with the MPCA Corrective Action Design approval letter dated December 29, 1993, to establish trends in concentrations of target petroleum constituents. Three additional sampling rounds are currently proposed. Recommendations regarding the need future monitoring will be made following the next sampling event in June 1994.

Upon request, this document can be made available in other formats, including Braille, large print and audio tape. TDD Users, call the Minnesota State Relay Service, (612) 297-5353 or Greater Minnesota TDD 1-800-627-3529.

TABLES

TABLE 1
WATER LEVEL MEASUREMENT DATA

Well	Date	Elevation of TOR (feet)	Water Level Below TOR (feet)	Water Level Elevation (feet)
MW-1	3/11/93	832.04	15.37	816.67
	3/26/93	832.04	15.47	816.57
	6/21/93	832.04	15.14	816.90
	3/10/94	832.04	14.78	817.26
MW-2	3/11/93	834.79	14.06	820.73
	3/26/93	834.79	14.37	820.42
	6/21/93	834.79	13.88	820.91
	3/10/94	834.79	14.20	820.59
MW-3	3/11/93	833.32	16.66	816.66
	3/26/93	833.32	16.74	816.58
	6/21/93	833.32	16.40	816.92
	3/10/94	833.32	16.45	816.87
MW-4	6/21/93	832.18	15.00	817.18
	3/10/94	832.18	14.85	817.33

NOTES:

TOR = Top Of Riser

TABLE 2
SUMMARY OF GROUND WATER ANALYTICAL RESULTS

Compound/ Parameter	MW-1			MW-2			MW-3			MW-4		MDH HRL
	3/11/93	5/21/93	3/10/94	3/11/93	5/21/93	3/10/94	3/12/93	5/21/93	3/10/94	5/21/93	3/10/94	
Benzene	ND (0.1)	ND (0.2)	ND (1.0)	ND (0.1)	0.46	ND (1.0)	ND (0.1)	0.35	ND (1.0)	1.4	ND (1.0)	10
Ethyl benzene	ND (0.1)	0.25	ND (1.0)	ND (0.1)	0.17	ND (1.0)	ND (0.1)	ND (0.1)	ND (1.0)	ND (0.5)	ND (1.0)	700
Toluene	ND (0.6)	ND (0.6)	ND (1.0)	ND (0.6)	ND (0.6)	ND (1.0)	ND (0.6)	ND (0.6)	ND (1.0)	ND (3.0)	ND (1.0)	1,000
Total Xylenes	ND (0.1)	0.35	ND (2.0)	ND (0.1)	0.23	ND (2.0)	ND (0.1)	0.25	ND (2.0)	74.7	ND (2.0)	10,000
DRO	24	NT	ND (100)	ND (10)	NT	ND (100)	ND (10)	NT	ND (100)	NT	2,100	NE
GRO	ND (20)	NT	NT	ND (20)	NT	NT	ND (20)	NT	NT	NT	NT	NE

NOTES:

All units reported in ug/L which is equivalent to parts per billion (ppb).
ND ( ) = Compound or parameter not detected at or above concentration listed in parenthesis.
MDH HRL = Minnesota Department of Health Risk Limits.
NE = Not established.
Sampling results from March 1993 and May 1993 are also included on Table 3 and Table 4 of the RI report prepared by Delta.

TABLE 3

Soil and Ground Water Chemistry Results - March 1993
4th and Oak Streets
University of Minnesota
Minneapolis, Minnesota
Delta No. 11-93-201

Parameter Units	SB-1[1]	SB-3	SB-4	SB-5C	SB-6	SB-9	MW-1	MW-2	MW-3
GRO	16						<20	<20	<20
DRO	430	310	<0.6	<0.6	8.5	<0.6	24	<10	<10
Volatile Organics[2] (MDH Method 465D)									
Sec-butylbenzene		0.54			0.094		0.59		
Tert-butylbenzene		1.4			0.12				
Ethylbenzene		0.44			0.13				
Isopropyl benzene		0.89			0.077				
p-Isopropyl toluene					0.032				
Methyl Isobutyl Ketone		0.48							
Naphthalene		0.12			0.034				
o-Xylene						0.0011			
Toluene						0.0017			
Trichloroethene									1.3
1,2,4-Trimethylbenzene				0.0006		0.0011			
m,p-Xylenes		0.072			0.072	0.0011			

All soil concentrations expressed in milligrams per kilogram (mg/kg) and all ground water concentrations in micrograms per liter.
GRO = Gasoline Range Organics (mg/kg) MDH = Minnesota Department of Health
DRO = Diesel Range Organics (mg/kg)
[1] = The chromatogram from this soil sample had a higher baseline concentration so method detection limits were higher.
[2] = Only detected volatile organic compounds (VOC) are listed. A blank spot on the table or the absence of a VOC indicate it was not detected in that sample.

lls.040593

Taken from the Remedial Investigation and Corrective Action Design Report, 4th and Oak Streets, MPCA Leak No.: 6134, July 23, 1993, Delta Environmental Consultants, Inc.

TABLE 4
Ground Water Volatile Organic Hydrocarbon Chemistry Results
May 1993
4th and Oak Street
Minneapolis, Minnesota

	UNIT ug/l	MW-1	MW-2	MW-3	MW-4	COMMENTS
Acetone						
Allyl chloride						
Benzene		0.46	0.35	1.4		
Bromobenzene						
Bromochlorobenzene						
Bromodichloromethane						
Bromoform						
n-butylbenzene		0.97			59	
sec-Butylbenzene		0.38			37	
tert-Butylbenzene		0.39				
Carbon tetrachloride						
Chlorobenzene						
Chloroethane						
Chloroform						
Chloromethane						
2-Chlorotoluene						
4-Chlorotoluene						
1,2-Dibromo-3-chloropropane						
Dibromochloromethane						
1,2-Dibromoethane						
Dibromomethane						
1,2-Dichlorobenzene						
1,3-Dichlorobenzene						
1,4-Dichlorobenzene						
Dichlorodifluoromethane						
1,1-Dichloroethane						
1,2-Dichloroethane						
1,1-Dichloroethene						
cis-1,2-Dichloroethene		0.65	0.58			
trans-1,2-Dichloroethene						
Dichlorofluoromethane						
1,2-Dichloropropane						
1,3-Dichloropropane						
2,2-Dichloropropane			0.84			

	UNIT ug/l	MW-1	MW-2	MW-3	MW-4	COMMENTS
1,1-Dichloropropene						
cis-1,3-Dichloropropene						
trans-1,3-Dichloropropene						
Ethyl ether						
Ethyl benzene		0.25	0.17			
Hexachlorobutadiene						
Isopropylbenzene					11	
p-Isopropyltoluene						
Methyl ethyl ketone						
Methyl isobutyl ketone						
Methyl-tert-butyl ether						
Methylene chloride						
Naphthalene		0.6	0.22	0.29	291	
n-Propylbenzene						
1,1,1,2-Tetrachloroethane						
1,1,2,2-Tetrachloroethane						
Tetrachloroethylene						
Tetrahydrofuran						
Toluene						
1,2,3-Trichlorobenzene						
1,2,4-Trichlorobenzene						
1,1,1-Trichloroethane						
1,1,2-Trichloroethane						
Trichloroethylene				1.1		
Trichlorofluoromethane						
1,2,3-Trichloropropane						
Trichlorotrifluoroethane						
1,2,4-Trimethylbenzene		0.34	0.41	0.32	27	
1,3,5-Trimethylbenzene					26	
Vinyl chloride						
o-Xylene, Styrene (1)		0.35	0.23	0.25	71	Styrene 11 M
m-p-Xylenes (1)					3.7	

Minnesota Department of Health Method 465D
(1) Compounds not separated by this method.

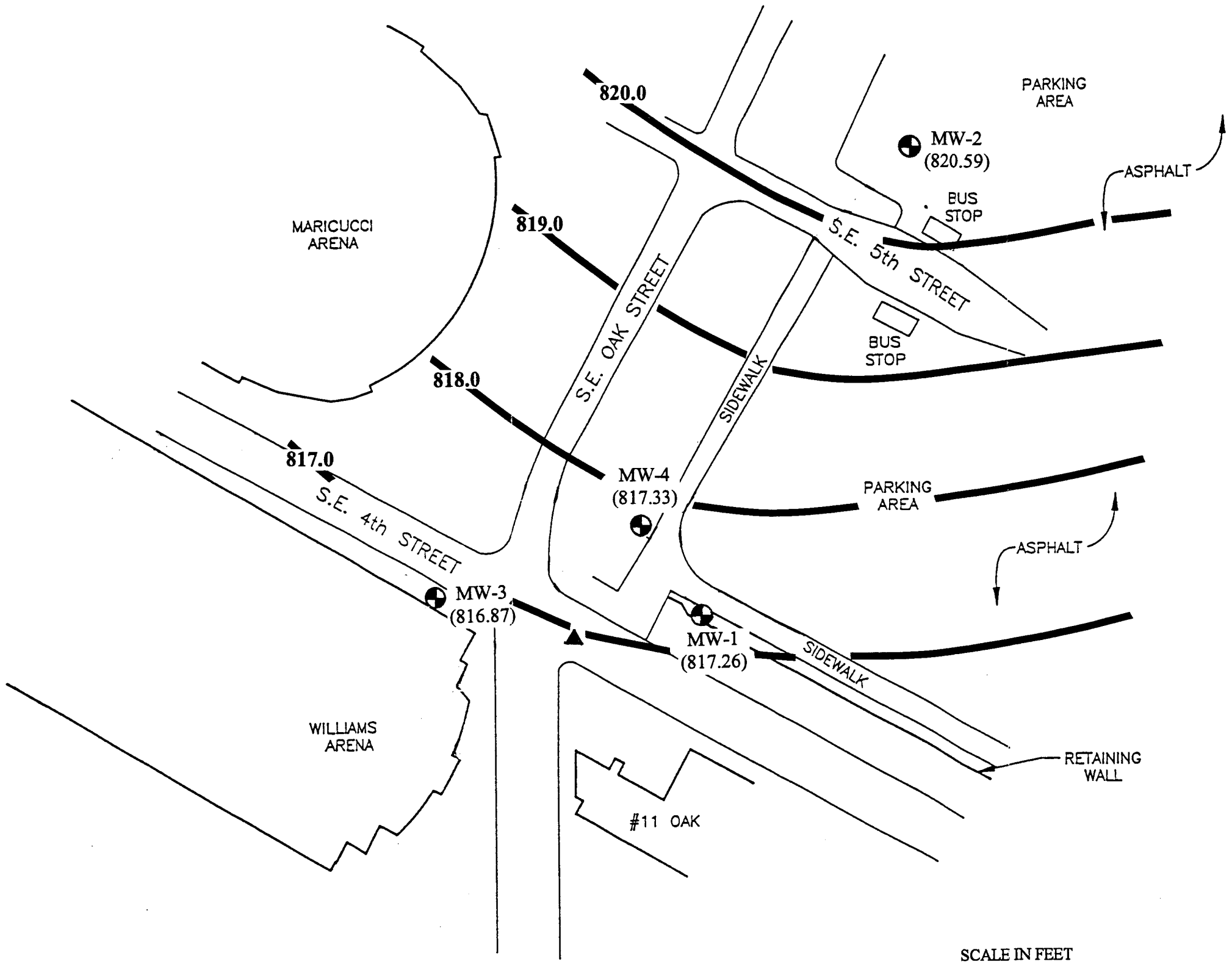
Taken from the Remedial Investigation and Corrective Action Design Report, 4th and Oak Streets, MPCA Leak No.: 6134, July 23, 1993, Delta Environmental Consultants, Inc.

FIGURES

Taken from St. Paul West, Minnesota 7.5 Minute Series Topographic Map 1977, United States Geological Survey.

Peer Environmental & Engineering Resources, Inc. Minneapolis, Minnesota	Site Location Map University of Minnesota Oak Street and Fifth Street Southeast Minneapolis, Minnesota	Apr. 94 1

UMR-2803



Peer Environmental & Engineering Resources, Inc. Minneapolis, Minnesota	Water Table Configuration (3-10-94) University of Minnesota Oak Street and Fifth Street Southeast Minneapolis, Minnesota	Apr. 94 2

UMR-2804

ANALYTICAL TESTING REPORT

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

March 25, 1994

Mr. James Hall
Peer Environmental & Eng. Resources, Inc
7710 Computer Avenue #101
Minneapolis, MN 55435-5417

RE: PACE Project No. 940310.506
Client Reference: 4031

Dear Mr. Hall:

Enclosed is the report of laboratory analyses for samples received March 10, 1994.

Footnotes are given at the end of the report.

If you have any questions concerning this report, please feel free to contact us.

Sincerely,

Daniel J. Malachek
Project Manager

Enclosures

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

pace INCORPORATED
THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

Peer Environmental & Eng. Resources, Inc
7710 Computer Avenue #101
Minneapolis, MN 55435-5417

March 25, 1994
PACE Project Number: 940310506

Attn: Mr. James Hall

Client Reference: 4031

Parameter	Units	MDL			
PACE Sample Number:			10 0048410	10 0048429	10 0048437
Date Collected:			03/10/94	03/10/94	03/10/94
Time Collected:			09:00	09:30	10:45
Date Received:			03/10/94	03/10/94	03/10/94
Client Sample ID:			MW-4	MW-1	MW-2
ORGANIC ANALYSIS					
VOLATILE PETROLEUM RELATED COMPOUNDS			HB		
Date Analyzed			16MAR94 I	17MAR94 E	17MAR94 E
Benzene	ug/L	1.0	ND	ND	ND
Toluene	ug/L	1.0	ND	ND	ND
Ethylbenzene	ug/L	1.0	ND	ND	ND
Xylenes	ug/L	2.0	ND	ND	ND
Fluorobenzene (Surrogate)	%		102	95.6	96.4
DIESEL RANGE ORGANICS-MOD. 8015					
Date Analyzed			14MAR94 X	15MAR94 X	15MAR94 X
Date Extracted			03/11/94	03/11/94	03/11/94
Diesel Range Organic Compounds	mg/L	0.10	2.1	ND	ND
Pentacosane (Surrogate Std.)	%		87	85	93

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THE ASSURANCE OF QUALITY

REPORT OF LABORATORY ANALYSIS

March 25, 1994
PACE Project Number: 940310506

Client Reference: 4031

PACE Sample Number:			10 0048445
Date Collected:			03/10/94
Time Collected:			11:30
Date Received:			03/10/94
Client Sample ID:			MW-3
Parameter	Units	MDL	
ORGANIC ANALYSIS			
VOLATILE PETROLEUM RELATED COMPOUNDS			
Date Analyzed			17MAR94 E
Benzene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Ethylbenzene	ug/L	1.0	ND
Xylenes	ug/L	2.0	ND
Fluorobenzene (Surrogate)	%		96.5
DIESEL RANGE ORGANICS-MOD. 8015			
Date Analyzed			15MAR94 X
Date Extracted			03/11/94
Diesel Range Organic Compounds	mg/L	0.10	ND
Pentacosane (Surrogate Std.)	%		84

These data have been reviewed and are approved for release.

Daniel J. Malachek
Project Manager

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

Client Reference: 4031

HB	High boiling point hydrocarbons are present in sample.
MDL	Method Detection Limit
ND	Not detected at or above the MDL.

1710 Douglas Drive North
Minneapolis, MN 55422
TEL: 612-544-5543
FAX: 612-525-3377

Mr. James Hall
Page 4

QUALITY CONTROL DATA

March 25, 1994
PACE Project Number: 940310506

Client Reference: 4031

DIESEL RANGE ORGANICS-MOD. 8015
Batch: 10 50519
Samples: 10 0048410, 10 0048429, 10 0048437, 10 0048445

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			14MAR94
Diesel Range Organic Compounds	mg/L	0.10	ND
Pentacosane (Surrogate Std.)	%		87

LABORATORY CONTROL SAMPLE AND CONTROL SAMPLE DUPLICATE:

Parameter	Units	MDL	Reference Value	Recv	Dupl Recv	RPD
Diesel Range Organic Compounds	mg/L	0.10	1.0	89%	90%	1%

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REPORT OF LABORATORY ANALYSIS

Mr. James Hall
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QUALITY CONTROL DATA

March 25, 1994
PACE Project Number: 940310506

Client Reference: 4031

VOL. PETROLEUM ORGANICS-8020/MOD. 8015
Batch: 10 50764
Samples: 10 0048410

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			16MAR94
Benzene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Ethylbenzene	ug/L	1.0	ND
Xylenes	ug/L	2.0	ND
Gasoline Range Organic Compounds	ug/L	50	ND
Methyl tert-butyl ether	ug/L	4.0	ND
Fluorobenzene (Surrogate)	%		103

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	100047635	Spike	Spike Recv	Spike Dupl Recv	RPD
Benzene	ug/L	1.0	33	100	100%	98%	2%
Toluene	ug/L	1.0	8.3	100	106%	113%	6%
Ethylbenzene	ug/L	1.0	14	100	94%	101%	7%
Xylenes	ug/L	2.0	21	300	99%	106%	7%

LABORATORY CONTROL SAMPLE:

Parameter	Units	MDL	Reference Value	Recv
Benzene	ug/L	1.0	100	98%
Toluene	ug/L	1.0	100	94%
Ethylbenzene	ug/L	1.0	100	94%
Xylenes	ug/L	2.0	300	99%
1,3,5-Trimethylbenzene	ug/L	1.0	100	98%
1,2,4-Trimethylbenzene	ug/L	1.0	100	95%
Methyl tert-butyl ether	ug/L	4.0	100	94%
Gasoline Range Organic Compounds	ug/L	50	1000	99%

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REPORT OF LABORATORY ANALYSIS

Mr. James Hall
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QUALITY CONTROL DATA

March 25, 1994
PACE Project Number: 940310506

Client Reference: 4031

VOLATILE PETROLEUM RELATED COMPOUNDS
Batch: 10 50734
Samples: 10 0048429, 10 0048437, 10 0048445

METHOD BLANK:

Parameter	Units	MDL	Method Blank
Date Analyzed			17MAR94
Benzene	ug/L	1.0	ND
Toluene	ug/L	1.0	ND
Ethylbenzene	ug/L	1.0	ND
Xylenes	ug/L	2.0	ND
1,3,5-Trimethylbenzene	ug/L	1.0	ND
1,2,4-Trimethylbenzene	ug/L	1.0	ND
Methyl tert-butyl ether	ug/L	4.0	ND
Gasoline Range Organic Compounds	ug/L	50	ND
Fluorobenzene (Surrogate)	%		113

SPIKE AND SPIKE DUPLICATE:

Parameter	Units	MDL	100046957	Spike	Spike Recv	Spike Dupl Recv	RPD
Benzene	ug/L	1.0	ND	100	90%	97%	7%
Toluene	ug/L	1.0	ND	100	90%	97%	7%
Ethylbenzene	ug/L	1.0	ND	100	90%	98%	9%
Xylenes	ug/L	2.0	ND	300	91%	99%	8%
Methyl tert-butyl ether	ug/L	4.0	ND	100	99%	105%	6%

LABORATORY CONTROL SAMPLE:

Parameter	Units	MDL	Reference Value	Recv
Benzene	ug/L	1.0	100	96%
Toluene	ug/L	1.0	100	95%
Ethylbenzene	ug/L	1.0	100	94%
Xylenes	ug/L	2.0	300	95%
1,3,5-Trimethylbenzene	ug/L	1.0	100	91%
1,2,4-Trimethylbenzene	ug/L	1.0	100	90%
Methyl tert-butyl ether	ug/L	4.0	100	102%
Gasoline Range Organic Compounds	ug/L	50	1000	100%

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Mr. James Hall
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FOOTNOTES
for pages 4 through 6

March 25, 1994
PACE Project Number: 940310506

Client Reference: 4031

MDL Method Detection Limit
ND Not detected at or above the MDL.
RPD Relative Percent Difference

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FAX: 612-525-3377

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PEER ENVIRONMENTAL
7710 Computer Ave
Mpls, MN 55435
831-3341

163643

CHAIN-OF-CUSTODY RECORD
Analytical Request

b site:
Client Univ of Minnesota
Address ~~Peer~~ 5th 4 Oak Street
Mpls, MN
Phone

Report To:
Bill To:
P.O. # / Billing Reference
Project Name / No. 4031

Pace Client No. 120558
Pace Project Manager
Pace Project No. 940310.506
*Requested Due Date:

Sampled By (PRINT): James P. Hall
Sampler Signature: James P. Hall
Date Sampled: 3-10-94

ITEM NO.	SAMPLE DESCRIPTION	TIME	MATRIX	PACE NO.	NO. OF CONTAINERS	PRESERVATIVES: UNPRESERVED	H_2SO_4	HNO_3	VOA	HCL	ANALYSES REQUEST: DRO	BTEX	Hold	REMARKS
1	MW-4	9:00	Water	4841.0	4						X	X		
2	MW-1	9:30	water	4842.9	4						X	X		
3	MW-2	10:45	water	4823.7	4						X	X		
4	MW-3	11:30	water	4844.5	4						X	X		
5														
6	Trip Blank			4845.3	2							X		
7														
8														

COOLER NOS.	BAILERS	SHIPMENT METHOD OUT / DATE	SHIPMENT METHOD RETURNED / DATE
	Disposable PVC		

ITEM NUMBER	RELINQUISHED BY / AFFILIATION	ACCEPTED BY / AFFILIATION	DATE	TIME
		Evelyn PACE	3/10/94	13:45

Additional Comments

UMR-2814

SEE REVERSE SIDE FOR INSTRUCTIONS

MONITORING WELL
SAMPLING DATA FORMS

MONITORING WELL SAMPLING DATA FORM	Peer Environmental & Engineering Resources, Inc. 7710 Computer Avenue, Minneapolis, MN 55435 Phone: (612) 831-3341 Fax: (612) 831-4552	
Project/Client Name: Oak Hall, Univ of MN		Project Number: 4031
Well Number: MW-4	Date Sampled: 3-10-94	Time Collected: 9:00
MDH #: 526189	Sampling Order: (4) 1, 2, 3	

GENERAL DATA

Casing Diameter, in: 2" I.D.	Well Volume*, gal: 1.24	Well Locked? (Y) N
Static Depth, ft: 14.85	TOR Elev., ft: 832.18	Key Number 3753
Casing Length, ft: 27.43	Water Elev., ft: 817.33	Well Condition: good

*Well Volume Calculation: (casing length - static depth) x 0.163	Approximately three full bailers is equal to one gallon.

Remove five well volumes: 6.2 gallons = 19 bailers

SAMPLE APPEARANCE

Color: gray, with a slight green

Turbidity: moderate

Odor: petroleum odor

FIELD EQUIPMENT

Type of Bailer Used:

- Reusable PVC Bailer
- (Disposable Polyethylene Bailer)
- Disposable Teflon Bailer
- Other: _____

COMMENTS

Field Team: JPH	Form Completed by: JPH	Date Completed: 3-10-94

MONITORING WELL SAMPLING DATA FORM	Peer Environmental & Engineering Resources, Inc. 7710 Computer Avenue, Minneapolis, MN 55435 Phone: (612) 831-3341 Fax: (612) 831-4552	
Project/Client Name: Oak Hill, Univ of MN		Project Number: 4031
Well Number: MW-1	Date Sampled: 3-10-94	Time Collected: 9:30
MDH #: 526186	Sampling Order: 4, (1), 2, 3	

GENERAL DATA

Casing Diameter, in: 2" I.D.	Well Volume*, gal: 0.93	Well Locked? (Y) N
Static Depth, ft: 14.78	TOR Elev., ft: 832.04	Key Number 3753
Casing Length, ft: 20.50	Water Elev., ft: 817.26	Well Condition: good

*Well Volume Calculation: (casing length - static depth) x 0.163	Approximately three full bailers is equal to one gallon.

Remove five well volumes: 4.7 gallons = 14 bailers

SAMPLE APPEARANCE

Color: brown, with very slight sheen

Turbidity: mild

Odor: none

FIELD EQUIPMENT

Type of Bailer Used:

- Reusable PVC Bailer
- (Disposable Polyethylene Bailer)
- Disposable Teflon Bailer
- Other: _____

COMMENTS

Field Team: JPH	Form Completed by: JPH	Date Completed: 3-10-94

MONITORING WELL SAMPLING DATA FORM	Peer Environmental & Engineering Resources, Inc. 7710 Computer Avenue, Minneapolis, MN 55435 Phone: (612) 831-3341 Fax: (612) 831-4552	
Project/Client Name: Oak Hill; Winona MN		Project Number: 4031
Well Number: MW-2	Date Sampled: 3-10-94	Time Collected: 10:45
MDH #: 526187	Sampling Order: 4, 1, (2), 3	

GENERAL DATA

Casing Diameter, in: 2" T.O.	Well Volume*, gal: 1.01	Well Locked? (Y) N
Static Depth, ft: 14.20	TOR Elev., ft: 834.79	Key Number 3753
Casing Length, ft: 20.40	Water Elev., ft: 820.59	Well Condition: good

*Well Volume Calculation: (casing length - static depth) x 0.163	Approximately three full bailers is equal to one gallon.

Remove five well volumes: 5.1 gallons = 15 bailers

SAMPLE APPEARANCE

Color: brown

Turbidity: moderate to high

Odor: none

FIELD EQUIPMENT

Type of Bailer Used:

- Reusable PVC Bailer
- ~~Disposable Polyethylene Bailer~~
- ~~Disposable Teflon Bailer~~
- Other: _____

COMMENTS

Field Team: JPH	Form Completed by: JPH	Date Completed: 3-10-94

MONITORING WELL SAMPLING DATA FORM	Peer Environmental & Engineering Resources, Inc. 7710 Computer Avenue, Minneapolis, MN 55435 Phone: (612) 831-3341 Fax: (612) 831-4552	
Project/Client Name: Oak Park; Univ. of MN		Project Number: 4031
Well Number: MW-3	Date Sampled: 3-10-94	Time Collected: 11:30
MDH #: 526188	Sampling Order: 4, 1, 2, (3)	

GENERAL DATA

Casing Diameter, in: 2" I.D.	Well Volume*, gal: 1.01	Well Locked? (Y) N
Static Depth, ft: 16.45	TOR Elev., ft: 833.32	Key Number 3753
Casing Length, ft: 32.65	Water Elev., ft: 816.87	Well Condition:

*Well Volume Calculation: (casing length - static depth) x 0.163	Approximately three full bailers is equal to one gallon.

Remove five well volumes: 5.1 gallons = 15 bailers

SAMPLE APPEARANCE

Color: brown

Turbidity: moderate turbidity

Odor: none

FIELD EQUIPMENT

Type of Bailer Used:

- Reusable PVC Bailer
- (Disposable Polyethylene Bailer)
- Disposable Teflon Bailer
- Other: _____

COMMENTS

Field Team: JPH	Form Completed by:	Date Completed: