

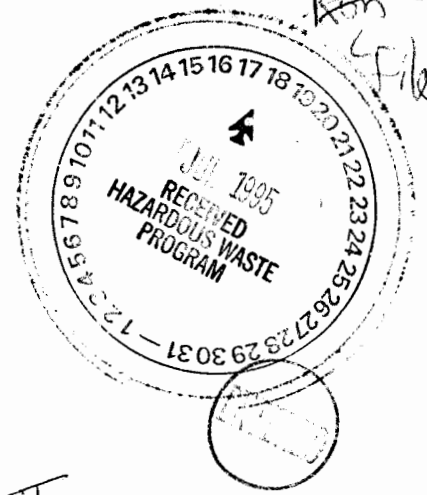


**Bloomfield Refining  
Company**

A Gary Energy Corporation Subsidiary



**ENTERED**



July 11, 1995

Mr. Coby Muckelroy  
New Mexico Environment Department  
525 Camino de los Marquez  
P. O. Box 26110  
Santa Fe, New Mexico 87502



RE: RCRA Semi-Annual Groundwater Report  
NMD 089 416 416

Dear Mr. Muckelroy:

Enclosed please find sampling and analysis results from the groundwater monitoring wells associated with our hazardous waste water treatment system. Since the plume from other sources (RCRA RFI Report) extends under the treatment impoundments, the data should not be evaluated without consideration of the overall situation at the refinery.

Monitoring wells RW-15 and RW-18 are part of the refinery's pump-and-treat groundwater remediation system. Monitoring wells MW-9, RW-15, and RW-18 all had visible hydrocarbons, therefore, the analytical results would be significantly affected by this free product.

Please call me if you need any additional information.

Sincerely,

Chris Hawley  
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick  
Joe Warr  
John Goodrich

p:\wp\chawley\semigwr

Bloomfield Refining Company  
Groundwater Data

	Units	Up-gradient		Down-gradient		
		MW-21 6/15/95	RW-15 6/15/95	MW-20 6/15/95	MW-9 6/15/95	RW-18 6/15/95
HC Contm. Indicators						
Benzene	mg/l	0.982	18.700	0.000	8.510	1.810
Toluene	mg/l	0.000	28.200	0.001	4.910	0.017
Ethylbenzene	mg/l	0.085	2.870	0.003	0.747	0.498
Xylenes (Total)	mg/l	0.002	17.890	0.003	5.670	0.095
Contamination						
pH	s.u.	6.90	7.00	7.20	6.80	6.80
pH	s.u.	6.90	7.00	7.20	6.80	6.80
pH	s.u.	6.90	7.00	7.20	6.80	6.80
pH	s.u.	6.90	7.00	7.20	6.80	6.80
Specific Conductance		3800	5000	2800	1800	1800
Specific Conductance		3800	5000	2800	1800	1800
Specific Conductance		3800	5000	2800	1800	1800
Specific Conductance		3800	5000	2800	1800	1800
Total Organic Carbon	mg/l					
Total Organic Carbon	mg/l					
Total Organic Carbon	mg/l					
Total Organic Carbon	mg/l					
Total Organic Halogen	mg/l					
Total Organic Halogen	mg/l					
Total Organic Halogen	mg/l					
Total Organic Halogen	mg/l					
Groundwater Levels						
Elevation - TOP	ft	5518.62	5533.44	5516.46	5519.77	5526.08
Depth to Water	ft	19.15	33.50	17.19	20.49	27.68
Elevation - GW	ft	5499.47	5499.94	5499.27	5499.28	5498.40
HC Thickness	ft	0.00	0.01	0.00	0.01	0.63
Elevation - Liquid	ft	5499.47	5499.95	5499.27	5499.29	5499.03
Total Depth fr TOP	ft	30.93	43.40	27.18	33.90	40.95

SAMPLED FOR  
HC INDICATORS AS  
PER PART B

FREE PRODUCT

SAMPLED FOR  
HC INDICATORS AS  
PER PART B

FREE PRODUCT

FREE PRODUCT

BLOOMFIELD REFINING COMPANY  
 BENZENE IN WASTEWATER DISCHARGE

DATE	UNITS	DET LIMIT	BENZENE	TOLUENE	ETHYL- BENZENE	TOTAL XYLENE
01/15/93	mg/l	0.0002	ND	ND	ND	0.0209
02/03/93	mg/l	0.005	0.04	ND	ND	0.25
02/25/93	mg/l	0.003	0.004	ND	ND	0.128
03/04/93	mg/l	0.01	0.338	0.45	0.013	0.465
04/20/93	mg/l	0.001	ND	ND	ND	0.0264
06/01/93	mg/l	0.0005	ND	0.0005	ND	0.0016
07/13/93	mg/l	0.0002	0.00021	ND	ND	0.00071
08/11/93	mg/l	0.0002	ND	ND	ND	0.00195
09/07/93	mg/l	0.0002	ND	ND	ND	ND
10/11/93	mg/l	0.0002	ND	ND	ND	0.00075
11/17/93	mg/l	0.0002	ND	ND	ND	0.00184
12/13/93	mg/l	0.0002	0.00025	ND	ND	0.02138
01/13/94	mg/l	0.0002	0.00026	ND	ND	0.01017
02/14/94	mg/l	0.0002	0.0103	0.0168	ND	0.0914
02/17/94	mg/l	0.005	ND	0.02	0.001	0.01
03/24/94	mg/l	0.002	0.0041	0.0148	0.0023	0.23
04/05/94	mg/l	0.0002	ND	0.02	0.001	0.01
05/13/94	mg/l	0.002	ND	0.0263	ND	0.0572
05/31/94	mg/l	0.001	0.0193	0.0659	0.006	0.1081
07/11/94	mg/l	0.001	0.0421	0.0605	0.00232	0.0512
08/19/94	mg/l	0.0002	ND	ND	ND	ND
09/20/94	mg/l	0.0002	ND	ND	ND	0.0004
10/25/94	mg/l	0.0005	ND	0.0011	0.0007	0.0035
11/18/94	mg/l	0.0002	ND	0.0003	ND	0.0014
12/21/94	mg/l	0.002	ND	ND	ND	0.0115
01/26/95	mg/l	0.0002	ND	0.0003	0.0012	0.0025
02/24/95	mg/l	0.0004	0.0054	0.0062	ND	0.0152
03/22/95	mg/l	0.001	ND	ND	ND	ND
04/13/95	mg/l	0.0002	0.0006	0.001	0.0002	0.0033
05/22/95	mg/l	0.0002	ND	0.0045	0.0002	0.0016
06/15/95	mg/l	0.0002	ND	ND	ND	0.0003
	mg/l					
	mg/l					
	mg/l					
	mg/l					
	mg/l					
1993 AVG	mg/l		0.0319	0.0375	0.0011	0.0765
1994 AVG	mg/l		0.0059	0.0174	0.0010	0.0450
1995 AVG	mg/l		0.0010	0.0020	0.0003	0.0038

Universal Standards  
 09/19/94 mg/l

U.T.S.

0.14

0.08

0.057

0.32



2506 West Main Street  
Farmington, New Mexico 87401  
Tel. (505) 326-4737

30 June 1995

Chris Hawley  
Bloomfield Refining Co.  
P.O. Box 159  
Bloomfield, NM 87413

Mr. Hawley:

Enclosed please find the report for the water samples received by our laboratory for analysis on June 15, 1995.

If you have any questions about the results of this analysis, please don't hesitate to call me at your convenience.

Sincerely,

Anna Schaerer  
Organic Analyst/IML-Farmington

Enclosure

xc: File

## Bloomfield Refining Co.

### Case Narrative

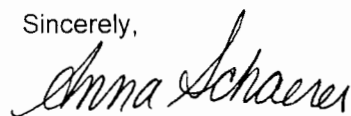
On June 14, 1994, seven water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) was performed on the samples as per the accompanying Chain of Custody document.

BTEX analysis on the samples was performed by EPA Method 5030, Purge and Trap, and EPA Method 8020, Aromatic Volatile Hydrocarbons, using an OI Analytical 4560 Purge and Trap and a Hewlett-Packard 5890 Gas Chromatograph, equipped with a photoionization detector. Detectable levels of BTEX analytes were found in the samples as indicated in the enclosed report.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The methods used in the analyses of the samples reported herein are found in Test Methods for Evaluation of Solid Waste, SW-846, USEPA, 1986 and Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1983.

Quality control reports appear at the end of the analytical package and may be identified by title. If there are any questions regarding the information presented in this package, please feel free to call at your convenience.

Sincerely,



Anna Schaerer  
Organic Analyst

**VOLATILE AROMATIC HYDROCARBONS**

**Bloomfield Refining Co.**

Project ID:	Bloomfield, NM	Report Date:	06/30/95
Sample ID:	MW-21	Date Sampled:	06/15/95
Lab ID:	G00794	Date Received:	06/15/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/29/95

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	982	2.0
Toluene	ND	2.0
Ethylbenzene	84.8	2.0
m,p-Xylenes	2.5	2.0
o-Xylene	ND	2.0

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	100.0	75 -125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

*Anna Schaefer*  
Analyst

*mk*  
Review

**VOLATILE AROMATIC HYDROCARBONS**

**Bloomfield Refining Co.**

Project ID:	Bloomfield, NM	Report Date:	06/29/95
Sample ID:	MW-20	Date Sampled:	06/15/95
Lab ID:	G00795	Date Received:	06/15/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/28/95

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.2
Toluene	0.9	0.2
Ethylbenzene	3.0	0.2
m,p-Xylenes	2.0	0.2
o-Xylene	0.8	0.2

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	* 155.0	75 -125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:** \* Spike recovery is high due to matrix interference.

*Anna Schauer*  
Analyst

*mk*  
Review

**VOLATILE AROMATIC HYDROCARBONS**

**Bloomfield Refining Co.**

Project ID: Bloomfield, NM  
 Sample ID: MW-9  
 Lab ID: G00796  
 Sample Matrix: Water  
 Condition: Cool/Intact

Report Date: 06/29/95  
 Date Sampled: 06/15/95  
 Date Received: 06/15/95  
 Date Extracted: NA  
 Date Analyzed: 06/28/95

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	8,510	100.0
Toluene	4,910	100.0
Ethylbenzene	747	100.0
m,p-Xylenes	4,620	100.0
o-Xylene	1,050	100.0

ND - Analyte not detected at the stated detection limit.

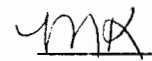
**Quality Control:**      Surrogate                      Percent Recovery                      Acceptance Limits

Bromofluorobenzene                      97.5                      75 -125%

**Reference:**      Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

  
 Analyst

  
 Review



## VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	06/30/95
Sample ID:	RW-18	Date Sampled:	06/15/95
Lab ID:	G00797	Date Received:	06/15/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/29/95

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	1,810	10.0
Toluene	17.4	10.0
Ethylbenzene	498	10.0
m,p-Xylenes	68.8	10.0
o-Xylene	25.8	10.0

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	105.4	75 -125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

Anna Schaefer  
Analyst

MK  
Review

## VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	06/30/95
Sample ID:	RW-15	Date Sampled:	06/15/95
Lab ID:	G00798	Date Received:	06/15/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/29/95

Target Analyte	Concentration (ppb)	Detection Limit (ppm)
Benzene	18,700	0.5
Toluene	28,200	0.5
Ethylbenzene	2,870	0.5
m,p-Xylenes	13,300	0.5
o-Xylene	4,590	0.5

ND - Analyte not detected at the stated detection limit.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	95.9	75 -125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

*Anna Schaefer*  
Analyst

*MX*  
Review

## Quality Assurance / Quality Control

## VOLATILE AROMATIC HYDROCARBONS QUALITY CONTROL REPORT

### Duplicate Analysis

Lab ID: G00793  
Sample Matrix: Water  
Condition: Cool/Intact

Report Date: 06/29/95  
Date Sampled: 06/15/95  
Date Received: 06/15/95  
Date Extracted: NA  
Date Analyzed: 06/28/95

Target Analyte	Duplicate Concentration (ppb)	Original Concentration (ppb)	% Difference
Benzene	ND	ND	NA
Toluene	ND	ND	NA
Ethylbenzene	ND	ND	NA
m,p-Xylenes	0.3	0.3	0.0
o-Xylene	ND	ND	NA


ND - Analyte not detected at the stated detection limit.


NA - Not applicable or not calculated.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	97.6%	75 -115%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

  
Analyst

  
Review

**VOLATILE AROMATIC HYDROCARBONS  
QUALITY CONTROL REPORT**

**Matrix Spike Analysis**

Lab ID: G00798  
Sample Matrix: Water  
Condition: Cool/Intact

Report Date: 06/30/95  
Date Sampled: 06/15/95  
Date Received: 06/15/95  
Date Extracted: NA  
Date Analyzed: 06/30/95

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	65.2	37.4	30	92.8%	70-130
Toluene	88.5	56.4	30	107.1%	70-130
Ethylbenzene	34.9	5.73	30	97.1%	70-130
m,p-Xylenes	85.5	26.7	60	98.1%	70-130
o-Xylene	37.7	9.18	30	95.1%	70-130

ND - Analyte not detected at the stated detection limit.  
NA - Not applicable or not calculated.

<b>Quality Control:</b>	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	101.8%	75 -125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

  
Analyst

  
Review

**Quality Control / Quality Assurance****Known Analysis****BTEX**

Client: **Bloomfield Refining Co.**  
 Project: Bloomfield, NM  
 Sample Matrix: Water

Date Reported: 06/29/95  
 Date Analyzed: 06/28/95

**Known Analysis**

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery
Benzene	8.4	10.0	84%
Toluene	9.2	10.0	92%
Ethylbenzene	9.4	10.0	94%
m+p-Xylene	9.5	10.0	95%
o-Xylene	9.1	10.0	91%

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	99.1	75-125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

Reported by

*Anna Schaefer*

Reviewed by

*AK*

**VOLATILE AROMATIC HYDROCARBONS  
QUALITY CONTROL REPORT****Method Blank Analysis**Sample Matrix: Water  
Lab ID: Method BlankReport Date: 06/29/95  
Date Analyzed: 06/28/95


Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	ND	0.2
o-Xylene	ND	0.2

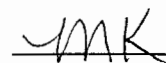
ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	97.5	75-125%

**Reference:** Method 5030, Purge and Trap; Method 8020, Aromatic Volatile Organics; Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1986.

**Comments:**

  
Analyst

  
Review

# CHAIN OF CUSTODY RECORD

Client/Project Name <b>BLOOMFIELD REFINING CO.</b>				Project Location <b>BLOOMFIELD, NM</b>				<b>ANALYSES / PARAMETERS</b>			
Sampler: (Signature) <i>Chang Homing</i>				Chain of Custody Tape No.							
Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	<i>BTEX</i>					
MW-21	6-15-95	11:00 A		WATER	2	2				BTEX ≈ 1 PPM	
MW-20	6-15-95	11:15 A		"	2	2				BTEX ≈ 0.1 PPM	
MW-9	6-15-95	11:30 A		"	2	2				BTEX > 5 PPM	
MW-18	6-15-95	11:45 A		"	2	2				BTEX > 5 PPM	
RW-15	6-15-95	12:15 P		"	2	2				BTEX > 5 PPM	
Relinquished by: (Signature) <i>Chang Homing</i>				Date	Time	Received by: (Signature) <i>Anna Schaefer</i>				Date	Time
Relinquished by: (Signature)				Date	Time	Received by: (Signature)				Date	Time
Relinquished by: (Signature)				Date	Time	Received by laboratory: (Signature)				Date	Time
<b>Inter-Mountain Laboratories, Inc.</b>										<b>28250</b>	
<input type="checkbox"/>	1633 Terra Avenue Sheridan, Wyoming 82801 Telephone (307) 672-8945			<input type="checkbox"/>	1701 Phillips Circle Gillette, Wyoming 82718 Telephone (307) 682-8945			<input type="checkbox"/>	2506 West Main Street Farmington, NM 87401 Telephone (505) 326-4737		
<input type="checkbox"/>	1160 Research Dr. Bozeman, Montana 59715 Telephone (406) 586-8450			<input type="checkbox"/>	11183 SH 30 College Station, TX 77845 Telephone (409) 776-8945			<input type="checkbox"/>	3304 Longmire Drive College Station, TX 77845 Telephone (409) 774-4999		