

EnecoTech Midwest, Inc  
3050 Metro Drive • Suite 115  
Bloomington, Minnesota 55425  
(612) 854-5513 • Fax (612) 854-5745

EnecoTech<sup>®</sup>  
ENVIRONMENTAL CONSULTANTS

RECEIVED  
JUL 06 1992  
MPCA, HAZARDOUS  
WASTE DIVISION

CERTIFIED MAIL

July 2, 1992

711-017

Mr. Mark Koplitz  
Pollution Control Specialist  
Tanks and Spills Section  
Hazardous Waste Division  
Minnesota Pollution Control Agency  
520 Lafayette Road  
St. Paul, Minnesota 55155-3898

SUBJECT: Groundwater Monitoring Results  
Sinclair Station, 7733 Portland Avenue South, Richfield, Minnesota  
MPCA Leak #00002572

Dear Mr. Koplitz:

This letter serves to summarize the requested groundwater monitoring activities and provides recommendations concerning further action at the above referenced site. Please recall that a Remedial Investigation (RI) report for the site was submitted to the Minnesota Pollution Control Agency (MPCA) by EnecoTech Midwest, Inc. (EnecoTech) in April 1991. Additional information was provided to the MPCA by EnecoTech in a correspondence dated December 17, 1991. Upon review of the RI and the December 1991 correspondence, the MPCA approved a groundwater monitoring program as the corrective action for the site. The MPCA's response was provided in a letter dated January 17, 1992.

The MPCA requested three rounds of quarterly groundwater monitoring to assess the effectiveness of natural biodegradation and to determine whether migration of impacted groundwater was occurring at the site. The third round of groundwater monitoring activities was completed in May 1992. The purpose of this correspondence is to present the results of the groundwater monitoring activities to the MPCA, and to request that no further corrective actions be required for this site.

#### GROUNDWATER ELEVATION MEASUREMENTS

Groundwater elevation data was collected on December 2, 1992, February 11, 1992, and May 5, 1992. Table 1 includes all groundwater elevation data collected at the site. Groundwater elevation measurements were performed in accordance with the procedures outlined in the RI report.

Mr. Mark Koplitz  
Minnesota Pollution Control Agency  
July 2, 1992  
Page 2

Interpretation of groundwater elevation data collected during this period indicated a southeasterly groundwater flow direction (Figures 1, 2, and 3). The southeasterly groundwater flow direction is consistent with the flow direction presented in the RI report. Groundwater elevations throughout the remedial investigation and subsequent groundwater monitoring activities have fluctuated less than one foot in all monitoring wells (Table 1).

## GROUNDWATER SAMPLING AND ANALYSIS

Quarterly groundwater sampling was performed on December 2, 1991, February 11, 1992, and May 5, 1992. Groundwater sample collection procedures followed the methods described in the RI report. The analytical results from groundwater samples collected at the site are included in Table 2. Groundwater samples collected on December 2, 1991 were analyzed by Interpoll Laboratories (Interpoll) of Circle Pines, Minnesota for total hydrocarbons as gasoline (THC-gas), total hydrocarbons as fuel oil (THC-fuel oil), methyl tertiary butyl ether (MTBE), and Minnesota Department of Health (MDH) Method 465C. Laboratory analysis did not detect the presence of these constituents in the groundwater samples collected on that date (Table 2). Laboratory reports and chain of custody records are provided in Appendix A.

Groundwater samples collected on February 11, 1992 and May 5, 1992 were also analyzed by Interpoll. These samples were analyzed for benzene, ethyl benzene, toluene, and xylene (BTEX). THC-gas, THC-fuel oil, and 1,2-dichloroethane as requested in the January 17, 1992 MPCA correspondence. The May 5, 1992 samples were also inadvertently analyzed for MTBE.

Laboratory analysis of groundwater samples collected from monitoring well MW-03 on February 11, 1992 and May 5, 1992 indicated the presence of 1,2-dichloroethane at concentrations of 1.5 parts per billion (ppb) and 0.89 ppb, respectively. 1,2-dichloroethane was not detected in groundwater samples collected from the other monitoring wells. No other analyzed parameters were detected in the groundwater samples collected in February and May 1992.

## DISCUSSION

Three rounds of groundwater samples and groundwater elevation measurements were collected, as requested by the MPCA. Groundwater elevation data collected during this period has exhibited a southeasterly groundwater flow direction (Figures 1, 2, and 3). The groundwater monitoring network installed at this site has provided data upgradient (MW-01), downgradient (MW-04), and sidegradient (MW-02 and MW-03) of the former UST basins.

The groundwater analytical data indicates petroleum impacts to the groundwater have been limited to very low concentrations of 1,2-dichloroethane in monitoring well MW-03 (Table 2). Specifically, 1,2-dichloroethane was detected in MW-03 at 3.2 ppb in February 1991, at 1.5 ppb in February 1992, and at 0.89 ppb in May 1992. Laboratory analysis did not detect 1,2-dichloroethane in MW-03 in December 1991. A graph depicting 1,2-dichloroethane concentrations over time is presented in Figure 4. All detected concentrations of that parameter were below the MDH recommended allowable limit (RAL) for 1,2-dichloroethane (4 ppb).

As stated previously, groundwater elevations throughout the remedial investigation and subsequent groundwater monitoring activities have fluctuated less than one foot in all monitoring wells (Table 1). Depth to groundwater at the site is approximately 35 feet below ground surface (bgs). Underground storage tank (UST) excavation and soil boring data presented in the RI report suggest that petroleum impacted soil remaining at the site is limited to a thin layer of sand in the base of the former UST excavations (15 feet bgs). The vertical distance between the groundwater and impacted soil, in conjunction with the limited groundwater elevation fluctuations, indicates that future fluctuations in groundwater elevations will not bring groundwater into contact with petroleum impacted soil at the site. Also, the site is covered with asphalt. The asphalt will prohibit the washing of impacted soil by atmospheric water and the subsequent downward migration of petroleum impacted water. Therefore, the potential for petroleum impacted soil remaining at the base of the former UST basins having an impact on the groundwater is minimal.

## CONCLUSIONS

Groundwater elevation data continues to indicate a uniform southeasterly groundwater flow direction. Laboratory analysis of groundwater samples collected from monitoring wells have not detected THC-gas, THC-fuel oil, or BTEX constituents indicating the petroleum impact at the site is very localized.

Groundwater analytical data continues to suggest that petroleum impacts to the groundwater are limited to low concentrations of 1,2-dichloroethane in monitoring well MW-03 which are well below the RAL. Interpretation of 1,2-dichloroethane versus time (Figure 4) indicates a general trend of decreasing concentrations. Laboratory analysis has not detected 1,2-dichloroethane in the remaining monitoring wells. Natural biodegradation should further decrease the concentrations of 1,2-dichloroethane within monitoring well MW-03.

Limited groundwater elevation fluctuations, the vertical distance between the bottom of the former UST basins and the groundwater, and the asphalt cap existing at the site surface, limit the potential for petroleum impacts to the groundwater as a result of petroleum impacted soil which may be present at the base of the former UST basins.



Mr. Mark Koplitz  
Minnesota Pollution Control Agency  
July 2, 1992  
Page 4

## RECOMMENDATIONS


EnecoTech recommends no additional activities for this project. This recommendation is based on soil and groundwater analytical results presented in the RI report as well as data collected during the groundwater monitoring activities performed in December 1991, February 1992, and May 1992.


Interpretation of groundwater elevation data suggests the monitoring wells present at the site create a perimeter groundwater monitoring network. Groundwater analytical data indicates that petroleum impacted groundwater is not migrating at the site. In fact, petroleum impacts to the groundwater have been limited to decreasing concentrations of 1,2-dichloroethane in monitoring well MW-03. Based on this data, and on the limited potential for future petroleum impacts to the groundwater as a result of impacted soil remaining at the site, EnecoTech recommends MPCA file closure for this project.

Please feel free to contact me or Kristin Moelier at (612) 854-5513 with any questions or comments you may have.

Respectfully,

**ENECOTECH MIDWEST, INC.**

  
Thomas R. Balow  
Project Hydrogeologist

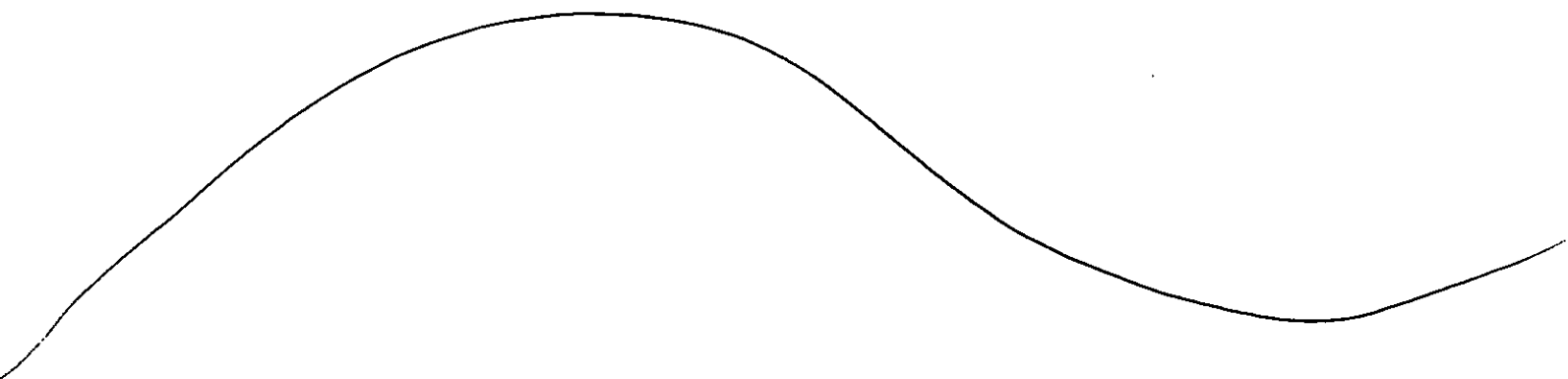
  
Kristin Kennedy Moeller  
Senior Hydrogeologist

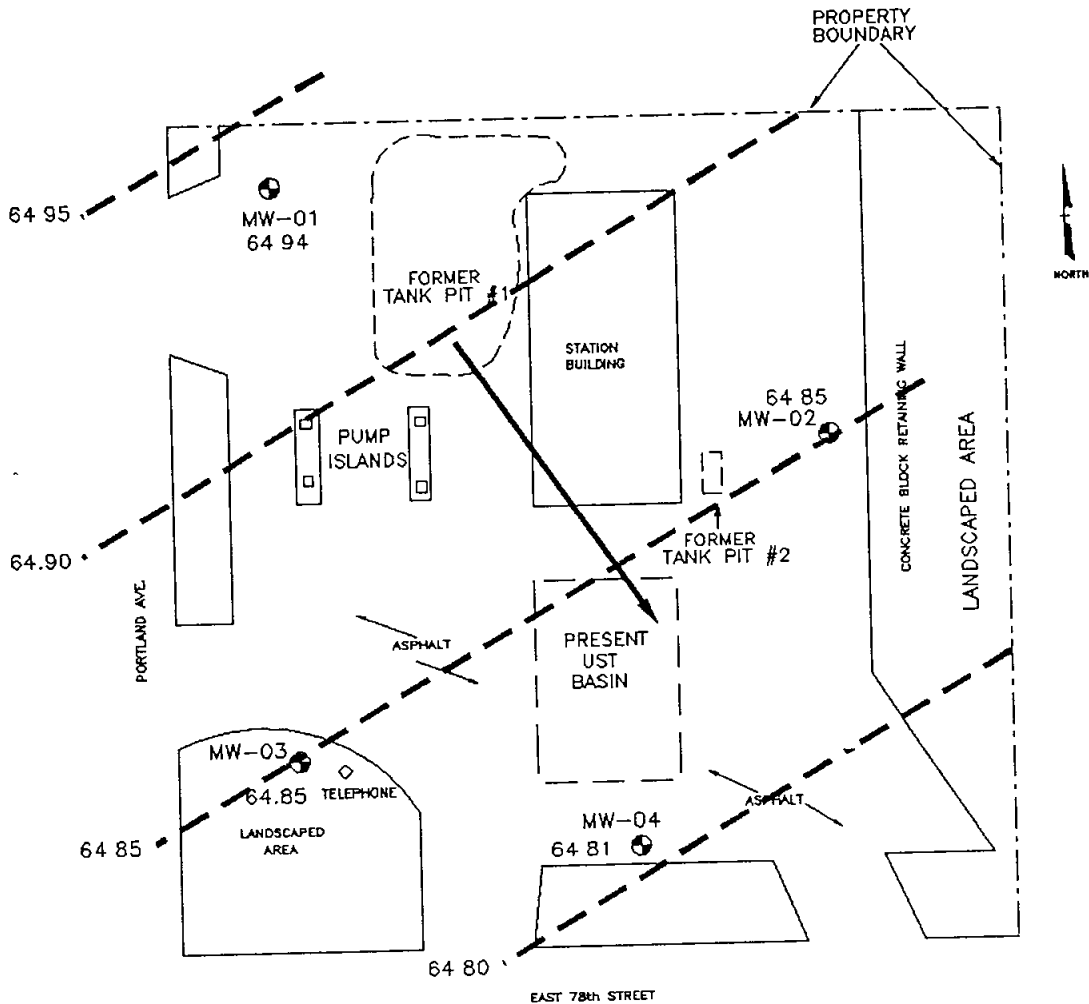
TRB/KKM:djd

cc: Mr. Larry Feldsein, Sinclair Marketing, Richfield, Minnesota

tb/711-17a ltr

FIGURES





$$\frac{dh}{dl} = \frac{0.15}{134} = 0.001$$

$$\frac{0.13}{118} = 0.001$$

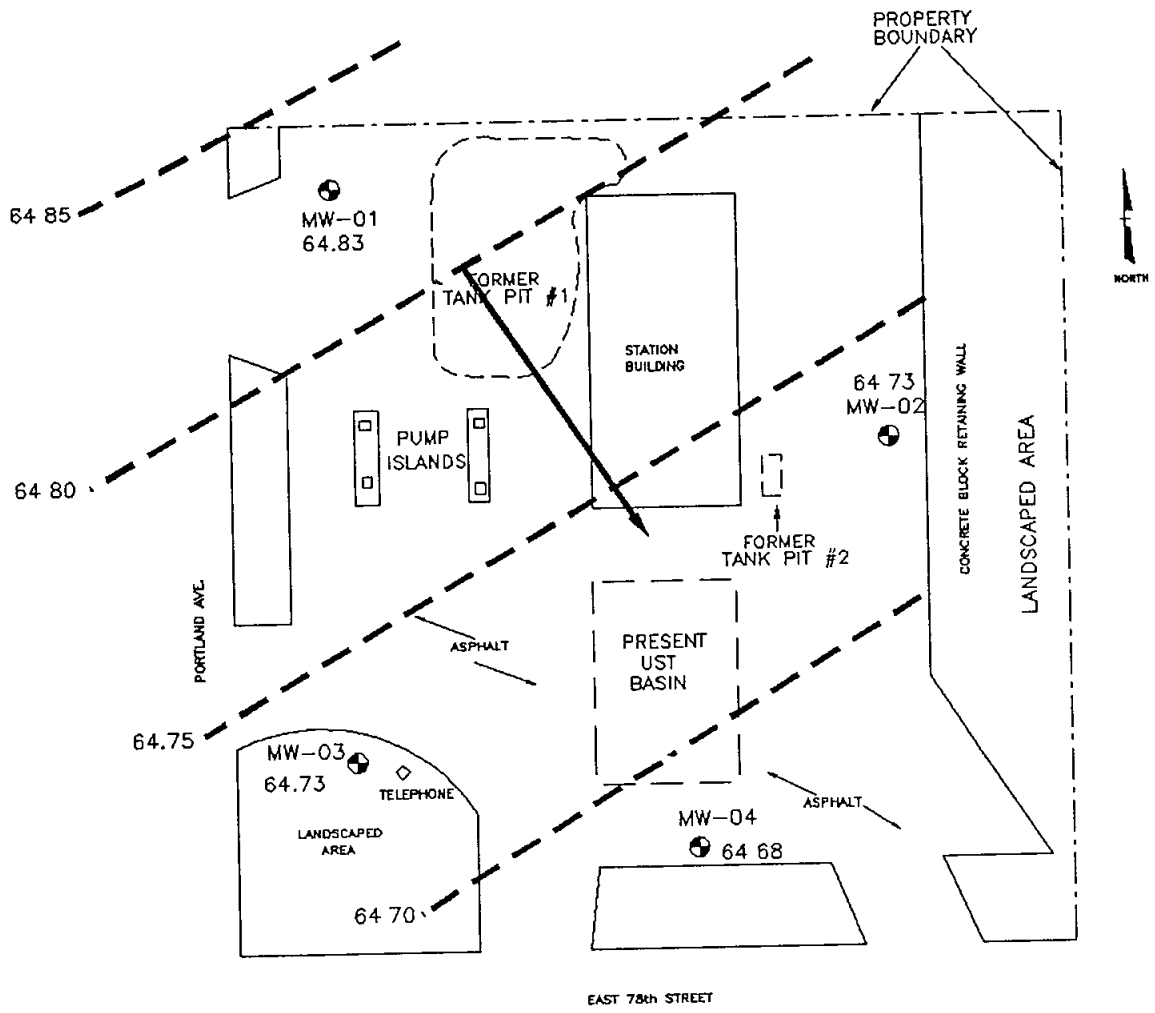
LEGEND	
	MONITORING WELL LOCATION
64 81	GROUNDWATER ELEVATION
	GROUNDWATER CONTOUR LINE
GROUNDWATER CONTOUR INTERVAL = 0.05 FEET	
SCALE 1" = 30'	



**EnecoTech**<sup>®</sup>  
 ENVIRONMENTAL CONSULTANTS  
 BLOOMINGTON, MINNESOTA

FIGURE 1  
 GROUNDWATER ELEVATION CONTOUR MAP  
 DECEMBER 2, 1992  
 SINCLAIR SERVICE STATION  
 7753 PORTLAND AVE SOUTH, RICHFIELD, MINNESOTA

PROJECT NO	DATE	SCALE	PREPARED BY	REVIEWED BY	DATE	REVISION	
				711-017	6/92		



$$\frac{dh}{dr} = \frac{0.15}{118} = 0.001$$

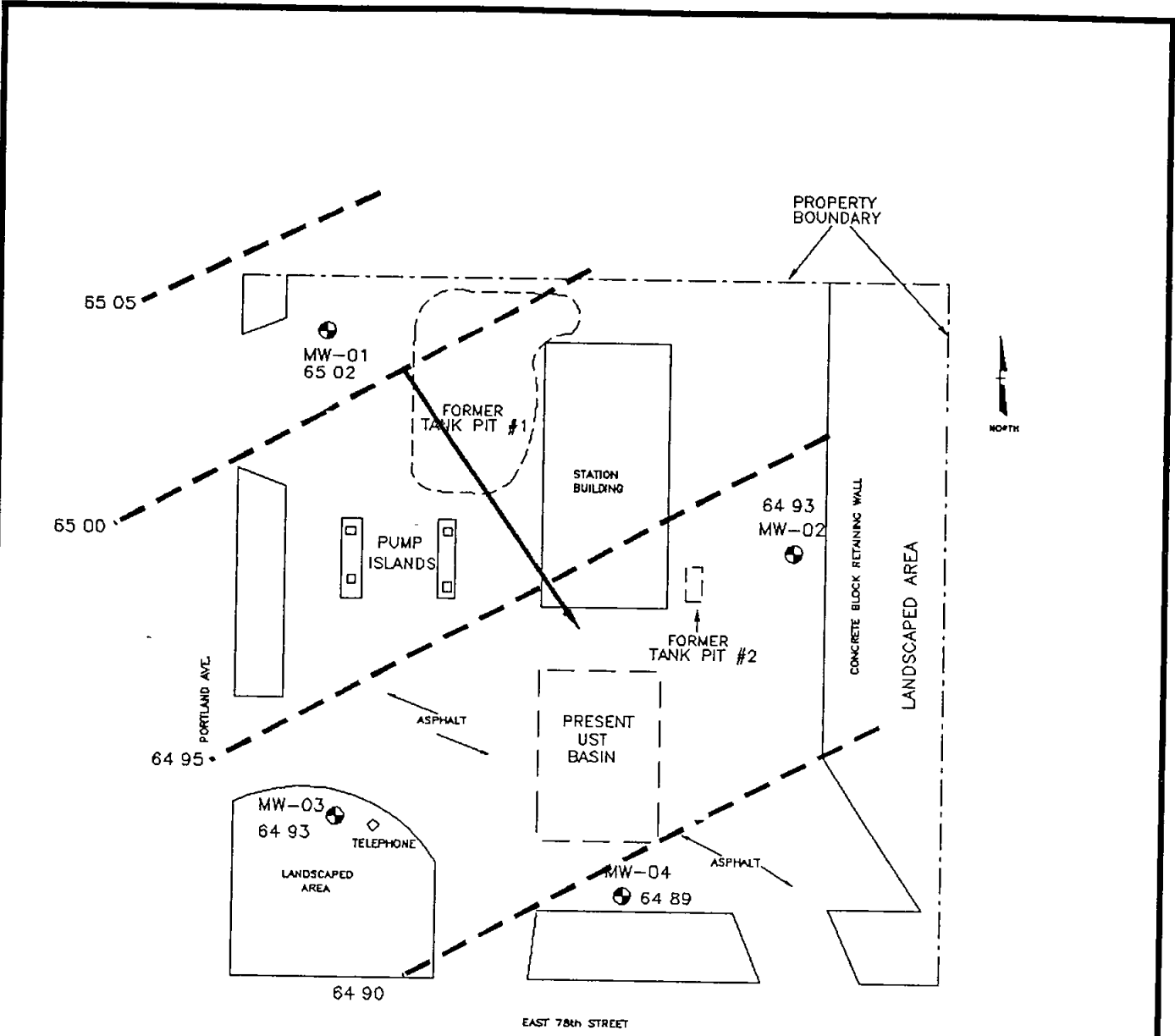
LEGEND	
	MONITORING WELL LOCATION
64.68	GROUNDWATER ELEVATION
	GROUNDWATER CONTOUR LINE
GROUNDWATER CONTOUR INTERVAL = 0.05 FEET	
SCALE 1" = 30'	



EnecoTech<sup>®</sup>  
 ENVIRONMENTAL CONSULTANTS  
 BLOOMINGTON, MINNESOTA

FIGURE 2  
 GROUNDWATER ELEVATION CONTOUR MAP  
 FEBRUARY 11, 1992  
 SINCLAIR SERVICE STATION  
 7753 PORTLAND AVE SOUTH, RICHFIELD, MINNESOTA

PROJECT NO	DATE	SCALE	PREPARED BY	REVIEWED BY	DATE	REVISION	
711-017	6/92	1" = 30'	GMS	TRB	6/92	ORIGINAL	D3



$$\frac{dh}{dr} = \frac{0.13}{118} = 0.001$$

LEGEND	
	MONITORING WELL LOCATION
64 85	GROUNDWATER ELEVATION
	GROUNDWATER CONTOUR LINE
GROUNDWATER CONTOUR INTERVAL = 0.05 FEET	
SCALE 1" = 30'	

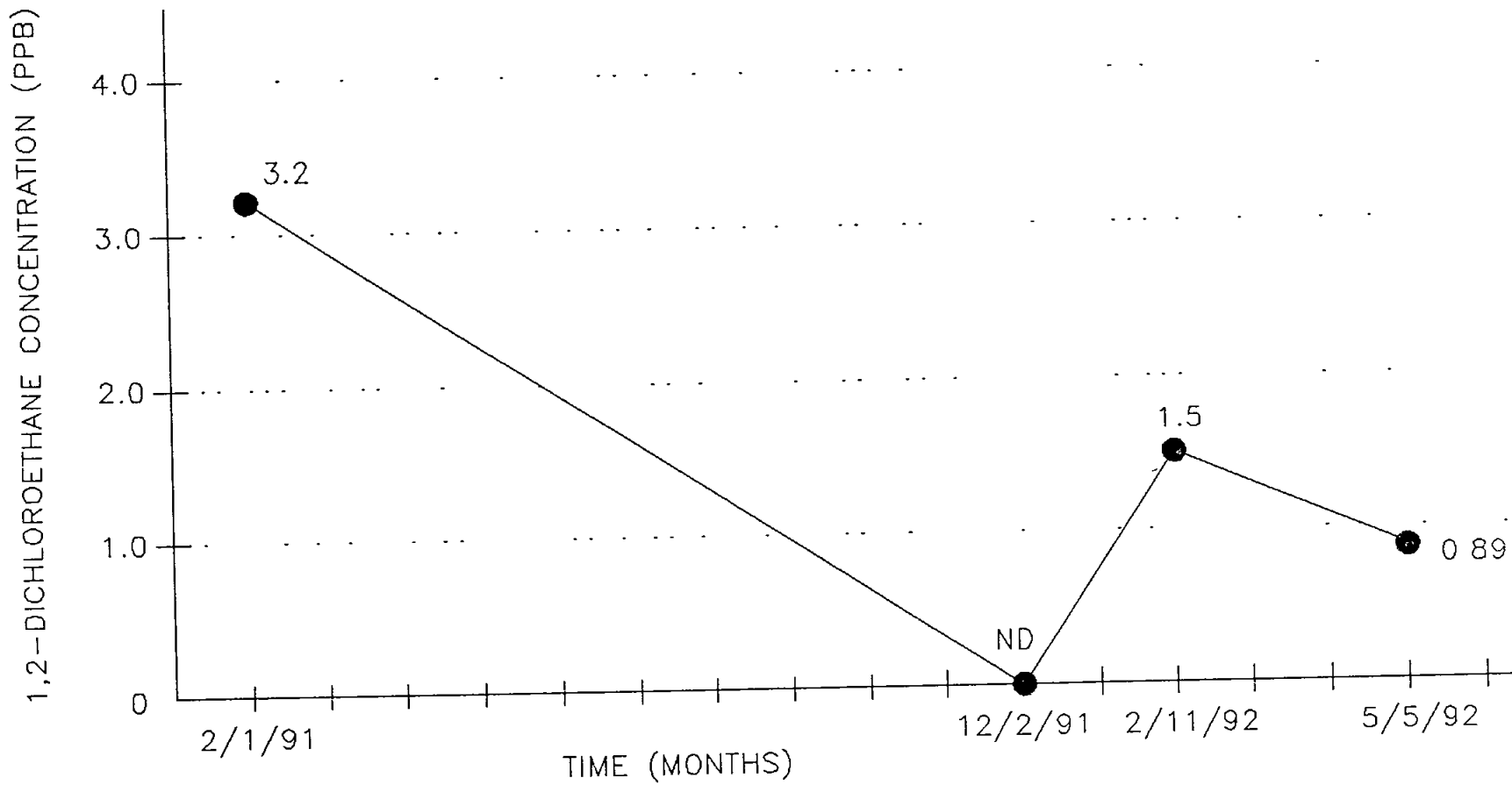


EnecoTech®  
 ENVIRONMENTAL CONSULTANTS  
 BLOOMINGTON, MINNESOTA

FIGURE 3  
 GROUNDWATER ELEVATION CONTOUR MAP  
 MAY 5, 1992  
 SINCLAIR SERVICE STATION  
 7753 PORTLAND AVE SOUTH, RICHFIELD, MINNESOTA

PROJECT NO	DATE	SCALE	PREPARED BY	REVIEWED BY	DATE	REVISION	
711-017	6/92	1" = 30'	GMS	TRB	6/92	ORIGINAL	D2





NOTE: ND = BELOW THE METHOD DETECTION LIMIT OF 0.47 PARTS PER BILLION (PPB)



**EnecoTech<sup>®</sup>**  
 ENVIRONMENTAL CONSULTANTS  
 BLOOMINGTON, MINNESOTA

FIGURE 4  
 1,2-DICHLOROETHANE CONCENTRATIONS VS TIME  
 MONITORING WELL MW-03  
 SINCLAIR SERVICE STATION  
 7753 PORTLAND AVENUE SOUTH, RICHFIELD, MINNESOTA

PROJECT NO 711-017	DATE 6/92		PREPARED BY GMS	REVIEWED BY	DATE	REVISION ORIGINAL	Q1
				<i>JRD</i>	<i>6/92</i>		

TABLE 1  
GROUNDWATER ELEVATION DATA  
SINCLAIR STATION  
7753 PORTLAND AVENUE SOUTH  
RICHFIELD, MINNESOTA

WELL NUMBER	DATE	T.O.C. ELEVATION	APPARENT PRODUCT THICKNESS	DEPTH TO WATER	GROUNDWATER ELEVATION
MW-01	3/08/91	103.48	0.00	39.18	64.30
MW-01	12/02/91	103.48	0.00	38.54	64.94
MW-01	2/11/92	103.48	0.00	38.65	64.83
MW-01	5/05/92	103.48	0.00	38.46	65.02
MW-02	3/08/91	100.86	0.00	36.63	64.23
MW-02	12/02/91	100.86	0.00	36.01	64.85
MW-02	2/11/92	100.86	0.00	36.13	64.73
MW-02	5/05/92	100.86	0.00	35.93	64.93
MW-03	3/08/91	99.88	0.00	35.62	64.26
MW-03	12/02/91	99.88	0.00	35.03	64.85
MW-03	2/11/92	99.88	0.00	35.15	64.73
MW-03	5/05/92	99.88	0.00	34.95	64.93
MW-04	3/08/91	98.47	0.00	34.28	64.19
MW-04	12/02/91	98.47	0.00	33.66	64.81
MW-04	2/11/92	98.47	0.00	33.79	64.68
MW-04	5/05/92	98.47	0.00	33.58	64.89

ALL MEASUREMENTS ARE IN FEET.  
ELEVATIONS ARE REFERENCED TO A BENCHMARK SET EQUAL TO 100.00 FEET.

TABLES

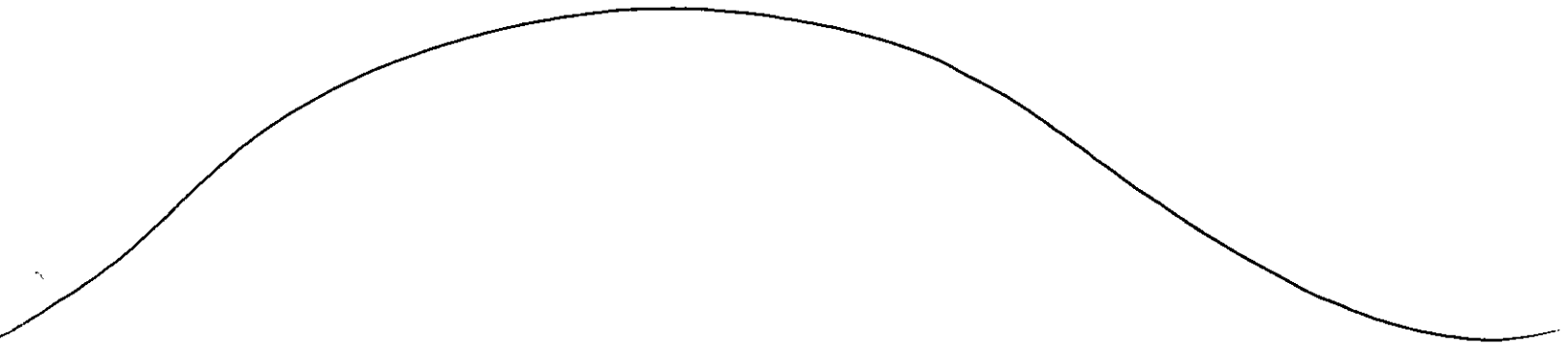


TABLE 2  
GROUNDWATER ANALYTICAL DATA  
SINCLAIR STATION  
7753 PORTLAND AVENUE SOUTH  
RICHFIELD, MINNESOTA

WELL NUMBER	SAMPLE DATE	BENZENE	TOLUENE	ETHYL-BENZENE	XYLENE	1,2-DICHLOROETHANE	THC-GASOLINE	THC-FUEL OIL	MTBE
MW-01	2/01/91	<0.0047	<.00092	<.00042	<.0022	<0.00047	<.010	<.066	<0.00052
MW-01	12/02/91	<0.00047	<.00092	<.00042	<.0022	<0.00047	<0.013	<0.043	<0.00068
MW-01	2/11/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.045	*
MW-01	5/05/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.046	<0.00068
MW-02	2/01/91	<.00047	<.00092	<.00042	<.0022	<0.00047	<.010	<.066	<0.00052
MW-02	12/02/91	<.00047	<.00092	<.00042	<.0022	<0.00047	<0.013	<0.043	<0.00068
MW-02	2/11/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.047	*
MW-02	5/05/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.045	<0.00068
MW-03	2/01/91	<.00047	<.00092	<.00042	<.0022	0.0032	<.010	<.056	<0.00052
MW-03	12/02/91	<.00047	<.00092	<.00042	<.0022	<0.00047	<0.013	<0.043	<0.00068
MW-03	2/11/92	<0.00047	<0.00050	<0.00033	<0.0014	0.0015	<0.013	<0.045	*
MW-03	5/05/92	<0.00047	<0.00050	<0.00033	<0.0014	0.00089	<0.013	<0.043	<0.00068
MW-04	2/01/91	<.00047	<.00092	<.00042	<.0022	<0.00047	<.010	<.066	<0.00052
MW-04	12/02/91	<.00047	<.00092	<.00042	<.0022	<0.00047	<0.013	<0.043	<0.00068
MW-04	2/11/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.044	*
MW-04	5/05/92	<0.00047	<0.00050	<0.00033	<0.0014	<0.00047	<0.013	<0.043	<0.00068

ALL VALUES ARE EXPRESSED IN MILLIGRAMS PER LITER (mg/L), OR PARTS PER MILLION (PPM).

\* = NOT ANALYZED.

APPENDIX A  
LABORATORY ANALYTICAL RESULTS  
CHAIN OF CUSTODY



INTERPOLL LABORATORIES, INC  
 4500 BALL ROAD N E  
 CIRCLE PINES, MINNESOTA 55014-1819  
 TEL 612/786-6020  
 FAX 612/786-7854

RECEIVED  
 JUN 3 1992

Reviewed  
 By TRB  
 6/5/92

May 27, 1992

EnecoTech  
 3050 Metro Drive, Suite 115  
 Bloomington, MN 55425

Attention: Tom Balow

LABORATORY REPORT: #5966  
 ENECOTECH PROJECT: #711-017

SAMPLES COLLECTED: May 5, 1992  
 SAMPLES RECEIVED: May 6, 1992

Sample Identification:	MW-01	MW-02
Sample Type:	Water	Water
Laboratory Log Number:	<u>5966-01</u>	<u>5966-02</u>

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020:				
MTBE	ug/L	0.68	< 0.68	< 0.68
Benzene	ug/L	0.47	< 0.47	< 0.47
Toluene	ug/L	0.50	< 0.50	< 0.50
Ethylbenzene	ug/L	0.33	< 0.33	< 0.33
Xylenes	ug/L	1.4	< 1.4	< 1.4
EPA Method SW-846, 8015:				
Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015:				
Total hydrocarbons, as fuel oil #2	ug/L	43	< 46 <sup>a</sup>	< 45 <sup>a</sup>
EPA Method 601:				
1,2-Dichloroethane	ug/L	0.47	< 0.47	< 0.47

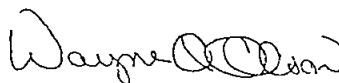
Interpoll Laboratories, Inc.  
Laboratory Report #5966  
EnecoTech

May 27, 1992  
Page 2 of 2

Sample Identification: MW-04 MW-03  
Sample Type: Water Water  
Laboratory Log Number: 5966-03 5966-04

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020:				
MTBE	ug/L	0.68	< 0.68	< 0.68
Benzene	ug/L	0.47	< 0.47	< 0.47
Toluene	ug/L	0.50	< 0.50	< 0.50
Ethylbenzene	ug/L	0.33	< 0.33	< 0.33
Xylenes	ug/L	1.4	< 1.4	< 1.4
EPA Method SW-846, 8015:				
Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015:				
Total hydrocarbons, as fuel oil #2	ug/L	43	< 43	< 43
EPA Method 601:				
1,2-Dichloroethane	ug/L	0.47	< 0.47	0.89

Respectfully submitted,



Wayne A. Olson, Manager  
Organic Chemistry Group

WAO/sk  
Invoice Enclosed  
< = less than

<sup>d</sup>The target detection limit is based on a one liter volume of sample being extracted and analyzed. The achieved detection limit for this sample is higher than the target detection limit because less than one liter was submitted for analysis.

All analyses were performed using EPA or other recognized methodologies. All units are on an "as received" basis unless otherwise indicated

**EnecoTECH****CHAIN OF CUSTODY RECORD**

NO 00782

3050 METRO DRIVE, SUITE 115  
BLOOMINGTON, MN 55425 (612) 854-5513  
RICHFIELDLOCATION 7753 PORTLAND AVE - S  
PROJECT NUMBER 711-017PROJECT MANAGER. TOM BAIRD  
LABORATORY. INTERPOLTURNAROUND TIME. STANDARD (10 DAY)

ITEM NO	SAMPLE NUMBER	NUMBER OF CONTAINERS AND TYPE	MATRIX	COLLECTION DATE	COLLECTION TIME	ANALYSIS REQUIRED
5966-01 <sup>1</sup>	MW-01	4-40 ML VOLS, 1-1000 ML JAR	H <sub>2</sub> O	5-5-92	11:05	(8020) (8015) (8015) PHE, BTEX, TPH-GAS, TPH FUEL OIL 1,2, Dichloroethane by (601)
-02 <sup>2</sup>	MW-02	↓	↓	↓	11:10	↓
-03 <sup>3</sup>	MW-04	↓	↓	↓	11:15	↓
-04 <sup>4</sup>	MW-03	↓	↓	↓	11:20	↓
5						
6						
7						
8						
9						
10						

SAMPLER'S SIGNATURE	DATE
<i>Tom Baird</i>	5-5-92
NOTES	

TRANSFER NO	ITEM NO	RELINQUISHED BY	ACCEPTED BY	DATE SUBMITTED
1	1-4	MM	COURIER	5-6-92
2			<i>Bob Dwyer</i>	1210 5/6/92
3				
4				





INTERPOLL LABORATORIES, INC  
 4500 BALL ROAD N E  
 CIRCLE PINES, MINNESOTA 55014-1819  
 TEL 612/786-6020  
 FAX 612/786-7854

TJB  
 3/4/92

Entered  
 2/92  
 SJW

February 21, 1992

EnecoTech  
 3050 Metro Drive, Suite 115  
 Bloomington, MN 55425

Attention: Tom Balow

LABORATORY REPORT: #5348  
 ENECOTECH PROJECT: #711-017

SAMPLES COLLECTED: February 11, 1992  
 SAMPLES RECEIVED: February 12, 1992

Sample Identification:	MW-01	MW-02
Sample Type:	Water	Water
Laboratory Log Number:	<u>5348-01</u>	<u>5348-02</u>

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020:				
Benzene	ug/L	0.47	< 0.47	< 0.47
Toluene	ug/L	0.50	< 0.50	< 0.50
Ethylbenzene	ug/L	0.33	< 0.33	< 0.33
Xylenes	ug/L	1.4	< 1.4	< 1.4
EPA Method SW-846, 8015:				
Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015:				
Total hydrocarbons, as fuel oil #2	ug/L	43	< 45 <sup>a</sup>	< 47 <sup>a</sup>
EPA Method 601:				
1,2-Dichloroethane	ug/L	0.47	< 0.47	< 0.47

Sample Identification:  
Sample Type:  
Laboratory Log Number:

MW-03      MW-04  
Water      Water  
5348-03    5348-04

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020:				
Benzene	ug/L	0.47	< 0.47	< 0.47
Toluene	ug/L	0.50	< 0.50	< 0.50
Ethylbenzene	ug/L	0.33	< 0.33	< 0.33
Xylenes	ug/L	1.4	< 1.4	< 1.4
EPA Method SW-846, 8015:				
Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015:				
Total hydrocarbons, as fuel oil #2	ug/L	43	< 45 <sup>a</sup>	< 44 <sup>a</sup>
EPA Method 601: 1,2-Dichloroethane	ug/L	0.47	1.5	< 0.47

Respectfully submitted,



Wayne A. Olson, Manager  
Organic Chemistry Group

WAO/sk  
Invoice Enclosed  
< = less than

<sup>a</sup>The target detection limit is based on a one liter volume of sample being extracted and analyzed. The achieved detection limit for this sample is higher than the target detection limit because less than one liter was submitted for analysis.

All analyses were performed using EPA or other recognized methodologies.  
All units are on an "as received" basis unless otherwise indicated.



# CHAIN OF CUSTODY RECORD

NO 00739

3050 METRO DRIVE, SUITE 115  
BLOOMINGTON, MN 55425 (612) 854-5513

LOCATION 7733 Portland Ave. S, Richfield, MN  
PROJECT NUMBER 711-017

PROJECT MANAGER Tom Balow  
LABORATORY Interpoll

TURNAROUND TIME Standard (10 days)

ITEM NO	SAMPLE NUMBER	NUMBER OF CONTAINERS AND TYPE	MATRIX	COLLECTION DATE	COLLECTION TIME	ANALYSIS REQUIRED
5348 1 01	mw-01	3-40ml VOCs 1-1/2 liter glass jar	H <sub>2</sub> O	2-11-92	11:10	<del>BTX</del> BTX (8020), TPH-gas + TPH- Fuel oil (8015), 1,2-Dichloroethane
2 02	mw-02	↓	↓	↓	11:30	↓
3 03	mw-03	↓	↓	↓	11:45	↓
4 04	mw-04	↓	↓	↓	12:10	↓
5						
6						
7						
8						
9						
10						

SAMPLER'S SIGNATURE	DATE
	2-11-92
NOTES	

TRANSFER NO	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE SUBMITTED
1	1-41		Courier	2-12-92
2				2/12/92 (1245)
3				
4				

Lab Data.



**interpoll**

INTERPOLL LABORATORIES, INC  
4500 BALL ROAD N E  
CIRCLE PINES, MINNESOTA 55014-1819  
TEL 612/786-6020  
FAX 612/786-7854

Renewed by TRB  
1/10/92

RECEIVED  
JAN 9 - 1992

Entered  
1-31-92  
JH

December 22, 1991

EnecoTech  
3050 Metro Drive, Suite 115  
Bloomington, MN 55425

Attention: Tom Balow

LABORATORY REPORT: #4859  
ENECOTECH PROJECT: #711-017

SAMPLES COLLECTED: December 2, 1991  
SAMPLES RECEIVED: December 3, 1991

Sample Identification:  
Sample Type:  
Laboratory Log Number:

MW-01      MW-02  
Water      Water  
4859-01    4859-02

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020: MTBE	ug/L	0.68	< 0.68	< 0.68
EPA Method SW-846, 8015: Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015. Total hydrocarbons, as fuel oil #2	ug/L	43	< 43	< 43

RECEIVED

JAN 9 - 1992

December 22, 1991  
Page 2 of 5

Interpoll Laboratories, Inc.  
Laboratory Report #4859  
EnecoTech

Sample Identification:  
Sample Type:  
Laboratory Log Number:

MW-01            MW-02  
Water            Water  
4859-01        4859-02

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
Method MDH 465-C:				
Chloromethane	ug/L	1.4	< 1.4	< 1.4
Bromomethane	ug/L	0.23	< 0.23	< 0.23
Vinyl chloride	ug/L	0.30	< 0.30	< 0.30
Dichlorodifluoromethane	ug/L	0.91	< 0.91	< 0.91
Chloroethane	ug/L	0.26	< 0.26	< 0.26
Methylene chloride	ug/L	3.0	< 3.0	< 3.0
Trichlorofluoromethane	ug/L	0.87	< 0.87	< 0.87
1,1-Dichloroethene	ug/L	0.66	< 0.66	< 0.66
Allyl chloride	ug/L	0.35	< 0.35	< 0.35
1,1-Dichloroethane	ug/L	0.16	< 0.16	< 0.16
cis-1,2-Dichloroethene	ug/L	0.28	< 0.28	< 0.28
trans-1,2-Dichloroethene	ug/L	0.28	< 0.28	< 0.28
Chloroform	ug/L	0.33	< 0.33	< 0.33
1,1,2-Trichlorotrifluoroethane	ug/L	0.90	< 0.90	< 0.90
Dibromomethane	ug/L	0.50	< 0.50	< 0.50
1,2-Dichloroethane	ug/L	0.47	< 0.47	< 0.47
1,1,1-Trichloroethane	ug/L	1.4	< 1.4	< 1.4
Carbon tetrachloride	ug/L	0.44	< 0.44	< 0.44
Bromodichloromethane	ug/L	0.56	< 0.56	< 0.56
2,3-Dichloro-1-propene	ug/L	0.35	< 0.35	< 0.35
1,2-Dichloropropane	ug/L	0.35	< 0.35	< 0.35
1,1-Dichloro-1-propene	ug/L	0.18	< 0.18	< 0.18
trans-1,3-Dichloropropane	ug/L	0.09	< 0.09	< 0.09
Trichloroethene	ug/L	0.58	< 0.58	< 0.58
1,3-Dichloropropane	ug/L	0.38	< 0.38	< 0.38
1,1,2-Trichloroethane	ug/L	1.0	< 1.0	< 1.0
Dibromochloromethane	ug/L	1.1	< 1.1	< 1.1
cis-1,3-Dichloropropane	ug/L	0.27	< 0.27	< 0.27
1,2-Dibromoethane	ug/L	0.26	< 0.26	< 0.26
2-Chloroethylvinyl ether	ug/L	0.70	< 0.70	< 0.70
Bromoform	ug/L	0.39	< 0.39	< 0.39
1,1,1,2-Tetrachloroethane	ug/L	0.30	< 0.30	< 0.30
1,1,2,3-Trichloropropane	ug/L	0.58	< 0.58	< 0.58
1,1,1,2-Tetrachloroethane	ug/L	2.1	< 2.1	< 2.1
Tetrachloroethene	ug/L	0.45	< 0.45	< 0.45
Pentachloroethane	ug/L	1.7	< 1.7	< 1.7
Chlorobenzene	ug/L	0.23	< 0.23	< 0.23
1,3-Dichlorobenzene	ug/L	0.46	< 0.46	< 0.46
1,2-Dichlorobenzene	ug/L	0.49	< 0.49	< 0.49
1,4-Dichlorobenzene	ug/L	0.69	< 0.69	< 0.69

RECEIVED

JAN 9 - 1992

Interpoll Laboratories, Inc.  
 Laboratory Report #4859  
 EnecoTech

December 22, 1991  
 Page 3 of 5

Sample Identification:  
 Sample Type:  
 Laboratory Log Number:

MW-01	MW-02
Water	Water
<u>4859-01</u>	<u>4859-02</u>

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
Method MDH 465-C (continued):				
Acetone	ug/L	22	< 22	< 22
Tetrahydrofuran	ug/L	8.7	< 8.7	< 8.7
Ethyl ether	ug/L	1.1	< 1.1	< 1.1
Methyl ethyl ketone	ug/L	3.9	< 3.9	< 3.9
Benzene	ug/L	0.47	< 0.47	< 0.47
Methyl isobutyl ketone	ug/L	1.6	< 1.6	< 1.6
Toluene	ug/L	0.92	< 0.92	< 0.92
Ethylbenzene	ug/L	0.42	< 0.42	< 0.42
Cumene	ug/L	1.8	< 1.8	< 1.8
Total xylenes	ug/L	2.2	< 2.2	< 2.2

Sample Identification:  
 Sample Type:  
 Laboratory Log Number:

MW-03	MW-04
Water	Water
<u>4859-03</u>	<u>4859-04</u>

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
EPA Method SW-846, 8020:				
MTBE	ug/L	0.68	< 0.68	< 0.68
EPA Method SW-846, 8015:				
Total hydrocarbons, as gasoline	ug/L	13	< 13	< 13
EPA Method SW-846, 3510/8015:				
Total hydrocarbons, as fuel oil #2	ug/L	43	< 43	< 43

RECEIVED

JAN 9 - 1992

Interpoll Laboratories, Inc.  
 Laboratory Report #4859  
 EnecoTech

December 22, 1991  
 Page 4 of 5

Sample Identification:  
 Sample Type:  
 Laboratory Log Number:

MW-03      MW-04  
 Water      Water  
4859-03    4859-04

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
Method MDH 465-C:				
Chloromethane	ug/L	1.4	< 1.4	< 1.4
Bromomethane	ug/L	0.23	< 0.23	< 0.23
Vinyl chloride	ug/L	0.30	< 0.30	< 0.30
Dichlorodifluoromethane	ug/L	0.91	< 0.91	< 0.91
Chloroethane	ug/L	0.26	< 0.26	< 0.26
Methylene chloride	ug/L	3.0	< 3.0	< 3.0
Trichlorofluoromethane	ug/L	0.87	< 0.87	< 0.87
1,1-Dichloroethene	ug/L	0.66	< 0.66	< 0.66
Allyl chloride	ug/L	0.35	< 0.35	< 0.35
1,1-Dichloroethane	ug/L	0.16	< 0.16	< 0.16
cis-1,2-Dichloroethene	ug/L	0.28	< 0.28	< 0.28
trans-1,2-Dichloroethene	ug/L	0.28	< 0.28	< 0.28
Chloroform	ug/L	0.33	< 0.33	< 0.33
1,1,2-Trichlorotrifluoroethane	ug/L	0.90	< 0.90	< 0.90
Dibromomethane	ug/L	0.50	< 0.50	< 0.50
1,2-Dichloroethane	ug/L	0.47	< 0.47	< 0.47
1,1,1-Trichloroethane	ug/L	1.4	< 1.4	< 1.4
Carbon tetrachloride	ug/L	0.44	< 0.44	< 0.44
Bromodichloromethane	ug/L	0.56	< 0.56	< 0.56
2,3-Dichloro-1-propene	ug/L	0.35	< 0.35	< 0.35
1,2-Dichloropropane	ug/L	0.35	< 0.35	< 0.35
1,1-Dichloro-1-propene	ug/L	0.18	< 0.18	< 0.18
trans-1,3-Dichloropropane	ug/L	0.09	< 0.09	< 0.09
Trichloroethene	ug/L	0.58	< 0.58	< 0.58
1,3-Dichloropropane	ug/L	0.38	< 0.38	< 0.38
1,1,2-Trichloroethane	ug/L	1.0	< 1.0	< 1.0
Dibromochloromethane	ug/L	1.1	< 1.1	< 1.1
cis-1,3-Dichloropropane	ug/L	0.27	< 0.27	< 0.27
1,2-Dibromoethane	ug/L	0.26	< 0.26	< 0.26
2-Chloroethylvinyl ether	ug/L	0.70	< 0.70	< 0.70
Bromoform	ug/L	0.39	< 0.39	< 0.39
1,1,1,2-Tetrachloroethane	ug/L	0.30	< 0.30	< 0.30
1,2,3-Trichloropropane	ug/L	0.58	< 0.58	< 0.58
1,1,2,2-Tetrachloroethane	ug/L	2.1	< 2.1	< 2.1
Tetrachloroethene	ug/L	0.45	< 0.45	< 0.45
Pentachloroethane	ug/L	1.7	< 1.7	< 1.7
Chlorobenzene	ug/L	0.23	< 0.23	< 0.23
1,3-Dichlorobenzene	ug/L	0.46	< 0.46	< 0.46
1,2-Dichlorobenzene	ug/L	0.49	< 0.49	< 0.49
1,4-Dichlorobenzene	ug/L	0.69	< 0.69	< 0.69

RECEIVED

JAN 9 - 1992

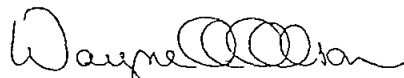
Interpoll Laboratories, Inc.  
Laboratory Report #4859  
EnecoTech

December 22, 1991  
Page 5 of 5

Sample Identification:	MW-03	MW-04
Sample Type:	Water	Water
Laboratory Log Number:	<u>4859-03</u>	<u>4859-04</u>

<u>Parameter</u>	<u>Units</u>	<u>Target Detection Limit</u>		
Method MDH 465-C (continued):				
Acetone	ug/L	22	< 22	< 22
Tetrahydrofuran	ug/L	8.7	< 8.7	< 8.7
Ethyl ether	ug/L	1.1	< 1.1	< 1.1
Methyl ethyl ketone	ug/L	3.9	< 3.9	< 3.9
Benzene	ug/L	0.47	< 0.47	< 0.47
Methyl isobutyl ketone	ug/L	1.6	< 1.6	< 1.6
Toluene	ug/L	0.92	< 0.92	< 0.92
Ethylbenzene	ug/L	0.42	< 0.42	< 0.42
Cumene	ug/L	1.8	< 1.8	< 1.8
Total xylenes	ug/L	2.2	< 2.2	< 2.2

Respectfully submitted,



Wayne A. Olson, Manager  
Organic Chemistry Group

WAO/sk  
Invoice Enclosed  
< = less than

All analyses were performed using EPA or other recognized methodologies.  
All units are on an "as received" basis unless otherwise indicated.



**ENCO TECH****CHAIN OF CUSTODY RECORD**

NO 00683

3050 METRO DRIVE, SUITE 115  
BLOOMINGTON, MN 55425 (612) 854-5513LOCATION 7753 Portland Ave., Richfield PROJECT MANAGER Tom Balow  
PROJECT NUMBER 711-017 LABORATORY InterpollTURNAROUND TIME STANDARD  
~~10 DAYS~~

ITEM NO	SAMPLE NUMBER	NUMBER OF CONTAINERS AND TYPE	MATRIX	COLLECTION DATE	COLLECTION TIME	ANALYSIS REQUIRED
4859 1 <sup>01</sup>	MW-01	3-40ml VOAS, 1-1000ml jar	H <sub>2</sub> O	12/2/91	15:45	MPH465-C, MTBE, TPH-gas + TPH-fuel oil (Method 801.5)
2 <sup>02</sup>	MW-02	↓	↓	↓	14:55	↓
3 <sup>03</sup>	MW-03	↓	↓	↓	15:20	↓
4 <sup>04</sup>	MW-04	↓	↓	↓	15:15	↓
5						
6						
7						
8						
9						
10						

SAMPLER'S SIGNATURE	DATE
<i>[Signature]</i>	12/2/91
NOTES	

TRANSFER NO.	ITEM NO.	RELINQUISHED BY	ACCEPTED BY	DATE SUBMITTED
1	1-4	<i>[Signature]</i>	<i>[Signature]</i> 1:30	12/3/91
2				
3				
4				

JAN 11 - 1992

RECEIVED