GW - 1

MONITORING REPORTS

DATE: 1997-1993

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

September 30, 1997

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report Giant Refining Company - Bloomfield
GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly report on activities associated with the river terrace at this facility.

The most recent analysis for the bi-weekly sampling is attached. Trace amounts of Benzene, Ethylbenzene, Toluene, and Xylenes have been detected in concentrations below WQCC standards. Because the concentrations of the analytes are below WQCC standards, Giant does not consider this to be a significant issue. However, Giant continues to monitor the area on a daily basis.

Despite the fact that the river has been flowing at relatively low levels, hydrocarbon has not been observed in the recovery culvert, either as a sheen or as separate phase hydrocarbon.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Greg Lyssy, Region VI, USEPA
Steve Pullen, NMED / HRMB

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511◆ (970) 490-1511 ◆ FAX (970) 490-1522

September 5, 1997

Mr. Lynn Shelton
Giant Refining Company
#50 County Road 4990/PO Box 159
Bloomfield, NM 87413

RE: Paragon Workorder: 97-08-205
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Mr. Shelton:

One solid and three water samples were received from Giant Refining Company on August 18, 1997. The samples were scheduled for the following analyses:

GC/MS Semivolatiles	pages 1-7
GC/MS Volatiles	pages 1-7
TCLP Pesticides	pages 1-7
TCLP Herbicides	pages 1-7
TCLP Metals	pages 1-7
Aromatic Volatile Organics	pages 1-9

The results for these analyses are contained in the enclosed report.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

VBayly

Paragon Analytics, Inc.
Victoria Bayly
Project Manager

VB/jjc
Enclosure: Report

An Employee Owned Small Business

Paragon Analytics, Inc.

Aromatic Volatile Organics
Case Narrative

Giant Refining Company

Order Number - 9708205

1. This report consists of 3 water samples received by Paragon on 08/18/97.

2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water samples were prepared by heating and purging 5 mls using purge and trap procedures based on Method 5030. The calibration curve was also prepared using the heated purge.

3. The samples were analyzed using a GC with a DB-624 capillary column and a PID detector according to protocols based on SW-846 Method 8020. All positive results were quantitated using the responses from the initial calibration curve using the internal standard technique. Second column confirmation was performed on all samples with positive results on a DB-VRX capillary column.

4. All samples were analyzed within the established holding times except sample 9708205-1 which was received by Paragon after the holding time had lapsed.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All matrix spike and matrix spike duplicate recoveries and RPDs were within acceptance criteria.

7. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All internal standard recoveries were within acceptance criteria.

10. Due to high levels of non-target analytes sample 9708205-3 was analyzed at a higher dilution. The reporting limits have been adjusted accordingly.

11. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Mark R. Hayes

Mark R. Hayes
Fuels Chemist

9-4-97
Date

RPR
Reviewer's Initials

9-5-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9708205-1	River-B (7/31)	Water	07/31/97
9708205-2	River-B (8/12)	Water	08/12/97
9708205-3	NOWP-E	Water	08/14/97
9708205-4	Pond Sludge	Solid	08/14/97

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: WRB1 08/21/97

Date Collected: N/A
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	ND	0.50
Toluene	ND	0.50
Ethylbenzene	ND	0.50
M,P-Xylene	ND	1.0
O-Xylene	ND	0.50
Total Xylenes	ND	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID: **River-B (7/31)**

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-1

Date Collected: 7/31/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)	
Benzene	0.72 .00072 mg/L	0.50	.01 mg/l
Toluene	ND	0.50	.75 "
Ethylbenzene	1.1	0.50	.75 "
M,P-Xylene	3.9	1.0	
O-Xylene	1.1	0.50	
Total Xylenes	5.0 .005 mg/L	1.0	.62 "

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS

Method 8020

Sample ID

River-B (8/12)

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-2

Date Collected: 8/12/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Matrix: Water

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	0.56	0.50
Toluene	ND	0.50
Ethylbenzene	1.0	0.50
M,P-Xylene	3.9	1.0
O-Xylene	1.0	0.50
Total Xylenes	5.0	1.0

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,3,4-Trifluorotoluene	96	88 - 119

ND = Not Detected at or above client requested reporting limit.

AROMATIC VOLATILE ORGANICS BLANK SPIKE

Method 8020

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Lab Sample ID: WBS1 08/21/97

Sample Matrix: Water

Sample Volume: 5 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Benzene	40.0	45.2	113	85 - 115
Toluene	40.0	43.1	108	85 - 115
Ethylbenzene	40.0	43.4	108	85 - 115
M,P-Xylene	80.0	86.9	109	85 - 115
O-Xylene	40.0	43.3	108	85 - 115
Total Xylenes	120	130	109	85 - 115

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	45.9	115	2	20
Toluene	40.0	44.1	110	2	20
Ethylbenzene	40.0	43.8	109	1	20
M,P-Xylene	80.0	87.5	109	1	20
O-Xylene	40.0	43.9	110	1	20
Total Xylenes	120	131	110	1	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits	
2,3,4-Trifluorotoluene	99	98	88 - 119	

D = Detected

AROMATIC VOLATILE ORGANICS MATRIX SPIKE

Method 8020

Sample ID

River-B (8/12)

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Lab Sample ID: 9708205-2MS

Sample Matrix: Water

Date Collected: 8/12/97
Date Extracted: 8/21/97
Date Analyzed: 8/21/97

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery	QC Limits % Rec
Benzene	40.0	0.56	46.7	115	85 - 115
Toluene	40.0	ND	44.0	110	85 - 115
Ethylbenzene	40.0	1.03	44.5	109	85 - 115
M,P-Xylene	80.0	3.93	91.0	109	85 - 115
O-Xylene	40.0	1.03	44.4	108	85 - 115
Total Xylenes	120	4.96	135	109	85 - 115

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	45.4	112	3	20
Toluene	40.0	42.7	107	3	20
Ethylbenzene	40.0	42.8	104	4	20
M,P-Xylene	80.0	87.2	104	4	20
O-Xylene	40.0	42.6	104	4	20
Total Xylenes	120	130	104	4	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,3,4-Trifluorotoluene	97	97	88 - 119

ND = Not Detected

PARAGON ANALYTICS, INC.
225 Commerce Drive Ft. Collins, CO 80524
(800) 443-1511 or (970) 490-1511
(970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 7/31/97 Page 1 of 1

*ACCESSION NUMBER (LAB ID) 9708-205

REPORT TO: LYNN SHELTON

COMPANY:

ADDRESS: GIANT REFINING - BLOOMFIELD
P.O. BOX 159
BLOOMFIELD, NM 87413

SAMPLER: Lynn Shelton

(505) 632 8013 (505) 632 3911

PHONE NO. **FAX NO.**

ANALYSIS REQUESTED

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Oil & Grease 9070/9071/413.2	418.1 - TRPH	8015 Mod. - Gasoline	8015 Mod. - Diesel	8015m/8020 - Gasoline/BETX	8020 - BETX only	8240/8260 - GC/MS VOC's	8270 - GC/MS SVOC's	8080 - Pesticides/PCB's	8080 - PCB's only	8310/610 - HPLC PNA's	8150 - Herbicides	8141/614 - OP Pesticides	TOX - EOX - AOX - TX	Total Metals *(specify in comments)	TCLP: *(specify parameters in comments) ALL	Gross Alpha / Beta	Gross Gamma	Gamma Spec	Isotopic Plutonium	Isotopic Uranium	Total Uranium (KPA)	Radium 226 / 228	Tritium (H3)	Strontium 89 / 90	8315 - Formaldehyde	% Moisture	WQCC PARAMETERS	SEE ATTACHED			Number of Containers
RIVER - B	7/31	900	H_2O	01						X																								40ml		2
RIVER - B	8/12	840	H_2O	02						X																										2
NOWP - E	8/14	1230	H_2O	03						X																							⊗	✓		1
POND SLUDGE	8/14	1345	SOIL	04																X												X		8oz		1

PROJECT INFORMATION

PROJECT NUMBER:

PROJECT NAME:

P.O. NUMBER:

TAT: STANDARD X RUSH DUE ______

SAMPLE DISPOSAL: X HAZ WASTE $5.00 ea RAD CHEM $15.00 ea RETURN

SAMPLE RECEIPT

TOTAL NO. OF CONTAINERS

CHAIN OF CUSTODY SEALS Y / N

SEALS INTACT? Y / N / NA

REC'D GOOD COND./COLD?

RELINQUISHED BY: 1	RELINQUISHED BY: 2	RELINQUISHED BY: 3
Sign. Lynn Shelton Time 1500	Sign. Time	Sign. Time
Print LYNN SHELTON Date 8/14/97	Print Date	Print Date
Company GIANT	Company FDX	Company

RECEIVED BY: 1	RECEIVED BY: 2	RECEIVED BY: 3
Sign. Time	Sign. D Hull Time 1200	Sign. Time
Print Date	Print D Hull Date 8/18/97	Print Date
Company FDX	Company PAI	Company

COMMENTS: ⊗ 1-40mL VOA Rec'd Broken

Run - 1 anyway.

* DO NOT WRITE IN SHADED AREAS

DISTRIBUTION: White, Canary - PARAGON ANALYTICS, INC. Pink - Originator

2506 W. Main Street
Farmington, New Mexico 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL CONCENTRATION

Client:	Giant Refining Company		
Project:	Bloomfield Refinery	Date Reported:	04/09/97
Sample ID:	Diesel Filter	Date Sampled:	04/03/97
Laboratory ID:	0397G00507	Date Received:	04/03/97
Sample Matrix:	filter	Date Analyzed:	04/08/97

Parameter	Result	Detection Limit	Regulatory Level	Unit
Arsenic	<0.005	0.005	5	mg/L
Barium	0.74	0.01	100	mg/L
Cadmium	<0.004	0.004	1	mg/L
Chromium	<0.01	0.01	5	mg/L
Lead	<0.05	0.05	5	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.005	0.005	1	mg/L
Silver	<0.01	0.01	5	mg/L

ND- Analyte not detected at stated detection level.

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments:

Reported By: ____________ Reviewed: ____________

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
TRACE METAL CONCENTRATION

Client:	Giant Refining Company		
Project:	Bloomfield Refinery	Date Reported:	04/09/97
Sample ID:	JP 8 Filter	Date Sampled:	04/03/97
Laboratory ID:	0397G00508	Date Received:	04/03/97
Sample Matrix:	filter	Date Analyzed:	04/08/97

Parameter	Result	Detection Limit	Regulatory Level	Units
Arsenic	0.008	0.005	5	mg/L
Barium	0.80	0.01	100	mg/L
Cadmium	0.112	0.004	1	mg/L
Chromium	<0.01	0.01	5	mg/L
Lead	<0.05	0.05	5	mg/L
Mercury	<0.001	0.001	0.2	mg/L
Selenium	<0.005	0.005	1	mg/L
Silver	<0.01	0.01	5	mg/L

ND- Analyte not detected at stated detection level.

References: Method 1311: Toxicity Characteristic Leaching Procedure, SW-846, Rev. 0, July 1992.

Method 3010A: Acid Digestion of Aqueous Samples and Extracts for Total Metals, SW-846, Rev. 1, July 1992.

Comments:

Reported By: [signature]

Reviewed: AB

Inter-Mountain Laboratories, Inc.
1160 Research Drive
Bozeman, Montana 59718

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
HSL VOLATILE COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: JP 8
Project ID: Bloomfield Refinery
Lab ID: B971864 0397G00608
Matrix: Filter

Date Reported: 04/21/97
Date Sampled: 04/03/97
Date Received: 04/16/97
Date Extracted: 04/16/97
Date Analyzed: 04/17/97

Parameter	Result	PQL	Regulatory Level	Units
Benzene	ND	0.02	0.5	mg/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	91	80 - 120
Bromofluorobenzene	104	86 - 115
Toluene-d8	104	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260A Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, Final Update II, United States Environmental Protection Agency, September 1994.
Method 1311, Toxicity Characteristic Leaching Procedure, Test Methods for Evaluating Solid Wastes, SW-846, United States EPA, September 1994.

Analyst E.D.

Reviewed CCB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

TOXICITY CHARACTERISTIC LEACHING PROCEDURE
HSL VOLATILE COMPOUNDS

Client:	GIANT REFINING COMPANY	Date Reported:	04/21/97
Sample ID:	Diesel Filter	Date Sampled:	04/03/97
Project ID:	Bloomfield Refinery	Date Received:	04/16/97
Lab ID:	B971863 0397G00607	Date Extracted:	04/16/97
Matrix:	Filter	Date Analyzed:	04/17/97

Parameter	Result	PQL	Regulatory Level	Units
Benzene	ND	0.02	0.5	mg/L
QUALITY CONTROL - Surrogate Recovery	%		QC Limits	
1,2-Dichloroethane-d4	94		80 - 120	
Bromofluorobenzene	105		86 - 115	
Toluene-d8	103		88 - 110	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260A Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, Final Update II, United States Environmental Protection Agency, September 1994.
Method 1311, Toxicity Characteristic Leaching Procedure, Test Methods for Evaluating Solid Wastes, SW-846, United States EPA, September 1994.

Analyst E.D.

Reviewed [signature]

JUN 2 3 1997
CONSERVATION DIVISION

RECEIVED
JUN 23 1997
Environmental Bureau
Oil Conservation Division

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

June 17, 1997

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report Giant Refining Company - Bloomfield
GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly report on activities associated with the river terrace at this facility.

Giant has submitted the report defining the delineation of the contamination on the river terrace. Additionally, two sets of river sampling data are enclosed with this report.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Greg Lyssy, Region VI USEPA
Steve Pullen, NMED / HRMB

iml
Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

9 June 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on May 30, 1997.

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

Sincerely,

Sharon Williams
Organic Analyst

Enclosures

xc: File

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Company

Case Narrative

On May 30, 1997, three water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) were performed on the samples as per the accompanying Chain of Custody document .

BTEX analysis on the samples were 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.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The method 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 packages 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,

Sharon Williams

Sharon Williams
Organic Analyst

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8020
AROMATIC VOLATILE COMPOUNDS
BETX

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River-B		Date Reported:	06/05/97
Project ID:	Bloomfield, NM		Date Sampled:	05/20/97
Lab ID:	B972878	0397G00951	Date Received:	06/03/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	06/03/97

Parameter	Result	PQL	Units
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
m,p-Xylene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L
QUALITY CONTROL - Surrogate Recovery	%	QC Limits	
Fluorobenzene	95	40 - 140	

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8020, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, September 1994. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SO

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8020
AROMATIC VOLATILE COMPOUNDS
BETX

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River-B		Date Reported:	06/05/97
Project ID:	Bloomfield, NM		Date Sampled:	05/29/97
Lab ID:	B972879	0397G00952	Date Received:	06/03/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	06/03/97

Parameter	Result	PQL	Units
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
m,p-Xylene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Fluorobenzene	103	40 - 140

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8020, Volatile Organic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency, SW-846, Volume IB, September 1994. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SD

Reviewed [signature]

Inter•Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

QUALITY ASSURANCE / QUALITY CONTROL

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8020
INSTRUMENT BLANK

Date Analyzed: **06/03/97**
Lab ID: IBW97154A
Matrix: Water

Parameter	Result	PQL	Units
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
m,p-Xylene	ND	1.0	ug/L
Methyl tert-butyl Ether (MTBE)	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst SD

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8020
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **06/03/97**
Lab ID: 0597H02878
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Methyl tert-butyl Ether (MTBE)	10	0	12.5	125	43 - 191
Benzene	10	0	11.3	113	74 - 140
Ethylbenzene	10	0	10.9	109	82 - 141
m,p-Xylene	20	0	22.5	113	52 - 171
o-Xylene	10	0	11.3	113	81 - 144
Toluene	10	0	11.3	113	81 - 137

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Methyl tert-butyl Ether (MTBE)	10	11.6	116	7	25	43 - 191
Benzene	10	10.5	105	7	25	74 - 140
Ethylbenzene	10	9.4	94	15	25	82 - 141
m,p-Xylene	20	19.2	96	16	25	52 - 171
o-Xylene	10	9.8	98	14	25	81 - 144
Toluene	10	10.1	101	11	25	81 - 137

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 12 outside QC limits.
RPD: 0 out of 6 outside QC limits.

Analyst CP

Reviewed J

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8020
LAB CONTROL SAMPLE

Date Analyzed: **06/03/97**
Lab ID: LCW97154A
Matrix: Water

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	LCS Result (ug/L)	LCS Recovery %	QC Limits Rec.
Methyl tert-butyl Ether (MTBE)	10	0	11.3	113	76 -132
Benzene	10	0	10.1	101	82 -132
Ethylbenzene	10	0	9.8	98	86 -126
m,p-Xylene	20	0	20.2	101	72 -148
o-Xylene	10	0	10.1	101	86 -126
Toluene	10	0	9.9	99	87 -126

Spike Recovery: 0 out of 6 outside QC limits.

Analyst Sb

Reviewed

Inter-Mountain Laboratories, Inc.

CHAIN OF COSTODY RECORD

Client/Project Name: GIANT REFINING CO. - BLOOMFIELD REFINERY

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX					Remarks
RIVER-B	5/20/97	2:25		H_2O	*2	X					* BOTTLE BROKE DURING HANDLING - CAN NOT DUPLICATE
RIVER-B	5/29/97	8:05		H_2O	2	X					
NOWP-E	5-30-97	11:20		H_2O	2	X					Broken bottle in River-B taken 5-29-97

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	5/30/97	11:25	C Hall	1340	5/30/97
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
- ☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

38849

RECEIVED
JUN - 9 1997

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

RECEIVED
JUN - 9 1997
Environmental Bureau
Oil Conservation Division

May 31, 1997

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report Giant Refining Company - Bloomfield
GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly report on activities associated with the river terrace at this facility.

Giant continues to work with our consulting firm on river terrace issues.

Sincerely,

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Greg Lyssy, Region VI USEPA
Steve Pullen, NMED / HRMB

P 410 431 393

US Postal Service

Receipt for Certified Mail

No Insurance Coverage Provided.

Do not use for International Mail *(See reverse)*

Sent to Giant - Mr. Shelton	
Street & Number 6 Month Extension	
Post Office, State, & ZIP Code REM. Release. Rivr.	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

May 21, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-410-431-393

Mr. Lynn Shelton
Environmental Manager
Giant Refining Co.
P.O. Box 159
Bloomfield, NM 87413

**RE: Six Month Extension Approval - Remediation Proposal, River Terrace
GW-001, "San Juan Refining Company"
San Juan County, NM**

Dear Mr. Shelton:

The New Mexico Oil Conservation Division (OCD) has received (via fax, with hard copy to follow) the request letter dated May 20, 1997. The letter requests a six (6) month extension to submit the "Remediation Plan" for the river terrace area. The purpose of the extension as requested is to allow the previous facility owners to be involved in the remedial selection because Giant is in the process of negotiating a settlement with the previous facility owners. **The requested extension to November 28, 1997 is hereby approved, provided Giant continue the Bi-weekly reporting and monitoring as required by the OCD on March 14, 1997.**

Be advised that OCD approval of this extension does not relieve Giant from responsibility to comply with other federal, state, and local rules/regulations that may apply. Further, OCD approval does not relieve Giant from liability associated with the facility should it be found at a later date that contamination exists beyond the scope of this approval. In the mean time should Giant have any questions, or updates regarding this matter please feel free to call myself at (505)-827-7152 or Pat Sanchez of the OCD Santa Fe Office at (505)-827-7156.

Sincerely,

Roger Anderson

Roger C. Anderson
Environmental Bureau Chief, OCD

RCA/pws

c: Mr. Denny Foust - Aztec OCD District Office
Mr. Robert S. Dinwiddie, PH.D - NMED, HRMB
Mr. Greg J. Lyssy - US EPA Region 6.

GIANT
REFINING COMPANY
50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

May 20, 1997

Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: River Terrace Report

Dear Mr. Anderson:

Giant Refining Company - Bloomfield has completed the delineation of the contamination on the river terrace at this facility as required by the March 14, 1997 letter from your office.

One of the requirements of that letter was that a report describing the delineation of the contamination and a recommendation for remediating that contamination be submitted by May 28, 1997.

Giant will submit a report on the findings of the delineation activities by May 28, as required, however Giant requests a six month extension on proposing a remediation plan to your office. Giant and the previous owners of the facility are negotiating a settlement as to which party is responsible for the remediation activities. The purpose of the six month extension is to allow the previous owners of the facility to be involved in the determination of an appropriate remediation technology.

If you have additional questions, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Gregg Lyssy, USEPA
Benito Garcia, NMED
Denny Foust, NMOCD, Aztec

GIANT REFINING CO.

GIANT REFINING COMPANY - BLOOMFIELD REFINERY

#50 COUNTY ROAD 4990
P.O. BOX 159
BLOOMFIELD, NM 87413

PHONE - (505) 632-8013
FAX - (505) 632-3911

DATE: 5/20/97

TO: ROGER ANDERSON

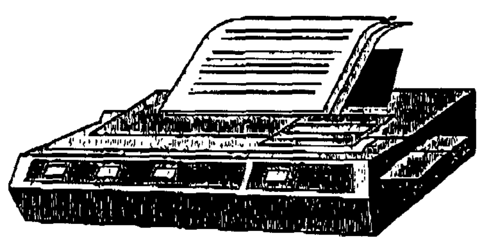
COMPANY: NM OCD

FAX NUMBER: (505) 827 8177

FROM: LYNN SHELTON

PAGE 1 **of** 2

MESSAGE: ROGER - WE NEED TO TALK. Lynn Shelton



GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

May 20, 1997

Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: River Terrace Report

Dear Mr. Anderson:

Giant Refining Company - Bloomfield has completed the delineation of the contamination on the river terrace at this facility as required by the March 14, 1997 letter from your office.

One of the requirements of that letter was that a report describing the delineation of the contamination and a recommendation for remediating that contamination be submitted by May 28, 1997.

Giant will submit a report on the findings of the delineation activities by May 28, as required, however Giant requests a six month extension on proposing a remediation plan to your office. Giant and the previous owners of the facility are negotiating a settlement as to which party is responsible for the remediation activities. The purpose of the six month extension is to allow the previous owners of the facility to be involved in the determination of an appropriate remediation technology.

If you have additional questions, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Gregg Lyssy, USEPA
Benito Garcia, NMED
Denny Foust, NMOCD, Aztec

GIANT
REFINING COMPANY

Wayne Price
New Mexico Oil Conservation Division
Environmental Bureau
1220 South St. Francis Dr
Santa Fe, NM 87505

Certified Mail: 7004 2510 0005 1641 4682

December 28, 2005

Re: Giant Refining Company, Bloomfield Refinery
EPA ID# NMD089416416
GW - 001

Dear Mr. Price,

Please find attached analytical results for the November 9, 2005 and December 13, 2005 sampling events for wells MW #48 and MW #49 located on the river terrace at the Giant Refining-Bloomfield facility. Note that the results for well MW #49, located down gradient of the barrier wall, had a detection of benzene at a concentration of 39 ug/L for November and 27 ug/L for December. BTEX samples were taken out of the San Juan River adjacent to MW #49 during each sampling event. The results of both of those samples were non detect. We will continue to monitor the wells and evaluate the concentration trends.

Due to the ongoing installation of the Bioventing Project at the River Terrace, Giant personnel were unable to sample MW #48 during the December event.

Tank #33 and Fresh Water Pond samples were pulled on December 5, 2005. Analytical results are included with this packet. Tank #33 and Fresh Water Pond results were non detect.

If you need additional information, please contact me at (505) 632-4161.

Sincerely,

Cindy Hurtado

Cindy Hurtado
Environmental Coordinator
Giant Refining – Bloomfield

Cc: Hope Monzeglio - NMED
Ed Riege – Environmental Superintendent – Giant Refining
Randy Schmaltz – Environmental Manager – Giant Refining

PHONE
505-632-8013
FAX
505-632-3911

50 ROAD 4990
P.O. BOX 159
BLOOMFIELD
NEW MEXICO
87413

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

May 15, 1997

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report Giant Refining Company - Bloomfield
GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly report on activities associated with the river terrace at this facility.

Enclosed are copies of the last two sampling events from the San Juan river. Please note that the sample taken on April 17 from the river, and submitted to the lab with a sample from the Oily Water Pond, shows to have very low concentrations of Benzene, Ethylbenzene, and Xylenes. Giant believes that in all likelihood the analytical results for the river and the oily water pond were reversed, as the results shown for those constituents are consistent with normal operations of the oily water pond. Subsequent sampling confirms that no hydrocarbons have been present in the river. Giant proposes that additional analytical data be used to show that there have been no hydrocarbons released into the river.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Greg Lyssy, Region VI USEPA
Steve Pullen, NMED / HRMB

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

24 April 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on April 22, 1997.

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

Sincerely,

Sharon Williams
Organic Analyst

Enclosures

xc: File

RECEIVED
MAY 20 1997
Environmental Bureau
Oil Conservation Division

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Co.

Case Narrative

On April 22,1997, two water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) and were performed on the samples as per the accompanying Chain of Custody document #43932.

BTEX analysis on the samples were 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.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The method 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 packages 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,

Sharon Williams

Sharon Williams
Organic Analyst

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Company

Project ID:	Bloomfield	Report Date:	04/24/97
Sample ID:	River-B	Date Sampled:	04/17/97
Lab ID:	0397G00681	Date Received:	04/22/97
Sample Matrix:	water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	04/23/97

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	0.4	0.2
Toluene	ND	0.2
Ethylbenzene	0.2	0.2
m,p-Xylenes	0.4	0.2
o-Xylene	0.2	0.2

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	79%	70%-130%

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

JB
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Company

Project ID:	Bloomfield	Report Date:	04/24/97
Sample ID:	NOWP-E	Date Sampled:	04/22/97
Lab ID:	0397G00682	Date Received:	04/22/97
Sample Matrix:	water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	04/23/97

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	84%	70%-130%

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

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Duplicate Analysis

Lab ID: 0397G00681
Sample Matrix: water
Condition: Cool/Intact

Report Date: 04/24/97
Date Analyzed: 04/23/97

Target Analyte	Duplicate Concentration (ppb)	Original Concentration (ppb)	% Difference
Benzene	0.4	0.4	0.0
Toluene	ND	ND	NA
Ethylbenzene	0.2	0.2	0.0
m,p-Xylenes	0.5	0.4	22.2
o-Xylene	0.3	0.2	40.0*

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	74%	70 -130%

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: *Within laboratory tolerances.

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Matrix Spike Analysis

Lab ID:	MB	Report Date:	04/24/97
Sample Matrix:	water	Date Analyzed:	04/23/97
Condition:	Cool/Intact		

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	19.43	0.25	20.0	96%	70-130
Toluene	19.29	0.22	20.0	95%	70-130
Ethylbenzene	20.37	0.08	20.0	101%	70-130
m,p-Xylenes	39.37	0.45	40.0	97%	70-130
o-Xylene	19.60	0.11	20.0	97%	70-130

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	89%	70 -130%

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

ЯB

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB

Report Date: 04/24/97
Date Analyzed: 04/23/97

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	76%	70-130%

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

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

BTEX

Client:	**Giant Refining Company**	Date Reported:	04/24/97
Project:	Bloomfield	Date Analyzed:	04/23/97

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery	Acceptance Limits
Benzene	4.0	4.0	**99%**	70-130%
Toluene	3.7	4.0	**92%**	70-130%
Ethylbenzene	3.8	4.0	**95%**	70-130%
m+p-Xylene	7.6	8.0	**95%**	70-130%
o-Xylene	3.8	4.0	**96%**	70-130%

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	BFB	92%	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 ____________

Reviewed by ____________

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING - BLOOMFIELD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX				Remarks
RIVER-B	4/17/97	1100		H_2O	2	X				
NOWP-E	4/22/97	1027		H_2O	2	X				
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	4/22	1045	Rita Mersch	4-22-97	1045
Rita Mersch	4-22	2:15p.	Chris Raymond	4-22-97	1415
			Received by laboratory: (Signature)		

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43932

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

12 May 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on May 6, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

RECEIVED

MAY 20 1997

Environmental Bureau
Oil Conservation Division

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Co.

Case Narrative

On May 6, 1997, five water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analyses for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) and were performed on the samples as per the accompanying Chain of Custody document .

BTEX analysis on the samples were 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.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies. The method 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 packages 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,

Sharon Williams
Organic Analyst

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Company

Project ID:	Bloomfield	Report Date:	05/09/97
Sample ID:	River-B	Date Sampled:	04/30/97
Lab ID:	0397G00761	Date Received:	05/06/97
Sample Matrix:	water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	05/07/97

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	83%	70%-130%

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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Duplicate Analysis

Lab ID: 0397W00741
Sample Matrix: water
Condition: Cool/Intact

Report Date: 05/09/97
Date Analyzed: 05/07/97

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

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	89%	70 -130%

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

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB

Report Date: 05/09/97
Date Analyzed: 05/07/97

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	87%	70-130%

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

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Matrix Spike Analysis

Lab ID:	MB	Report Date:	05/09/97
Sample Matrix:	water	Date Analyzed:	05/07/97
Condition:	Cool/Intact		

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	19.43	0.20	20.0	96%	70-130
Toluene	19.29	0.10	20.0	96%	70-130
Ethylbenzene	20.37	0.00	20.0	102%	70-130
m,p-Xylenes	39.37	0.14	40.0	98%	70-130
o-Xylene	19.60	0.00	20.0	98%	70-130

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	106%	70 -130%

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:

SW
Analyst

JB
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

BTEX

Client: Giant Refining Company
Project:

Date Reported: 5/9/97
Date Analyzed: 5/7/97

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery	Acceptance Limits
Benzene	4.1	4.0	**102%**	70-130%
Toluene	3.8	4.0	**95%**	70-130%
Ethylbenzene	3.9	4.0	**98%**	70-130%
m+p-Xylene	7.4	8.0	**93%**	70-130%
o-Xylene	4.0	4.0	**99%**	70-130%

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	96%	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

Reviewed by

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
GIANT - BLMFLD		

Sampler: (Signature)	Chain of Custody Tape No.
Lynn Shelton	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX				Remarks
RIVER - B	4/30/97	1415	G00761	H_2O	2	X				Cool & Intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	~~5/6/97~~ 4/30/97	1250	S. Williams	5/6/97	12:50
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

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☐ 1160 Research Dr.
Bozeman, Montana 59715
Telephone (406) 586-8450

☐ 11183 SH 30
College Station, TX 77845
Telephone (409) 776-8945

43555

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

MAY - 6 1997

May 2, 1997

Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report River Terrace Activity
Giant Refining Company - Bloomfield GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield (Giant) submits this bi-weekly report on activities associated with the river terrace at this facility.

Giant has received the analytical data for the TCLP, ignitivity, corrosivity and reactivity analysis performed on the soil from the river terrace area. A copy of that analytical is enclosed with this report. The soil tested to be non-hazardous and as such, Giant proposes to dispose of the soil by spreading it on the surface around the area where it has been stored (refer to the drawing submitted previously).

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes (w/o enclosure)
Greg Lyssy, USEPA
Benito Garcia, NMED
Denny Foust, NMOCD Aztec

PARAGON ANALYTICS, INC.
225 Commerce Drive ◆ Fort Collins, CO 80524 ◆ (800) 443-1511◆ (970) 490-1511 ◆ FAX (970) 490-1522

April 28, 1997

Mr. Lynn Shelton
Giant Refining Company
#50 County Road 4990/PO Box 159
Bloomfield, NM 87413

RE: Paragon Workorder: 97-04-063
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Mr. Shelton:

Two soil samples were recieved from Giant Refining Company on April 9, 1997. The samples were scheduled for GC/MS Volatile, GC/MS Semivolatile, TCLP Herbicide, TCLP Pesticide, Inorganic, Ignitability, ph, and TCLP Metal analysis. The results for these analyses are contained in the enclosed report.

Thank you for your confidence in Paragon Analytics, Inc. Should you have any questions, please call.

Sincerely,

Paragon Analytics, Inc.
Victoria Bayly
Project Manager

RECEIVED
MAY - 7 1997
Environmental Bureau
Oil Conservation Division

VB/nmu
Enclosure: Report

Paragon Analytics, Inc.

GC/MS Volatiles Case Narrative

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 soil samples received by Paragon on April 09, 1997.

2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the samples were leached using the TCLP ZHE extraction procedure specified in Method 1311. The TCLP leachate was then analyzed by purging the sample using purge and trap procedures based on Method 5030.

3. The samples were analyzed using GC/MS with a RTX-624 capillary column according to protocols based on SW-846 Method 8260. All positive results were quantitated with the average response of the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

4. All samples were analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All matrix spike recoveries were within acceptance criteria.

7. All blank spike and blank spike duplicate recoveries and RPDs were within the acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All internal standard recoveries were within acceptance criteria.

10. All initial and continuing calibration criteria were within acceptance criteria. Method 8260 states any compound exceeding 15% RSD is to be quantitated with a higher

order curve. Several compounds from the curve were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Sharon L. Jobes
GC/MS Analyst

4-23-97
Date

Reviewer's Initials

4/25/97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

TCLP VOLATILE ORGANICS

Method 8260

Sample ID
TCLP Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: TCLPRB1 04-20-97

Date Collected: N/A
Date Extracted: 04-20-97
Date Analyzed: 04-23-97

Sample Matrix: TCLP Leachate
Sample Volume: 0.5 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.1
D029	1,1-Dichloroethene	75-35-4	ND	0.1
D022	Chloroform	67-66-3	ND	0.1
D028	1,2-Dichloroethane	107-06-2	ND	0.1
D035	Methyl ethyl ketone	78-93-3	ND	0.1
D019	Carbon tetrachloride	56-23-5	ND	0.1
D040	Trichloroethene	79-01-6	ND	0.1
D018	Benzene	71-43-2	ND	0.1
D039	Tetrachloroethene	127-18-4	ND	0.1
D021	Chlorobenzene	108-90-7	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	109	86 - 118
Toluene-d8	103	88 - 110
Bromofluorobenzene	98	86 - 115

ND = Not Detected

TCLP VOLATILE ORGANICS
Method 8260

Sample ID

Reagent Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: VBLK01 04-22-97

Date Collected: N/A
Date Extracted: N/A
Date Analyzed: 04-23-97

Sample Matrix: Water
Sample Volume: 5 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.01
D029	1,1-Dichloroethene	75-35-4	ND	0.01
D022	Chloroform	67-66-3	ND	0.01
D028	1,2-Dichloroethane	107-06-2	ND	0.01
D035	Methyl ethyl ketone	78-93-3	ND	0.01
D019	Carbon tetrachloride	56-23-5	ND	0.01
D040	Trichloroethene	79-01-6	ND	0.01
D018	Benzene	71-43-2	ND	0.01
D039	Tetrachloroethene	127-18-4	ND	0.01
D021	Chlorobenzene	108-90-7	ND	0.01

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	100	86 - 118
Toluene-d8	101	88 - 110
Bromofluorobenzene	97	86 - 115

ND = Not Detected

TCLP VOLATILE ORGANICS
Method 8260

Sample ID

Temp. Soil 1

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9704063-1

Date Collected: 04-08-97
Date Extracted: 04-20-97
Date Analyzed: 04-23-97

Sample Matrix: TCLP Leachate
Sample Volume: 0.5 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.1
D029	1,1-Dichloroethene	75-35-4	ND	0.1
D022	Chloroform	67-66-3	ND	0.1
D028	1,2-Dichloroethane	107-06-2	ND	0.1
D035	Methyl ethyl ketone	78-93-3	ND	0.1
D019	Carbon tetrachloride	56-23-5	ND	0.1
D040	Trichloroethene	79-01-6	ND	0.1
D018	Benzene	71-43-2	ND	0.1
D039	Tetrachloroethene	127-18-4	ND	0.1
D021	Chlorobenzene	108-90-7	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	107	86 - 118
Toluene-d8	103	88 - 110
Bromofluorobenzene	98	86 - 115

ND = Not Detected

TCLP VOLATILE ORGANICS
Method 8260

Sample ID

Temp. Soil 2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9704063-2

Date Collected: 04-08-97
Date Extracted: 04-20-97
Date Analyzed: 04-23-97

Sample Matrix: TCLP Leachate
Sample Volume: 0.5 mL

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D043	Vinyl chloride	75-01-4	ND	0.1
D029	1,1-Dichloroethene	75-35-4	ND	0.1
D022	Chloroform	67-66-3	ND	0.1
D028	1,2-Dichloroethane	107-06-2	ND	0.1
D035	Methyl ethyl ketone	78-93-3	ND	0.1
D019	Carbon tetrachloride	56-23-5	ND	0.1
D040	Trichloroethene	79-01-6	ND	0.1
D018	Benzene	71-43-2	ND	0.1
D039	Tetrachloroethene	127-18-4	ND	0.1
D021	Chlorobenzene	108-90-7	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	105	86 - 118
Toluene-d8	104	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected

TCLP VOLATILE MATRIX SPIKE RECOVERY

Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9704083-1

Sample Matrix: TCLP Leachate
Sample Volume: 0.5 mL

Sample ID

In House

Date Collected: 04-10-97
Date Extracted: 04-20-97
Date Analyzed: 04-23-97

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS % Rec	QC Limit Recovery
Vinyl chloride	0.200	ND	0.195	98	49 - 132
1,1-Dichloroethene	0.200	ND	0.207	103	65 - 126
Chloroform	0.200	ND	0.204	102	68 - 123
1,2-Dichloroethane	0.200	ND	0.200	100	61 - 122
Methyl ethyl ketone	0.200	ND	0.178	89	26 - 156
Carbon tetrachloride	0.200	ND	0.208	104	80 - 113
Trichloroethene	0.200	ND	0.195	98	81 - 108
Benzene	0.200	ND	0.204	102	60 - 129
Tetrachloroethene	0.200	ND	0.195	98	75 - 116
Chlorobenzene	0.200	ND	0.193	97	81 - 107

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	102	86 - 118
Toluene-d8	102	88 - 110
Bromofluorobenzene	99	86 - 115

ND = Not Detected

TCLP VOLATILE BLANK SPIKE RECOVERY
Method 8260

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: BS1,2 04-22-97

Sample Matrix: Water
Sample Volume: 5 mL

Sample ID

Blank Spike

Date Collected: N/A
Date Extracted: 04-20-97
Date Analyzed: 04-23-97

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	BS Concentration (mg/L)	BS % Rec	QC Limit Recovery
Vinyl chloride	0.020	N/A	0.020	101	49 - 132
1,1-Dichloroethene	0.020	N/A	0.021	103	65 - 126
Chloroform	0.020	N/A	0.021	104	68 - 123
1,2-Dichloroethane	0.020	N/A	0.021	104	61 - 122
Methyl ethyl ketone	0.020	N/A	0.020	98	26 - 156
Carbon tetrachloride	0.020	N/A	0.021	105	80 - 113
Trichloroethene	0.020	N/A	0.022	108	81 - 108
Benzene	0.020	N/A	0.021	104	60 - 129
Tetrachloroethene	0.020	N/A	0.020	102	75 - 116
Chlorobenzene	0.020	N/A	0.020	100	81 - 107

Compound	Spike Added (μg/L)	BS2 Concentration (μg/L)	BS2 % REC	RPD	QC Limit REC
Vinyl chloride	0.020	0.019	96	5	49-132
1,1-Dichloroethene	0.020	0.019	97	4	65-126
Chloroform	0.020	0.020	98	5	68-130
1,2-Dichloroethene	0.020	0.021	104	1	61-122
Methyl ethyl ketone	0.020	0.019	95	8	26-156
Carbon tetrachloride	0.020	0.020	102	5	80-113
Trichloroethene	0.020	0.021	107	2	81-108
Benzene	0.020	0.021	103	5	60-129
Tetrachloroethene	0.020	0.020	99	5	75-116
Chlorobenzene	0.020	0.020	99	3	81-107

SURROGATE RECOVERIES

Analyte	BS1 % Recovery	BS2 % Recovery	% Rec Limits
Dibromofluoromethane	103	100	86 - 118
Toluene-d8	100	102	88 - 110
Bromofluorobenzene	98	97	86 - 115

N/A = Non Applicable

Paragon Analytics, Inc.

GC/MS Semivolatiles Case Narrative

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 soil samples received by Paragon on April 9, 1997.

2. These samples were prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the samples were tumbled by Method 1311. This TCLP leachate was then extracted using continuous liquid-liquid extractors, based on Method 3520.

3. The samples were analyzed using GC/MS with a DB-5.625 capillary column according to protocols based on SW-846 Method 8270B for TCLP compounds only. All positive results were quantitated against the initial calibration standards using the internal standard technique. The identification of positive results was achieved by a comparison of the retention time and mass spectrum of the sample versus the daily calibration standard.

4. All samples were analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All matrix spike recoveries were within acceptance criteria.

7. All blank spike and blank spike duplicate recoveries were within the acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All internal standard recoveries were within acceptance criteria.

10. All initial calibration criteria were within acceptance criteria. Method 8270B states any compound exceeding 15% RSD is to be quantitated with a higher order curve. Several compounds from the curve that was analyzed on April 22, 1997, were within the acceptance limit but exceeded the 15% RSD criteria and should be analyzed with a higher curve such as quadratic. We quantitated these compounds using the average response factor due to a software programming problem associated with Hewlett-Packard MSDs. The manufacturer is now aware of the problem and is working on a solution.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

C Biggel　　4·28·97　　For Daved Reid

Daved Reid　　Date

Organic Chemist

G. Ward　　4/28/97

Reviewer's Initials　　Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

TCLP SEMIVOLATILE ORGANICS

Modified Method 8270

Sample ID

TCLP Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID.: WRB1 04-18-97

Sample Matrix: TCLP Leachate
Cleanup: None

Date Collected: N/A
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D023	o-Cresol	95-48-7	ND	0.1
D024	m-Cresol	108-39-4	ND	0.1
D025	p-Cresol	106-44-5	ND	0.1
D026	Total o,m,p-Cresol		ND	0.2
D027	1,4-Dichlorobenzene	106-46-7	ND	0.1
D030	2,4-Dinitrotoluene	121-14-2	ND	0.1
D032	Hexachlorobenzene	118-74-1	ND	0.1
D033	Hexachlorobutadiene	87-68-3	ND	0.1
D034	Hexachloroethane	67-72-1	ND	0.1
D036	Nitrobenzene	98-95-3	ND	0.1
D037	Pentachlorophenol	87-86-5	ND	0.5
D038	Pyridine	110-86-1	ND	0.1
D041	2,4,5-Trichlorophenol	95-95-4	ND	0.5
D042	2,4,6-Trichlorophenol	88-06-2	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	56	21-110
Phenol-d5	58	10-110
Nitrobenzene-d5	62	35-114
2-Fluorobiphenyl	74	43-116
2,4,6-Tribromophenol	71	10-123
Terphenyl-d14	69	33-141

ND = Not detected

TCLP SEMIVOLATILE ORGANICS

Modified Method 8270

Sample ID

Temp. Soil 1

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID.: 9704063-1

Sample Matrix: TCLP Leachate
Cleanup: None

Date Collected: 04-08-97
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D023	o-Cresol	95-48-7	ND	0.1
D024	m-Cresol	108-39-4	ND	0.1
D025	p-Cresol	106-44-5	ND	0.1
D026	Total o,m,p-Cresol		ND	0.2
D027	1,4-Dichlorobenzene	106-46-7	ND	0.1
D030	2,4-Dinitrotoluene	121-14-2	ND	0.1
D032	Hexachlorobenzene	118-74-1	ND	0.1
D033	Hexachlorobutadiene	87-68-3	ND	0.1
D034	Hexachloroethane	67-72-1	ND	0.1
D036	Nitrobenzene	98-95-3	ND	0.1
D037	Pentachlorophenol	87-86-5	ND	0.5
D038	Pyridine	110-86-1	ND	0.1
D041	2,4,5-Trichlorophenol	95-95-4	ND	0.5
D042	2,4,6-Trichlorophenol	88-06-2	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	62	21-110
Phenol-d5	64	10-110
Nitrobenzene-d5	64	35-114
2-Fluorobiphenyl	74	43-116
2,4,6-Tribromophenol	71	10-123
Terphenyl-d14	77	33-141

ND = Not detected

TCLP SEMIVOLATILE ORGANICS

Modified Method 8270

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID.: 9704063-2

Sample Matrix: TCLP Leachate
Cleanup: None

Sample ID

Temp. Soil 2

Date Collected: 04-08-97
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

EPA HW Number	Analyte	CAS Number	Result (mg/L)	Reporting Limit (mg/L)
D023	o-Cresol	95-48-7	ND	0.1
D024	m-Cresol	108-39-4	ND	0.1
D025	p-Cresol	106-44-5	ND	0.1
D026	Total o,m,p-Cresol		ND	0.2
D027	1,4-Dichlorobenzene	106-46-7	ND	0.1
D030	2,4-Dinitrotoluene	121-14-2	ND	0.1
D032	Hexachlorobenzene	118-74-1	ND	0.1
D033	Hexachlorobutadiene	87-68-3	ND	0.1
D034	Hexachloroethane	67-72-1	ND	0.1
D036	Nitrobenzene	98-95-3	ND	0.1
D037	Pentachlorophenol	87-86-5	ND	0.5
D038	Pyridine	110-86-1	ND	0.1
D041	2,4,5-Trichlorophenol	95-95-4	ND	0.5
D042	2,4,6-Trichlorophenol	88-06-2	ND	0.1

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	53	21-110
Phenol-d5	60	10-110
Nitrobenzene-d5	64	35-114
2-Fluorobiphenyl	72	43-116
2,4,6-Tribromophenol	72	10-123
Terphenyl-d14	76	33-141

ND = Not detected

TCLP SEMIVOLATILE ORGANICS MATRIX SPIKE

Modified Method 8270

Sample ID: **In House**

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID: 9704083-2

Sample Matrix: TCLP Leachate
Cleanup: None

Date Collected: 04-10-97
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS % Rec	QC Limit Recovery
Pyridine	0.50	ND	0.263	53	D - 104
1,4-Dichlorobenzene	0.50	ND	0.313	63	D - 99
2-Methylphenol	1.00	ND	0.710	71	D - 134
3 and 4-Methylphenol	2.00	ND	1.400	70	D - 112
Hexachloroethane	0.50	ND	0.324	65	D - 110
Nitrobenzene	0.50	ND	0.332	66	10 - 121
Hexachlorobutadiene	0.50	ND	0.307	61	D - 98
2,4,6-Trichlorophenol	1.00	ND	0.591	59	D - 106
2,4,5-Trichlorophenol	1.00	ND	0.672	67	D - 114
2,4-Dinitrotoluene	0.50	ND	0.330	66	D - 117
Hexachlorobenzene	0.50	ND	0.346	69	1 - 112
Pentachlorophenol	1.00	ND	0.749	75	D - 123

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	58	21-110
Phenol-d5	61	10-110
Nitrobenzene-d5	63	35-114
2-Fluorobiphenyl	70	43-116
2,4,6-Tribromophenol	70	10-123
Terphenyl-d14	74	33-141

ND = Not detected

TCLP SEMIVOLATILE ORGANICS BLANK SPIKE

Modified Method 8270

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID: BS1

Sample Matrix: TCLP Leachate
Cleanup: None

Date Collected: N/A
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	BS Concentration (mg/L)	BS % Rec	QC Limit Recovery
Pyridine	0.50	N/A	0.261	52	D - 83
1,4-Dichlorobenzene	0.50	N/A	0.366	73	12 - 88
2-Methylphenol	1.00	N/A	0.808	81	21 - 97
3 and 4-Methylphenol	2.00	N/A	1.540	77	29 - 92
Hexachloroethane	0.50	N/A	0.362	72	18 - 83
Nitrobenzene	0.50	N/A	0.375	75	14 - 105
Hexachlorobutadiene	0.50	N/A	0.356	71	16 - 82
2,4,6-Trichlorophenol	1.00	N/A	0.697	70	24 - 84
2,4,5-Trichlorophenol	1.00	N/A	0.816	82	19 - 96
2,4-Dinitrotoluene	0.50	N/A	0.355	71	D - 104
Hexachlorobenzene	0.50	N/A	0.426	85	22 - 101
Pentachlorophenol	1.00	N/A	0.750	75	22 - 111

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	69	21-110
Phenol-d5	74	10-110
Nitrobenzene-d5	74	35-114
2-Fluorobiphenyl	88	43-116
2,4,6-Tribromophenol	81	10-123
Terphenyl-d14	89	33-141

N/A = Not applicable

TCLP SEMIVOLATILE ORGANICS BLANK SPIKE

Modified Method 8270

Sample ID
Blank Spike Duplicate

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project: Not Submitted
Lab Sample ID: BS2

Sample Matrix: TCLP Leachate
Cleanup: None

Date Collected: N/A
Date Extracted: 04-18-97
Date Analyzed: 04-22-97
Sample Volume: 100 mL
Final Volume: 1 mL
Dilution Factor: 1

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	BSD Concentration (mg/L)	BSD % Rec	QC Limit Recovery
Pyridine	0.50	N/A	0.288	58	D - 83
1,4-Dichlorobenzene	0.50	N/A	0.363	73	12 - 88
2-Methylphenol	1.00	N/A	0.814	81	21 - 97
3 and 4-Methylphenol	2.00	N/A	1.489	74	29 - 92
Hexachloroethane	0.50	N/A	0.364	73	18 - 83
Nitrobenzene	0.50	N/A	0.417	83	14 - 105
Hexachlorobutadiene	0.50	N/A	0.348	70	16 - 82
2,4,6-Trichlorophenol	1.00	N/A	0.759	76	24 - 84
2,4,5-Trichlorophenol	1.00	N/A	0.798	80	19 - 96
2,4-Dinitrotoluene	0.50	N/A	0.440	88	D - 104
Hexachlorobenzene	0.50	N/A	0.440	88	22 - 101
Pentachlorophenol	1.00	N/A	0.787	79	22 - 111

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
2-Fluorophenol	70	21-110
Phenol-d5	74	10-110
Nitrobenzene-d5	78	35-114
2-Fluorobiphenyl	93	43-116
2,4,6-Tribromophenol	90	10-123
Terphenyl-d14	86	33-141

N/A = Not applicable

Paragon Analytics, Inc.

TCLP Herbicides Case Narrative

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 soil samples received by Paragon on 04/09/97.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, The samples were processed through leaching procedures based on Method 1311. The leachates were then extracted based on Method 8150 protocols using separatory funnels. The samples are also processed through washing procedures to reduce interferences using the protocols listed in the method. The extracts were then derivitized using the diazomethane procedure contained in the method.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTx-20 capillary column according to protocols based on Method 8150. All positive results were then confirmed on a DB-1701 column. The quantitation was taken from the primary column unless interferences were encountered.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike recoveries were within the acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Marty O Brown — 4-22-97

Marty Brown — Date

GC Analyst

RCB — 4-23-97

Reviewer's Initials — Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

TCLP CHLORINATED HERBICIDES

Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Reagent Blank

Date Collected: N/A
Date Leached: 4/11/97
Date Extracted: 4/14/97
Date Analyzed: 4/17/97

Lab Sample ID: RB1

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D016	2,4-D	94-75-7	ND	0.010
D017	2,4,5-TP (Silvex)	93-72-1	ND	0.0010

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	75	47 - 154

ND = Not Detected at or above client requested reporting limit.

TCLP CHLORINATED HERBICIDES

Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Temp. Soil 1

Date Collected: 4/08/97
Date Leached: 4/11/97
Date Extracted: 4/14/97
Date Analyzed: 4/17/97

Lab Sample ID: 9704063-1

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D016	2,4-D	94-75-7	ND	0.010
D017	2,4,5-TP (Silvex)	93-72-1	ND	0.0010

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	85	47 - 154

ND = Not Detected at or above client requested reporting limit.

TCLP CHLORINATED HERBICIDES

Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Temp. Soil 2

Lab Sample ID: 9704063-2

Date Collected: 4/08/97
Date Leached: 4/11/97
Date Extracted: 4/14/97
Date Analyzed: 4/17/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D016	2,4-D	94-75-7	ND	0.010
D017	2,4,5-TP (Silvex)	93-72-1	ND	0.0010

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4-Dichlorophenylacetic acid	79	47 - 154

ND = Not Detected at or above client requested reporting limit.

TCLP CHLORINATED HERBICIDES BLANK SPIKE

Method 8150

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Blank Spike

Lab Sample ID: BS1

Date Extracted: 04/14/97
Date Analyzed: 04/17/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

Analyte	Spike Added (mg/L)	BS Concentration (mg/L)	BS Percent Recovery	QC Limits % Rec
2,4-D	0.025	0.024	98	55 - 140
Silvex	0.0025	0.0024	94	73 - 134

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Rec Limits
2,4-Dichlorophenylacetic acid	78	47 - 154

TCLP CHLORINATED HERBICIDES MATRIX SPIKE

Method 8150

Sample ID

In House

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Date Collected: 04/01/97
Date Leached: 04/11/97
Date Extracted: 04/14/97
Date Analyzed: 04/17/97

Lab Sample ID: 9704036-45MS

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 100 mL
Final Volume: 10 mL

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	QC Limits % Rec
2,4-D	0.025	ND	0.024	97	38 - 149
Silvex	0.0025	ND	0.0026	104	41 - 142

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Rec Limits
2,4-Dichlorophenylacetic acid	80	47 - 154

ND = Not Detected

Paragon Analytics, Inc.

TCLP Pesticides Case Narrative

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 soil samples received by Paragon on 04/09/97.

2. These samples were extracted and analyzed according to SW-846, 3rd Edition procedures. Specifically, The samples were processed through leaching procedures based on Method 1311. The leachates were extracted using continuous liquid-liquid extractors, based on Method 3520.

3. The extracts were then analyzed using GC/ECD (electron capture detectors) with a RTX-1701 capillary column according to protocols based on Method 8081. All positive results were then confirmed on a RTX-50 column. The quantitation of each analyte is the lower of the concentrations obtained from each column. This minimizes the chances of reporting elevated results based on interferences.

4. All samples were extracted and analyzed within the established holding times.

5. The method blank associated with this project was below the reporting limits for all analytes.

6. All blank spike recoveries were within the acceptance criteria.

7. All matrix spike recoveries were within acceptance criteria.

8. All surrogate recoveries were within acceptance criteria.

9. All initial and continuing calibration criteria were within acceptance criteria.

10. The percent breakdown criteria for Endrin, 4,4'-DDT and the combined breakdown met acceptance criteria.

The data contained in the following report have been reviewed and approved by the personnel listed below. In addition, Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Marty O Brown

Marty Brown
GC Analyst

4-22-97
Date

RRB
Reviewer's Initials

4-23-97
Date

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

TCLP ORGANOCHLORINE PESTICIDES

Method 8081

Sample ID

TCLP Blank

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Date Collected: N/A
Date Leached: 4/11/97
Date Extracted: 4/18/97
Date Analyzed: 4/21/97

Lab Sample ID: RB1 4/18/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 50 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D013	gamma - BHC (Lindane)	58-89-9	ND	0.0010
D031	Heptachlor/Heptachlor Epoxide	76-44-8	ND	0.0020
D012	Endrin	72-20-8	ND	0.0020
D014	Methoxychlor	72-43-5	ND	0.010
D020	Chlordane (technical)	37-74-9	ND	0.010
D015	Toxaphene	8001-35-2	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	97	43 - 124
Decachlorobiphenyl	106	D - 198

ND = Not Detected at or above reporting limits.

TCLP ORGANOCHLORINE PESTICIDES

Method 8081

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Temp. Soil 1

Date Collected: 4/08/97
Date Leached: 4/11/97
Date Extracted: 4/18/97
Date Analyzed: 4/21/97

Lab Sample ID: 9704063-1

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 50 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D013	gamma - BHC (Lindane)	58-89-9	ND	0.0010
D031	Heptachlor/Heptachlor Epoxide	76-44-8	ND	0.0020
D012	Endrin	72-20-8	ND	0.0020
D014	Methoxychlor	72-43-5	ND	0.010
D020	Chlordane (technical)	37-74-9	ND	0.010
D015	Toxaphene	8001-35-2	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	99	43 - 124
Decachlorobiphenyl	88	D - 198

ND = Not Detected at or above reporting limits.

TCLP ORGANOCHLORINE PESTICIDES

Method 8081

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Temp. Soil 2

Date Collected: 4/08/97
Date Leached: 4/11/97
Date Extracted: 4/18/97
Date Analyzed: 4/21/97

Lab Sample ID: 9704063-2

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 50 mL
Final Volume: 10 mL

EPA HW Number	Analyte	CAS Number	Conc (mg/L)	Reporting Limit (mg/L)
D013	gamma - BHC (Lindane)	58-89-9	ND	0.0010
D031	Heptachlor/Heptachlor Epoxide	76-44-8	ND	0.0020
D012	Endrin	72-20-8	ND	0.0020
D014	Methoxychlor	72-43-5	ND	0.010
D020	Chlordane (technical)	37-74-9	ND	0.010
D015	Toxaphene	8001-35-2	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	96	43 - 124
Decachlorobiphenyl	94	D - 198

ND = Not Detected at or above reporting limits.

TCLP ORGANOCHLORINE PESTICIDE BLANK SPIKE

Method 8081

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Sample ID

Blank Spike

Date Leached: 4/11/97
Date Extracted: 4/18/97
Date Analyzed: 4/21/97

Lab Sample ID: BS1 4/18/97

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 50 mL
Final Volume: 10 mL

Analyte	Spike Added (mg/L)	BS Concentration (mg/L)	BS Percent Recovery	QC Limits % Rec
gamma - BHC (Lindane)	0.0080	0.0083	103	36 - 155
Heptachlor	0.0080	0.0083	103	43 - 146
Endrin	0.0080	0.0084	105	35 - 161
Methoxychlor	0.0080	0.0091	114	50 - 150

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery MS	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	100	43 - 124
Decachlorobiphenyl	97	D - 198

ND = Not Detected

TCLP ORGANOCHLORINE PESTICIDE MATRIX SPIKE

Method 8081

Sample ID

MS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted

Date Collected: 4/08/97
Date Leached: 4/11/97
Date Extracted: 4/18/97
Date Analyzed: 4/21/97

Lab Sample ID: 9704063-2MS

Sample Matrix: TCLP Leachate
Cleanup: N/A

Sample Volume: 50 mL
Final Volume: 10 mL

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	QC Limits % Rec
gamma - BHC (Lindane)	0.0080	ND	0.0078	98	56 - 123
Heptachlor	0.0080	ND	0.0082	103	40 - 131
Endrin	0.0080	ND	0.0084	106	56 - 121
Methoxychlor	0.0080	ND	0.0097	121	50 - 150

SURROGATE RECOVERY

Analyte	% Recovery MS	% Rec Limits
2,4,5,6-Tetrachloro-m-xylene	98	43 - 124
Decachlorobiphenyl	100	D - 198

ND = Not Detected

Paragon Analytics, Inc.

INORGANICS CASE NARRATIVE

Giant Refining Company

Order Number - 9704063

1. This report consists of data for two soil samples analyzed for Reactive Cyanide and Reactive Sulfide.
2. The samples were received intact on 04/09/97.
3. The samples had been correctly preserved for the requested analyses.
4. The samples were carried through the vapor generation procedure for Reactive Cyanide and Reactive Sulfide as described in Chapter Seven of USEPA SW-846. Released cyanide was determined colorimetrically according to Method 9010. Released sulfide was determined by iodometric titration according to Method 9030.
5. All standards and solutions were used within their recommended shelf life.
6. Sample results which are below the reporting limit are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

7. General quality control procedures.
   - A method blank and matrix duplicate were analyzed with each batch of 20 samples or less.
   - The method blank results were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the analyses.
   - All initial and continuing calibration verifications associated with each batch, where applicable, were within acceptance criteria for the requested analytes. This indicates a valid calibration and stable instrument conditions.

- The matrix duplicates for Reactive Cyanide and Reactive Sulfide were within acceptance limits.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Robert Jump — 4-23-97

Robert Jump
Senior Inorganic Chemist

Date

SW — 4/23/97

Reviewer's Initials

Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

REACTIVE CYANIDE
EPA SW-846 Chapter 7

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No: Not Submitted
Lab Workorder Number: 9704063

Date Collected: 04/08/97
Date Analyzed: 04/22/97
Sample Matrix: Soil

Client ID	Lab Sample ID	Reactive Cyanide Conc (mg/kg)	Detection Limit (mg/kg)
	Method Blank	ND	0.5
Temp. Soil 1	9704063-1	ND	0.5
Temp. Soil 2	9704063-2	ND	0.5

ND = Not Detected

Reactive CN Calculations and Quality Control Results

Reactive CN analysis
Date distilled: April 16, 1997
Date analyzed: April 22, 1997

std (ug/L)	Abs (578nm)	calc soln conc (ug/L)
0	0.000	1.7
20	0.051	20.1
40	0.114	42.9
100	0.271	99.6
200	0.534	194.6
300	0.813	295.5
400	1.118	405.7

Regression Output:		
Constant		1.672818
Std Err of Y Est		4.306819
R Squared		0.999345
No. of Observations		7
Degrees of Freedom		5
X Coefficient(s)	361.3548	
Std Err of Coef.	4.13882	

ID:	sample aliq (g)	trap vol (mL)	aliq for color dev (mL)	Abs (578nm)	calc soln conc (ug/L)	sample conc (mg/kg)	DL (mg/L)
ICV			10	0.271	99.6		
ICB			10	0.000	1.7		
M Blank	10	200	10	0.003	2.8	0.06	0.2
LCS	10	200	1	0.516	188.1	37.63	2
9704063-1	10	200	10	0.000	1.7	0.03	0.2
9704063-1 dup	10	200	10	0.000	1.7	0.03	0.2
9704063-2	10	200	10	0.000	1.7	0.03	0.2
.... samples for	10	200	10		1.7	0.03	0.2
total CN.......	10	200	10		1.7	0.03	0.2
CCV			10	0.265	97.4		
CCB			10	-0.002	1.0		

CN Quality Control Results

Date distilled: April 16, 1997
Date analyzed: April 22, 1997

BLANK SUMMARY

ID	blank CN conc (mg/kg)	accept. limit (mg/kg)
M Blank	0.06	< 0.2

DUPLICATE SUMMARY

ID	sample conc (mg/kg)	duplic conc (mg/kg)	RPD %
9704063-1	ND	ND	NA

ND = Not Detected
NA = Not Applicable

REACTIVE SULFIDE
EPA SW-846 Chapter 7

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No: Not Submitted
Lab Workorder Number: 9704063

Date Collected: 04/08/97
Date Analyzed: 04/22/97
Sample Matrix: Soil

Client ID	Lab Sample ID	Reactive Sulfide Conc (mg/kg)	Detection Limit (mg/kg)
	Method Blank	ND	50
Temp. Soil 1	9704063-1	ND	50
Temp. Soil 2	9704063-2	ND	50

ND = Not Detected

Reactive Sulfide Calculations and Quality Control Results

Date Prepared: April 16, 1997
Date Titrated: April 22, 1997

sample ID:	sample wt	trap vol mL	aliq trap titrated mL	conc std I2 meq/mL	vol std I2 mL	thiosulf conc (meq/mL)	thiosulf vol (mL)	sulfide meq	sulfide mg	sulfide mg/kg
M. Blank	10	200	190	0.0276	5.84	0.01933	8.30	0.001	0.009	1
LCS	10	200	200	0.0276	5.74	0.01933	7.13	0.020	0.327	33
9704063-1	10	200	190	0.0276	6.27	0.01933	8.80	0.003	0.044	5
9704063-1 dup	10	200	190	0.0276	5.91	0.01933	8.30	0.002	0.040	4
9704063-2	10	200	190	0.0276	5.43	0.01933	7.64	0.002	0.032	3
sulfide std	5			0.0276	9.31	0.01933	3.22	0.194	3.110	622

Standardization of iodine solution:

iodine vol titrated (mL)	thiosulf conc (meq/mL)	thiosulf vol (mL)	calc iodine conc (meq/mL)
5.69	0.01933	8.11	0.0276
5.52	0.01933	7.87	0.0276
5.64	0.01933	8.05	0.0276
			mean = 0.0276

Reactive Sulfide Quality Control Results

Date Prepared: April 16, 1997
Date Titrated: April 22, 1997

BLANK SUMMARY

ID	blank S conc (mg/kg)	accept. limit (mg/kg)
M. Blank	1	< 50

DUPLICATE SUMMARY

ID	sample S conc (mg/kg)	duplic S conc (mg/kg)	RPD %	accept. limits
9704063-1	ND	ND	NA	< 20%

ND = not detected
NA = not applicable

PARAGON ANALYTICS, INC.

QUALITY ASSURANCE DATA REVIEW

Date: 04/18/97

PAI Workorder: 97-04-063 Analysis: 1010

The data contained in the following report have been reviewed and approved by the personnel listed below:

Wesley S. Mayfield

Wesley S. Mayfield
Senior Technician

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete, and correct within the limits of the methods employed

A case narrative ____ is X is not included with this report.

IGNITABILITY
Method 1010

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Workorder Number: 97-04-063

Date Collected: 04/08/97
Date Analyzed: 04/15/97
Sample Matrix: Soil

Sample ID	Lab Sample ID	Ignitable At (degree C)	Non-Ignitable Below (degree C)
Temp. Soil 1	97-04-063-01		96.5
Temp. Soil 2	97-04-063-02		96.5

Paragon Analytics, Inc.

pH Analysis Case Narrative

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 soil samples.
2. The samples were received intact on 04/09/97.
3. The samples were prepared for analysis based on SW-846, 3rd Edition procedures. Specifically, the soil samples were analyzed following method 9045A.
4. All standards and solutions were used within their recommended shelf life.

All in house quality control procedures were followed, as described below.

5. General quality control procedures.
   - All initial and continuing calibration verifications associated with this batch were within acceptance criteria for the requested analyte. This indicates a valid calibration and stable instrument conditions.
6. A sample from this Order Number was used for the matrix QC samples for this batch.
   - A duplicate was prepared and analyzed with this batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Steve Landreth	4-19-97

Steve Landreth
Inorganic Technician

Date

SW	4/21/97

Reviewer's Initials

Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

pH*

Method 9045A

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Workorder Number: 9704063

Date Collected: 04/08/97
Date Analyzed: 04/10/97
Sample Matrix: Soil

Sample ID	Lab Sample ID	pH
Temp. Soil 1	9704063-1	7.6
Temp. Soil 2	9704063-2	7.8

52

* Soil pH measured in water

Paragon Analytics, Inc.

TCLP METALS CASE NARRATIVE

Giant Refining Company

Order Number - 9704063

1. This report consists of 2 TCLP samples.
2. The samples were received cool and intact on 04/09/97.
3. The samples were prepared for analysis based on SW-846, 3rd Edition procedures.

   The samples were processed through the TCLP leaching procedure based on method 1311. The leachates were then digested at a 10 fold dilution as follows.

   For analysis by Trace ICP, the leachates were digested following method 3010A.

   For analysis by Cold Vapor AA (CVAA), the leachates were digested following method 7470.
4. The leachates were analyzed following SW846 protocols by Trace ICP (Method 6010A) and CVAA (Method 7470). The analysis of silver was done by Trace ICP.
5. All standards and solutions are NIST traceable and were used within their recommended shelf life.
6. The samples were prepared and analyzed within the established hold times.
7. Sample results which are below PAI's standard reporting limits are reported as "ND" on the enclosed report.

All in house quality control procedures were followed, as described below.

8. General quality control procedures.
   - A preparation (method) blank and laboratory control sample were digested and analyzed with the samples in each digestion batch. There were not more than 20 samples in each digestion batch.
   - The preparation (method) blank results associated with each batch were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during the digestion procedure.
   - The laboratory control sample associated with this batch was within acceptance limits. This indicates complete digestion according to the method.

- All initial and continuing calibration blanks associated with each batch were below the reporting limits for the requested analytes. This indicates a valid calibration and stable instrument conditions.
- All initial and continuing calibration verifications associated with each batch were within acceptance criteria for the requested analytes with the exception of CCV #5 for barium and silver. All samples associated with this CCV were re-analyzed later in the run for barium and silver with CCVs that were within the acceptance criteria.
- The interference check samples, and high standard readbacks associated with Method 6010A analyses were within acceptance criteria.

9. A sample from another Order Number was used as the matrix QC sample for each batch.
   - A matrix spike and matrix spike duplicate were digested and analyzed with each batch. All acceptance criteria for accuracy were met.
   - A sample duplicate and spike duplicate were digested and analyzed with each batch. All acceptance criteria for precision were met.
   - A serial dilution was analyzed with each batch. All acceptance criteria were met.

The data contained in the following report have been reviewed and approved by the personnel listed below:

Darryl Patrick — 4/18/97
Darryl Patrick
Senior Inorganic Chemist
Date

SW — 4/18/97
Reviewer's Initials
Date

CERTIFICATION

Paragon Analytics, Inc. certifies that the analyses reported herein are true, complete and correct within the limits of the methods employed.

Paragon Analytics, Inc.

SAMPLE NUMBER(S) CROSS-REFERENCE TABLE

Client Name: Giant Refining Company

Client Project ID: Not Submitted

PAI-ID	Client ID	MATRIX	DATE SAMPLED
9704063-1	Temp. Soil 1	Soil	04/08/97
9704063-2	Temp. Soil 2	Soil	04/08/97

TCLP METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9704063

Sample Matrix: TCLP Leachate

Sample ID

TCLP Blank

Date Collected: N/A
Prep Date: 04/10, 11/97
Date Analyzed: 04/10, 11/97

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	ND	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

DP

TCLP METALS

Sample ID

Temp. Soil 1

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9704063-1

Sample Matrix: TCLP Leachate

Date Collected: 04/08/97
Prep Date: 04/10, 11/97
Date Analyzed: 04/10, 11/97

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	0.28	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

DP

TCLP METALS

Sample ID

Temp. Soil 2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9704063-2

Sample Matrix: TCLP Leachate

Date Collected: 04/08/97
Prep Date: 04/10, 11/97
Date Analyzed: 04/10, 11/97

EPA HW Number	CAS Number	Analyte	Concentration mg/L	Reporting Limit (mg/L)
D004	7440-38-2	Arsenic	ND	0.1
D005	7440-39-3	Barium	ND	1
D006	7440-43-9	Cadmium	ND	0.05
D007	7440-47-3	Chromium	ND	0.1
D008	7439-92-1	Lead	0.06	0.03
D009	7439-97-6	Mercury	ND	0.002
D010	7782-49-2	Selenium	ND	0.05
D011	7440-22-4	Silver	ND	0.1

ND = Not detected at or above the reporting limit.

NP

TCLP METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9704034-4

Sample ID
In House

Prep Date: 04/10, 11/97
Date Analyzed: 04/10, 11/97

Sample Matrix: TCLP Leachate

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Arsenic	20.0	< 0.1	17.3	87	
Barium	20	< 1	21	105	
Cadmium	0.50	< 0.05	0.44	88	
Chromium	2.0	0.2	1.9	85	
Lead	5.00	0.04	4.28	85	
Mercury	0.020	< 0.002	0.020	100	
Selenium	20.0	0.07	17.6	88	
Silver	2.0	< 0.1	2.0	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Arsenic	18.7	94	8	
Barium	20	100	5	
Cadmium	0.46	92	4	
Chromium	2.0	90	5	
Lead	4.58	91	7	
Mercury	0.020	100	0	
Selenium	19.2	96	9	
Silver	2.0	100	0	

DP

PARAGON ANALYTICS, INC.
225 Commerce Drive Ft. Collins, CO 80524
(800) 443-1511 or (970) 490-1511
(970) 490-1522 - Fax

CHAIN OF CUSTODY

DATE 4/8/97 Page 1 of 1

*ACCESSION NUMBER (LAB ID) 97.04.063

REPORT TO: LYNN SHELTON
COMPANY: GIANT REFINING CO.
ADDRESS: P.O. BOX 159
BLOOMFIELD, NM 87413
SAMPLER: Lynn Shelton
PHONE NO. (505)632 8013
FAX NO. (505)632 3911

ANALYSIS REQUESTED: Oil & Grease 9070/9071/413.2; 418.1 - TRPH; 8015 Mod. - Gasoline; 8015 Mod. - Diesel; 8015m/8020 - Gasoline/BETX; 8020 - BETX only; 8240/8260 - GC/MS VOC's; 8270 - GC/MS SVOC's; 8080 - Pesticides/PCB's; 8080 - PCB's only; 8310/610 - HPLC PNA's; 8150 - Herbicides; 8141/614 - OP Pesticides; TOX - EOX - AOX - TX; Total Metals *(specify in comments); TCLP: *(specify parameters in comments); Gross Alpha / Beta; Gross Gamma; Gamma Spec; Isotopic Plutonium; Isotopic Uranium; Total Uranium (KPA); Radium 226 / 228; Tritium (H3); Strontium 89 / 90; 8315 - Formaldehyde; % Moisture; IGNITABILITY; REACTIVITY; CORROSIVITY

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TCLP	IGNITABILITY	REACTIVITY	CORROSIVITY	Number of Containers
TEMP. SOIL 1	4/8	1058	SOIL	01	X	X	X	X	3
TEMP. SOIL 2	4/8	1110	SOIL	02	X	X	X	X	3

PROJECT INFORMATION
PROJECT NUMBER:
PROJECT NAME:
P.O. NUMBER:
TAT: STANDARD RUSH DUE
SAMPLE DISPOSAL: HAZ WASTE $5.00 ea RAD CHEM $15.00 ea RETURN

SAMPLE RECEIPT
TOTAL NO. OF CONTAINERS
CHAIN OF CUSTODY SEALS Y/N
SEALS INTACT? Y/N/NA
REC'D GOOD COND./COLD?

COMMENTS: TCLP - ALL : 8260, 8270, 8080, 8150,
METALS

	1	2	3
RELINQUISHED BY: Sign.	Lynn Shelton		
Time	1130		
Print	LYNN SHELTON		
Date	4/8/97		
Company	GIANT	FDX	
RECEIVED BY: Sign.		D Hull	
Time		930	
Print		D Hull	
Date		4/9/97	
Company	FDX	PAI	

* DO NOT WRITE IN SHADED AREAS

Paragon Analytics, Inc. - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: Giant Refining Co. SHIPPING CONTAINER #: Cooler

WORKORDER NO. 97-04-063 INITIALS: [illegible] DATE: 4/9/97

1.	Does this project require special handling according to NEESA, Level 3, or CLP protocols? If yes, complete a. and b. a. Cooler Temperature______ b. Lot No's.______ c. Airbill Number______		Yes	No
2.	Are custody seals on the cooler intact? If so, how many 2	N/A	Yes	No
3.	Are custody seals on sample containers intact?	N/A	Yes	No
4.	Is there a Chain of Custody (COC) or other representative documents, letters or shipping memos?		Yes	No
5.	Is the COC complete? Relinquished: Yes ✓ No __ Requested Analysis: Yes ✓ No	N/A	Yes	No
6.	Is the COC in agreement with the samples received? No. of Samples: Yes ✓ No__ Sample ID's: Yes ✓ No__ Matrix: Yes ✓ No__ No. of Containers: Yes ✓ No__		Yes	No
7.	Are the samples requiring acid preservation preserved correctly?	N/A	Yes	No
8.	Is there enough sample? If so, are they in the proper containers?		Yes	No
9.	Are all samples within holding times for the requested analyses?		Yes	No
10.	Were the sample received on ice?	N/A	Yes	No
11.	Were all sample containers received intact? (not broken or leaking, etc.)		Yes	No
12.	Are samples requiring no headspace, headspace free?	N/A	Yes	No
13.	Do the samples require quarantine?		Yes	No
14.	Do samples require Paragon disposal?		Yes	No
15.	Did the client return any unused bottles?		Yes	No

Describe "NO" items (except No's 1, 13, &14):____________

Was the client contacted? Yes____ No____

If yes, Date:______ Name of person contacted:______

Describe actions taken or client instructions:____________

Group Leader's Signature:__________ Date:______

Cooler Temperature: 3°C

M 201FC6 (24/1/97)

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

April 17, 1997

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Report Giant Refining Company - Bloomfield
GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the bi-weekly report on activities associated with the river terrace at this facility.

Enclosed with this report are copies of the analytical from the first two sampling events from the river (within the boomed area). As expected, the results are negative for hydrocarbon. The river level has dropped to the 1000 cfs level, down from a peak of 1600 cfs. Recovery of hydrocarbon from the culvert at the river has not been possible due to the absence of hydrocarbon. Giant continues to monitor this situation daily and recovery operations will begin when hydrocarbon is again present in the culvert.

The absence of hydrocarbon during periods of normal or high flow reinforces Giant's contention that the San Juan river is acting as a hydraulic barrier against migration of hydrocarbon to the west or north.

Giant is expecting to receive a complete report from Precision Engineering, Inc. that includes a three dimension rendering of the subsurface geology in the river terrace area and the vertical and horizontal extent of hydrocarbon contamination of the river terrace area.

Sincerely,

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager
Kathleen O'Leary, Regulatory Affairs Coordinator
Greg Lyssy, Region VI USEPA
Steve Pullen, NMED / HRMB

Inter·Mountain
Laboratories, Inc.

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

RECEIVED

APR 28 1997

Environmental Bureau
Oil Conservation Division

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

8 April 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on April 1, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Company

Case Narrative

On April 1, 1997, two soil and two water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received intact. Analysis for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX); Total Petroleum Hydrocarbons (TPH) were performed on the samples as per the accompanying Chain of Custody # 46336.

BTEX analysis on the samples were 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 soil samples as indicated in the enclosed reports.

TPH samples were extracted by Method 3550, "Ultrasonic Extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids", with 1,1,2-tricloro 1,2,2-trifluoroethane (Freon) as the extraction solvent. Analysis was by Method 418.1, "Total Recoverable Petroleum Hydrocarbons", using a Buck Scientific Infrared Spectrophotometer. Petroleum Hydrocarbons were detected in the soil samples as indicated in the enclosed reports.

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 questions regarding the information presented in this package, please feel free to contact me at your convenience.

Sincerely,

Sharon Williams/Organic Analyst

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Company

Project ID:	Bloomfield	Report Date:	04/07/97
Sample ID:	River-B	Date Sampled:	03/20/97
Lab ID:	0397G00478	Date Received:	04/01/97
Sample Matrix:	water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	04/02/97

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	124%	70%-130%

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

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Company

Project ID:	Bloomfield	Report Date:	04/07/97
Sample ID:	River-B	Date Sampled:	03/31/97
Lab ID:	0397G00481	Date Received:	04/01/97
Sample Matrix:	water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	04/02/97

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%	70%-130%

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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Duplicate Analysis

Lab ID:	0397G00478	Report Date:	04/02/97
Sample Matrix:	water	Date Analyzed:	04/02/97
Condition:	Cool/Intact		

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

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	81%	70 -130%

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

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Matrix Spike Analysis

Lab ID:	MB	Report Date:	04/02/97
Sample Matrix:	water	Date Analyzed:	04/02/97
Condition:	Cool/Intact		

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	20.93	0.32	20.0	103%	70-130
Toluene	21.30	0.11	20.0	106%	70-130
Ethylbenzene	20.25	0.00	20.0	101%	70-130
m,p-Xylenes	38.78	0.13	40.0	97%	70-130
o-Xylene	21.43	0.00	20.0	107%	70-130

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	113%	70 -130%

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

JB

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB

Report Date: 04/02/97
Date Analyzed: 04/02/97

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	119%	70-130%

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

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Trip Blank Analysis

Sample Matrix: Water
Lab ID: Trip Blank

Report Date: 04/02/97
Date Analyzed 04/02/97

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	90%	70- 130%

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:

JB

Review

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

BTEX

Client:	**Giant Refining Company**	Date Reported:	04/02/97
Project:	Bloomfield	Date Analyzed:	04/02/97

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery	Acceptance Limits
Benzene	4.1	4.0	**103%**	70-130%
Toluene	4.2	4.0	**104%**	70-130%
Ethylbenzene	4.0	4.0	**99%**	70-130%
m+p-Xylene	7.7	8.0	**96%**	70-130%
o-Xylene	4.2	4.0	**105%**	70-130%

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	118%	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 ______

Reviewed by ______

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

TOTAL PETROLEUM HYDROCARBONS
Quality Assurance/Quality Control

Client:	**Giant Refining Company**	Date Reported:	04/04/97
Project:	Bloomfield	Date Sampled:	3/20-3/31/97
Matrix:	soil/water	Date Received:	04/01/97
Condition:	Intact/Cool	Date Extracted:	04/04/97
		Date Analyzed:	04/04/97

Duplicate Analysis

Lab ID	Sample Result	Duplicate Result	Units	%Difference
0397G00479	5.0	6.0	mg/Kg	18.2%

Method Blank Analysis

Lab ID	Result	Units	Detection Limit
Method Blank	ND	mg/L	1.0

Spike Analysis

Lab ID	Found Conc. mg/L	Sample Conc. mg/L	Spike Amount mg/L	Percent Recovery	Acceptance Limits
MB	57.8	ND	52.5	110%	70-130%

Known Analysis

Lab ID	Found Conc. mg/L	Known Conc. mg/L	Percent Recovery	Acceptance Limits
QC	25.0	25.2	99%	70-130%

Method 418.1: Petroleum Hydrocarbons, Total Recoverable, USEPA Chemical Analysis of water and waste, 1978.

Method 3550: Ultrasonic extraction of Non-Volatile and Semi-Volatile Organic Compounds from Solids, USEPA SW -846, rev.1, July 1992.

Reported By: ____________

Reveiwed By: ____________

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO. - BLOOMFIELD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.:

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX	TPH 418.1				Remarks
RIVER - B	3/20/97	1115		H_2O	2	X					
SB-6-397-7.5	3/20/97			SOIL	1	X	X				
SB-6-397-15.0	3/20/97	0930		SOIL	1	X	X				
RIVER-B	3/31/97	1105		H_2O	2	X	X				
											cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	3/31/97		Chris Raymer	4-1-97	0744
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

46336

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

RECEIVED
APR - 9 1997
CONSERVATION

April 4, 1997

Mr. Roger Anderson
Environmental Bureau Chief
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Bi-Weekly Activity Report Giant Refining Company - Bloomfield GW-001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield (Giant) submits this letter as required by the March 14, 1997 letter from you.

Giant bermed and plastic lined an area east of Tank #2 to contain the soil that had been stored on the river terrace pending analytical analysis. The soil was moved March 14. Samples will be analyzed by Paragon Analytics, Inc., Fort Collins, Colorado for the parameters noted in the March 14 letter. Results of those analyses have not been received.

Drilling on the river terrace occurred on March 13-14 and March 20-21. A total of 8 borings were made. Initially, Giant had planned to do soil vapor measurements using probes, but drilling each boring down to the Naciemento formation provided additional, and relevant, data concerning the subsurface geology on the river terrace as well as characterization of the soil. Giant believes that this drilling activity will satisfactorily delineate the horizontal and vertical extent of hydrocarbon presence on the river terrace.

During the drilling operations, PID measurements were taken on all soil cores extracted in the split spoon sampler. Samples were taken along the interface of the fluvial overlay and the Naciemento formation. Those samples are being analyzed by Inter-Mountain Laboratories, Inc., Farmington, New Mexico. Results of those analyses have not been received.

Complete lithologic logs, noting PID readings, will be supplied to each regulatory agency with the final report that is due May 28, 1997 as well as drawings of the river terrace area showing the locations of the boreholes.

River samples from within the boomed area are taken bi-weekly for BTEX analysis (8020). Those samples are being analyzed by Inter-Mountain Labs also. Results of those analyses have not been received.

If you have any questions, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager, Giant Refining Company - Bloomfield
Kathleen O'Leary, Regulatory Affairs Coordinator, Giant Industries
Steve Pullen, NMED
Greg Lyssy, Region VI, USEPA
Denny Foust, NMOCD, Aztec

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

March 14, 1997

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-783

Mr. Lynn Shelton
Environmental Manager
Giant Refining Co.
P.O. Box 159
Bloomfield, NM 87413

RE: Release Delineation/Soil Characterization
Giant Refining Company-Bloomfield(GRCB)
GW-001, "San Juan Refining Company"
San Juan County, NM

Dear Mr. Shelton:

The New Mexico Oil Conservation Division (OCD) has the following requirements for the GRCB, GW-001 facility regarding the release area along the river bank.

(1.) The soil that is currently stored near the river on the "sand bar" area will be characterized immediately for Hazardous Characteristics and Constituents per 40 CFR Part 261 (Reactivity, Ignitability, Corrosivity, and TCLP). Upon determination of the regulatory status of either Hazardous or Non-Hazardous, Giant will notify the appropriate regulatory agency and propose a method of proper disposal or remediation for the soil.

i.e. If the soil is non-hazardous Giant will confer with the OCD. If the soil is hazardous Giant will confer with NMED-HRMB and US EPA. All agencies will be copied on Giants findings and proposal for handling the soil.

(2.) The soil in the meantime will be removed immediately from the "sand bar" area and stored in an area that has sufficient site security and is out of the river bank area on an impervious synthetic liner of sufficient strength and bermed in such a manner as to prevent run-off and run-on of storm water.

(3.) The boomed area will continue to be monitored on a bi-weekly basis for BTEX or method 602 until the release area has been delineated and remediated. Giant will submit the original copies of the analysis along with QA/QC documentation to the OCD on a bi-weekly basis, with copies to NMED-HRMB and US EPA Region 6.

(4.) Giant will continue to delineate the release area and will submit a bi-weekly report to the OCD, NMED-HRMB, and US EPA updating the status of the delineation and characterization of the release area.

Note: **Giant will have the release delineated by May 7, 1997 and will submit a report to the OCD, NMED-HRMB, and US EPA Region 6 by May 28, 1997 that will contain the results of the delineation and a recommendation regarding how best to remove the contamination.**

In the mean time should Giant have any questions, or updates regarding this letter please feel free to call myself at (505)-827-7152 or Pat Sanchez of the OCD Santa Fe Office at (505)-827-7156.

Sincerely,

Roger C. Anderson
Bureau Chief
OCD - Environmental Bureau

RCA/pws

c: Mr. Denny Foust - Aztec OCD District Office
Mr. Benito Garcia - NMED- HRMB
Mr. Greg J. Lyssy - US EPA Region 6.

P 288 258 783

US Postal Service
Receipt for Certified Mail
No Insurance Coverage Provided.
Do not use for International Mail *(See reverse)*

Sent to Mr. Shelton - GW-001	
Street & Number Giant Refining Co.	
Post Office, State, & ZIP Code RELEASE DELIN PLNS	
Postage	$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to Whom & Date Delivered	
Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form 3800, April 1995

RECEIVED

MAR - 4 1997

Environmental Bureau
Oil Conservation Division

GIANT REFINING COMPANY - BLOOMFIELD

INTER-AGENCY MEETING

MARCH 4, 1997

AGENDA

10:00 AM	Meet in conference room. Overview of operations, including recovery at river.
10:30 AM	Discussion of geological features.
11:00 AM	Facility tour
11:30 AM	Lunch
1:00 PM	Open discussion
2:30 PM	Adjourn

ATTENDEES:

Gregg Lyssy	USEPA
Steve Pullen	NMED/HRMB
Pat Sanchez	NMOCD
Denny Foust	NMOCD
Bill Kingsley	Precision Engineering, Inc.
Lynn Shelton	Giant Refining Company
John Stokes	Giant Refining Company

CHRONOLOGICAL LIST OF REGULATORY ACTIVITIES PERTAINING TO POTENTIAL GROUNDWATER CONTAMINATION AT THE BLOOMFIELD SITE 1977 - 1996

PREPARED FOR
NEW MEXICO OIL CONSRVATION DIVISION
2040 SOUTH PACHECO
SANTA FE, NEW MEXICO 87505

PREPARED BY
LYNN SHELTON
ENVIRONMENTAL MANAGER
GIANT REFINING COMPANY - BLOOMFIELD REFINERY

FEBRUARY 28, 1996

CHRONOLAGICAL LIST OF REGULATORY ACTIVITIES PERTAINING TO GROUNDAWATER AND POTENTIAL CONTRIBUTIONS TO GROUNDWATER AT THE BLOOMFIELD SITE 1977 - 1996

INTRODUCTION:

On December 19, 1996, Roger Anderson, Bill Olson, Pat Sanchez, Denny Foust and Mark Ashley of the New Mexico Oil Conservation, along with John Stokes and Lynn Shelton of Giant Refining Company, met at the OCD offices in Santa Fe to discuss the recent release of a sheen into the San Juan River.

In addition to sampling requirements from the San Juan River and from two planned soil borings, the OCD requested that Giant submit a "Summary Report" of the actions and findings of the facility to date beginning with the initial Discharge plan dated June 5, 1978. You will notice that the report goes back to September 30, 1977, the date of the completion of the draft Discharge Plan.

What follows is a synopsis of the regulatory activities concerning groundwater and possible contributors to groundwater that have occurred at this site since 1977 as they are contained in our files. Please note that there have been two changes of ownership and an office fire since that time and surviving files are assumed to be complete.

Please note also that the descriptions of each item of the report are necessarily brief as there are 44 instances of significant contact with the OCD and 29 with the United States Environmental Protection Agency that can be considered germane to this report. These reports and correspondence can be inspected at the facility by arrangement.

OCD

CORRSPONDENCE. PLANS AND REPORTS

Receipt by facility of the **Discharge and Monitoring Plan for a Refinery Operated by Plateau, Inc. near Bloomfield, New Mexico**, September 30, 1977, *American Groundwater Consultants, Inc.*

- •Referenced facilities first notification of application for a discharge permit.
- •Involved written correspondence dated: 4/29/77,5/13/77,5/23/77,
- •12/8/77,4/4/78
- •Cobble Zone dry by test

Milestone Report on Monitoring Activities at the Bloomfield Refinery Operated by Plateau, Inc., San Juan County, New Mexico, January 30, 1979, *American Groundwater Consultants, Inc.*

- Discharge plan Approval - June 5, 1978
- Slope - N to NW at 1.2°
- Pond Seepage - 22 gpm

May 14, 1981 Application to EPA for NPDES

July 23, 1981 Letter re: Oscar Simpson

September 10, 1981 Letter concerning meeting with OCD to discuss new sample requirements

October 8. 1981 Submission to EPA of Discharge and Monitoring plans as documentation for waiver of groundwater monitoring requirement

December 23, 1981 Letter - reference to supplement to Discharge Plan

January 8, 1982 Letter - Report of diesel in Hammond Ditch

- Reference to filling bank of Hammond Ditch with water which then drains during winter when it the ditch is dry

Update Discharge Plan for a Refinery Operated by Plateau, Inc. near Bloomfield, New Mexico, March 9, 1982, *American Groundwater Consultants, Inc.*

- Incorporates runoff controls and spray irrigation

July 19, 1982 Letter What is need for a Discharge Plan?

September 2, 1982 Letter San Juan River as a Hydraulic barrier

Undated Letter from OCD Need for impermeable storage

January 6, 1983 Letter Lining oily water ponds

June 29, 1983 Letter to EPA Requesting copy of the inspection report and sample analysis performed by Ecology & Environment, Inc. for EPA

August 8, 1983 Letter Request for copy of inspection report by J. K. O'Neal (EPA)

1983 Letter Associated with OCD Notice of Violation

September 19,1983 Letter From Daniel B. Stephens concerning the need for additional site assessment and 13 additional groundwater wells.

September 26, 1983 Letter Summary of activities at Plateau from David Boyer, OCD

October 21, 1983 Letter Discharge Plan deficiencies

November 14, 1983 Letter to OCD Agreeing to additional controls and characterization

February 14, 1984 Letter to OCD Status report - 6 wells drilled

March 1, 1984 Draft of discharge permit renewal

March 29, 1984 Letter Seeps at blff from Hammond Ditch and evaporation ponds

April 11, 1984 Letter Dr. Turner (AGC, Inc.) addressing seeps, water contours, etal.

May 9, 1984 Letter WACC granting authority of water pollution control

June 7, 1984 Letter Monitoring frequency

Discharge plan for Plateau Refinery at Bloomfield, New Mexico, March 24, 1984, American Groundwater Consultants, Inc., Groundwater Monitoring Emergency Plan

June 7, 1984 Discharged plan approval

February 5, 1985 Letter from OCD First reference to 3013 order

March 4, 1986 Letter from OCD Directed to delineate extent of hydrocarbon contamination and begin recovery actions

Report on Subsurface Hydrocarbon Data at the Bloomfield Refinery, May 29, 1986, *Engineering Science*

Remedial Action Plan for Bloomfield Refinery, Bloomfield, New Mexico June 6, 1986, *Engineering Science*

July 30, 1986 Letter from OCD Request for more complete delineation

October 24, 1986 Letter form OCD Stricter requirement, additional wells

Proposal to Install Monitor Wells and Oil Recover Systems at the Bloomfield Refining Company, February 4, 1987, GCL

October 27, 1987 Letter to GCL Mention of damming Hammond Ditch

February 23, 1988 Letter from OCD Warning of enforcement action

Site Investigation and Remedial Action Conceptual Design for the Bloomfield Refining Company, March 4, 1988, GCL

May 13, 1988 Letter from OCD Additional requirements

July 8, 1988 Letter Soil vapor survey

Work Plan for Soil Vapor Survey and Monitor Well Installation Bloomfield Refining Company, August 5, 1988, GCL

Report on Soil Vapor Survey, Well Installation, and Hydrocarbon Recovery System, Bloomfield Refining Company, February 24, 1989

May 22, 1989 Letter form OCD Critique of "Soil Vapor ... Refining Company" (March 7, 1989), request for meeting

Final Report on Soil Vapor Survey, Well Installaion, and Hydrocarbon Recovery System, Bloomfield Refining Company, August 3, 1989, GCL

November 18, 1991 Discharge Plan Renewal OCD

February 4, 1992 Letter to/from OCD Directing all closure plans approved by OCD

June 1994 Discharge plan approved monitor MW-1 and MW-4 quarterly

RCRA

CORRESPONDENCE, PLANS AND REPORTS

March 27, 1985 and November 1985 Notification of HSWA - need for Part B permit

January 11, 1982 Letter OCD - Chavez - OCED does have authority to monitor clean up of seep

A Review of Subsurface Hydrocarbons at the Bloomfield Refinery January 31, 1985, *Engineering Science*

Large oil spill - river terrace affected - 1963 (2500 bbls)

January 19, 1984 Letter to EPA from EID Reference EPA Region VI as reviewing possible violations/non-compliance to RCRA

June 20, 1984 Letter to EPA Earliest reference to 3013

October 23, 1984 Notes References 3/84 EPA and NMEID inspection and 3/83 inspection

3013 draft order (no date?) assemble info on groundwater

April 2, 1985 Official 3013 received

April 1985 Draft from Joseph Guida, confrontation determination of hazardous waste. No EPA jurisdiction over BRC concerning RCRA

Petroleum product contamination of soil and water in New Mexico 1984, undated, NMID OCD authority

July 5, 1985 Letter for OCD to GWEC Sampling requirements

Monitoring, testing , Analysis, and Reporting at the Bloomfield Refinery, July 1985, *Engineering Science* Proposed field investigation, additional wells

A final report on Section 3013 Administrative order work elements, undated, *Engineering Science*

April 1, 1985 Received compliance order pursuant to 3008H compliance order

November 26, 1985 Assessment of civil penalty

December 2, 1986 EID Nov - TSD status

Final Closure Plan for the API Wastewater Pond, Landfill and Landfill Pond at the Bloomfield Refinery, July 1986, Engineering Science

Final Closure Plan for the API Wastewater Ponds, Landfill and Landfill Pond at teh Bloomfield Refinery, July, 1986, *Engineering Science*

January 25, 1984 Reference to 3008(h) order closure plan approval (landfill pond)

April 19, 1991 Delisting petition

August 1985 Clarification of antimony and selenium

February 19, 1986 Letter from EPA 3007(a) request hazardous waste study

December 31, 1992 Receipt of negotiated 3000(h) compliance order

300H(n) -

1. Perform interim measures
2. Perform RFI
3. Perform and submit CMS

Interim measures - Plan February 1993

1. To mitigate current or potential threats to human health or the environment
2. Notification if threat exists

RCRA Facility Investigation / Corrective Measures Study Report, Bloomfield Refining Company, #50 County Road 4990, Bloomfield, New Mexico, November 8, 1994, *Groundwater Technologies, Inc.*

Corrective Measure Study Report, Giant Refining Company, #50 County Road 4990, Bloomfield, New Mexico, December 21, 1995, *Groundwater Technologies, Inc.*

December 3, 1996 Letter To OCD Notification of sheen on San Juan River and mitigation activities

(1) DISCHARGE AND MONITORING PLAN FOR A REFINERY OPERATED BY PLATEAU, INC. NEAR BLOOMFIELD, NEW MEXICO, SEPT 30, 1977, AMERICAN GROUNDWATER CONSULTANTS, INC.

DEVELOPED TO SUPPORT PLATEAU'S APPLICATION TO NMOCD FOR DISCHARGE PERMIT. FIRST NOTIFICATION - APRIL 29, 1977 - PLATEAU TO NMOCC - OF INTENT TO DISCHARGE.

LETTERS 4/29/77, 5/13/77, 5/23/77, 12/2/77, 4/4/78

☆ SEE SUMMARY AND CONCLUSIONS; ALSO APPENDIX 1

(2) MILESTONE REPORT ON MONITORING ACTIVITIES AT THE BLOOMFIELD REFINERY OPERATED BY PLATEAU, INC SAN JUAN COUNTY, NEW MEXICO, JAN 30, 1979, AMERICAN GROUNDWATER CONSULTANTS, INC.

DISCHARGE PLAN APPROVAL - LETTER DATED 6/5/78

SLOPE - N to NW 1.2°

POND SEEPAGE ~22 GPM

(3) MAY 4, 1981 REFERENCE TO APPL. TO EPA FOR NPDES

(4) JULY 23, 1981 LETTER RE: OSCAR SIMPSON

(5) LETTER 9/10/81 MEETING w/OCD - NEW SAMPLE REQUIREMENTS

(6) 10/8/1981 DISCHARGE + MONITORING PLAN TO EPA AS DOCUMENTATION FOR WAIVER OF GWTR MONITORING

(7) 12/23/81 REFERENCE TO SUPPLEMENT TO DISCHARGE PLAN

(8) 1/8/82 LETTER. DIESEL IN HAMMOND DITCH FROM DAY TANKS

(9) ~~3/9/82~~ UPDATED DISCHARGE PLAN FOR A REFINERY OPERATED BY PLATEAU, INC. NEAR BLOOMFIELD, NEW MEXICO, 3/9/82, AMERICAN GROUNDWATER CONSULTANTS, INC.

INCORPORATES RUNOFF CONTROLS & SPRAY IRRIGATION

(10) 7/19/82 LETTER - NEED FOR DISCHARGE PLAN

(11) 9/2/82 LETTER - SAN JUAN RIVER AS A HYDRAULIC BARRIER

(12) UNDATED LETTER FROM OCC - IMPERMEABLE STORAGE

(13) 1/6/83 LETTER OILY WATER PONDS (LINING)

(14) 6/29/83 LETTER REQUEST COPY OF INSPECTION REPORT & SAMPLE ANALYSIS PERFORMED BY ECOLOGY & ENVIRONMENT INC FOR EPA

(15) 8/8/83 LETTER REQUEST FOR COPY OF REPORT BY J.K. O'NEAL - EPA?

(16) ?/1983 CORRESPONDENCE ASSOCIATED WITH OCD
M.O.V.

(17) 9/26/83 LETTER - SUMMARY OF ACTIVITIES
FROM DAVID BOYER

(18) 9/19/83 LETTER - DANIEL B STEPHENS -
NEED FOR ADDITIONAL ASSESSMENT AT SITE
INCLUDING 13 MONITOR WELLS.

(19) 10/21/83 LETTER DISCHARGE PLAN DEFICIENCI

(20) 11/14/83 LETTER TO OCD - AGREEING TO
ADDITIONAL CONTROLS AND CHARACTER-
IZATION

(21) 2/14/84 LETTER TO OCD - STATUS REPORT -
6 WELL DRILLED

(22) 3/1/84 DRAFT OF DISCHRGE PERMIT
RENEWAL

(23) 3/29/84 LTR. SEEPS @ BLUFF - FROM
HAMMOND DITCH AND EVAP. PONDS

(24) 4/11/84 LTR - DR. TURNER (AGC, INC.)
ADDRESSING SEEPS, WATER CONTOURS, ET AL

(25) 5/?/84 LTR - WQCC GRANTING AUTHORITY

WATER POLLUTION CONTROL.

(26) 6/7/84 LTR MONITORING FREQUENCY

(27) DISCHARGE PLAN FOR PLATEAU REFINERY AT BLOOMFIELD, NEW MEXICO, MARCH 24, 1984, AMERICAN GROUNDWATER CONSULTANTS, INC.

GROUNDWATER MONITORING

EMERGENCY PLAN

(28) DISCHARGE PLAN APPROVAL 6/7/84

(29) 2/5/85 LETTER FROM OCD - FIRST REFERENC[E] TO 3013 ORDER.

(30) 3/4/86 LTR FROM OCD - DIRECTED TO DELINEATE EXTENT OF HYDROCARBON CONTAMINATION AND BEGIN RECOVERY ACTIONS

(31) REPORT ON SUBSURFACE HYDROCARBON DATA AT THE BLOOMFIELD REFINERY, MAY 29, 1986, ENGINEER[ING] SCIENCE

(32) REMEDIAL ACTION PLAN FOR BLOOMFIELD REFINER[Y] BLOOMFIELD, NEW MEXICO, 6/26/86, ENGINEERING-SCIENCE

(30) 7/30/86 LTR FROM OCD - REQUEST FOR MORE COMPLE[TE] DELINEATION

(31) 10/24/86 LTR FRM OCD - STRICTER REQUIREMENT, ADDITIONAL WELLS

(32) PROPOSAL TO INSTALL MONITOR WELLS AND OIL RECOVERY SYSTEMS AT THE BLMFLD REFINING COMPANY, FEB 4, 1987, GCL

(33) 10/27/87 LTR TO GCL - MENTION OF DAMMING HAMMOND DITCH

(34) 2/23/88 LTR FR OCD - WARNING OF ENFORCEMENT ACTION

(35) ~~3/4/88~~ SITE INVESTIGATION AND REMEDIAL ACTION CONCEPTUAL DESIGN FOR THE BLOOMFIED REFINING COMPANY, 3/4/88, GCL

(36) 5/13/88 LETTER FROM OCD - ADDITIONAL REQUIREM.

(37) 7/8/88 LTR SOIL VAPOR SURVEY

↓

(38) WORK PLAN FOR SOIL VAPOR SURVEY AND MONITOR WELL INSTALLATION BLOOMFIELD REFINING COMPA 8/5/88, GCL

(39) ~~SUBMITTAL OF THE~~ REPORT ON SOIL VAPOR SURVE WELL INSTALLATION, AND HYDROCARBON RECOVERY SYSTEM, BLOOMFIELD REFINING CO., 2/24/89, GCL

(40) 5/22/89 LTR FROM OCD - CRITIQUE OF "SOIL VAPOR ... REFINING CO" (3/17/89)
REQUEST FOR MEETING

(41) FINAL REPORT ON SOIL VAPOR SURVEY, WELL INSTALLATI
AND HYDROCARBON RECOVERY SYSTEM, BLOOMFIELD
REFINING COMPANY, 8/3/89, GCL

(42) 11/18/91 DISCHARGE PLAN RENEWAL - OCD

(43) LETTER 2/4/92 TO FROM OCD
DIRECTING ALL CLOSURE PLANS APPROVAL
BY OCD

(44) 6/94 DISCHARGE PLAN APPROVED
MONITOR MW-1 AND MW-4 QUARTERLY

RCRA

3/27/85 & 11/85 - NOTIFICATION OF HSWA - NEED FOR PART B PERMIT

1-11-82 - LTR OCD - CHAVEZ - OCD DOES HAVE AUTHORITY TO MONITOR CLEANUP OF SEEP

1/31/85 A REVIEW OF SUBSURFACE HYDROCARBON AT THE BLOOMFIELD REFINERY. ENGINEERING SCIENCE

LARGE OIL SPILL - RIVER TERRACE AFFECTED - 1963 (2500 BBLS)

1/19/84 - LETTER TO EPA FROM NMEID - REFERENCES EPA REGION VI AS REVIEWING POSSIBLE VIOLATIONS / NON-COMPLIANCE TO RCRA

6/20/84 LTER TO EPA. EARLIEST REFERENCE TO 3013

10/23/84 NOTES - REFERENCES 3/84 EPA & NMEID INSECTION & 3/83 INSPECTION

✓ 3013 DRAFT ORDER (NO DATE?) ASEMBLE INFO ON GROUND WATER

✓ OFFICIAL 3013 REC'D 4-2-85

1/85 ✓ DRAFT FROM, JOSEPH GUIDA, CONFRONTATI

DETERMINATION OF HAZARDOUS WASTE, NO EPA JURISDICTION OVER BRC CONCERNING RCRA

PETROLEUM-PRODUCT CONTAMINATION OF SOIL AND WATER IN NEW MEXICO 1984, UNDATED, NMID OCD AUTHORITY

6/17/85 BRC COMMITMENT TO FULFILLING 301

7/5/85 LTR FROM OCD TO GWEC - SAMPLING REQUIREMENTS

MONITORING, TESTING, ANALYSIS, AND REPORTING AT THE BLOOMFIELD REFINERY, JULY 1985, ENGINEERING-SCIENCE

PROPOSED FIELD INVESTIGATION, ADDITIONAL WELLS

A FINAL REPORT ON SECTION 3013 ADMINISTRATIVE ORDER WORK ELEMENTS, UNDATED, ENGINEERING-SCIENCE

4/1/85 REC'D ~~3008H COMPLIANCE~~ COMPLIANCE ORDER PURSUANT ORDER

11/26/85 ASSESMENT OF CIVIL PENALTY

12/2/86 EID NOV - TSD STATUS

~~FINAL CLOSURE PLAN FOR THE API~~

WASTEWATER POND, LANDFILL AND LANDFILL POND AT THE BLOOMFIELD REFINERY, JULY, 1986, ENGINEERING-SCIENCE

FINAL CLOSURE PLAN FOR THE API WASTEWATER PONDS, LANDFILL AND LANDFILL POND AT THE BLOOMFIELD REFINERY, JULY, 1986, ENGINEERING SCIENCE

1984 - REFERENCE TO 3008(h) ORDER

1/25/~~84~~ CLOSURE PLAN APPROVAL (LANDFILL POND)

4/19/91 DELISTING PETITION

8/85 CLARIFICATION OF ANTIMONY + SELENIUM

2/19/86 LTR FR EPA 3007(a) REQUEST HAZ WASTE STUDY -

12/31/92 RECEIPT OF NEGOTIATED 3008(h) COMPLIANCE ORDER

3008(h) -

1) PERFORM INTERIM MEASURES
2) PERFORM RFI
3) PERFORM + SUBMIT CMS

INTERIM MEASURES - PLAN 2/93

① TO MITIGATE CURRENT OR POTENTIAL THREATS TO ~~HUMAN~~ HEALTH OR THE ENVIRONMENT

② NOTIFICATION IF THREAT EXISTS

RCRA FACILITY INVESTIGATION 3/93

BENZENE TREATED HERE ① API SEPARATOR & NOWP & SOWP

② SPENT CAUSTIC TANK

③ DRUM STORAGE AREA

CRUDE UNIT SPILL IN 84 ④ PROCESSING UNITS

⑤ TANK AREA FOR 3, 4, 5 + FORMERLY 6, 7

CLAY LINED PONDS DISCONTINUED IN 1994, CLOSED IN 1996

① NO FURTHER ACTION

② NO FURTHE ACTION

③ NO FURTHER ACTION

④ ADDITIONAL CHARACTERIZATION

⑤ ADDITIONAL WELLS - I.E. INTERIM WORK PLAN

⑥ AREA TWO -

TANK 19

TANK 21 & 22 } ADDITIONAL CHARACTERIZATION

TANK 26

⑦ AREA 3 -

TRANSPORTATION TERMINAL SUMP, HEAT EXCHANG

[illegible]

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone ☒ Personal | Time | Date 3/3/97

Originating Party	Other Parties
Steve Pullen, Mike Tinkovich - NMED/HRMB Greg Lyssy - EPA Region 6	Bill Olson - Environmental Bureau

Subject

Giant Bloomfield Refinery (Old Gary Bloomfield)

Discussion

- Corrective Measures Study (CMS) of 12/95 is deficient, didn't review all technology
- EPA wants to complete review of CMS, then turn it over to NMED
- NMED has current facility RCRA permit under review
- Additional plume definition needed to SW of facility
- Giant doesn't like current CMS (which was drafted by Gary Refining)

Time frames - CMS under review, need to discuss with Giant during meeting tommorrow
- site remediation - fast track implement in approx 8 months

NMED clean closed former pond area

Conclusions or Agreements

Distribution

Signed Bill Olson

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

March 14, 1997

Mr. Pat Sanchez
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

Re: Analytical data from river sampling

Dear Mr. Sanchez:

Please find enclosed a copy of the analytical data that is the result of the sampling performed on the San Juan River according to OCD's directive contained in your December 11, 1996 letter.

As we discussed verbally, this data documents that no contaminants were detected in the river upstream of the facility, within the boomed area or downstream of the facility.

Giant will begin sampling for BTEX (on a biweekly basis) during the week of March 17, 1997.

If you need additional information, please contact me at (505) 632 4168.

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

Enclosure

cc: John Stokes, Giant Refining
Denny Foust, NMOCD Aztec

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - U
Project ID: Bloomfield, NM
Lab ID: B9611412 0396G02797
Matrix: Water

Date Reported: 01/03/97
Date Sampled: 12/24/96
Date Received: 12/27/96
Date Extracted: NA
Date Analyzed: 01/02/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - U
Project ID: Bloomfield, NM
Lab ID: B9611412 0396G02797
Matrix: Water

Date Reported: 01/03/97
Date Sampled: 12/24/96
Date Received: 12/27/96
Date Extracted: NA
Date Analyzed: 01/02/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - U		Date Reported:	01/03/97
Project ID:	Bloomfield, NM		Date Sampled:	12/24/96
Lab ID:	B9611412	0396G02797	Date Received:	12/27/96
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/02/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	102	76 - 114
Bromofluorobenzene	89	86 - 115
Toluene-d8	89	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CTB

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	01/03/97
Project ID:	Bloomfield, NM		Date Sampled:	12/24/96
Lab ID:	B9611413	0396G02798	Date Received:	12/27/96
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/02/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY		
Sample ID:	River - B	Date Reported:	01/03/97
Project ID:	Bloomfield, NM	Date Sampled:	12/24/96
Lab ID:	B9611413 0396G02798	Date Received:	12/27/96
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/02/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - B		Date Reported:	01/03/97
Project ID:	Bloomfield, NM		Date Sampled:	12/24/96
Lab ID:	B9611413	0396G02798	Date Received:	12/27/96
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/02/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	87	76 - 114
Bromofluorobenzene	90	86 - 115
Toluene-d8	95	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CEB

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EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	01/22/97
Project ID:	Bloomfield, NM		Date Sampled:	12/24/96
Lab ID:	B9611413	0396G02798	Date Received:	12/27/96
Matrix:	Water		Date Extracted:	12/31/96
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	31	10 - 123
2-Fluorobiphenyl	52	43 - 116
2-Fluorophenol	33	21 - 110
Nitrobenzene-d5	63	35 - 114
Phenol-d6	31	10 - 110
Terphenyl-d14	109	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ________

Reviewed ________

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY		Date Reported:	01/06/97
Sample ID:	River - D		Date Sampled:	12/24/96
Project ID:	Bloomfield, NM		Date Received:	12/27/96
Lab ID:	B9611414	0396G02799	Date Extracted:	NA
Matrix:	Water		Date Analyzed:	01/02/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY		Date Reported:	01/06/97
Sample ID:	River - D		Date Sampled:	12/24/96
Project ID:	Bloomfield, NM		Date Received:	12/27/96
Lab ID:	B9611414	0396G02799	Date Extracted:	NA
Matrix:	Water		Date Analyzed:	01/02/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	River - D	Date Reported:	01/06/97
Project ID:	Bloomfield, NM	Date Sampled:	12/24/96
Lab ID:	B9611414 0396G02799	Date Received:	12/27/96
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/02/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	99	76 - 114
Bromofluorobenzene	94	86 - 115
Toluene-d8	103	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CEB

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EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	**GIANT REFINING COMPANY**		Date Reported:	01/22/97
Sample ID:	River - D		Date Sampled:	12/24/96
Project ID:	Bloomfield, NM		Date Received:	12/27/96
Lab ID:	B9611414	0396G02799	Date Extracted:	12/31/96
Matrix:	Water		Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	64	10 - 123
2-Fluorobiphenyl	48	43 - 116
2-Fluorophenol	39	21 - 110
Nitrobenzene-d5	58	35 - 114
Phenol-d6	32	10 - 110
Terphenyl-d14	96	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ________

Reviewed ________

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QUALITY ASSURANCE / QUALITY CONTROL

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: **01/02/97**
Lab ID: IBW97002
Matrix: Water

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: 01/02/97
Lab ID: IBW97002
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: **01/02/97**
Lab ID: IBW97002
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	103	76 - 114
Bromofluorobenzene	92	86 - 115
Toluene-d8	92	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D.

Reviewed CEB

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE DUPLICATE SUMMARY

Date Analyzed: **01/02/97**
Lab ID: LCW96002
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	0.05	0	0.061	122	70 - 130
1,2-Dibromoethane (EDB)	0.05	0	0.062	124	70 - 130
1,2-Dichloroethane	0.05	0	0.057	114	70 - 130
1,2-Dichloropropane	0.05	0	0.06	120	70 - 130
1,4-Dichlorobenzene	0.05	0	0.061	122	70 - 130
Benzene	0.05	0	0.056	112	70 - 130
Bromoform	0.05	0	0.059	118	70 - 130
Carbon Tetrachloride	0.05	0	0.056	112	70 - 130
cis-1,3-Dichloropropene	0.05	0	0.061	122	70 - 130
Tetrachloroethene (PCE)	0.05	0	0.055	110	70 - 130
Trichloroethene (TCE)	0.05	0	0.052	104	70 - 130
Vinyl Chloride	0.05	0	0.041	82	70 - 130

Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	LCSD Result (mg/L)	LCSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,4-Dichlorobenzene	0.05	.059	118	3	12	70 - 130
1,1,2-Trichloroethane	0.05	.065	130	6	12	70 - 130
1,2-Dibromoethane (EDB)	0.05	0.06	120	3	12	70 - 130
1,2-Dichloroethane	0.05	.059	118	3	13	70 - 130
1,2-Dichloropropane	0.05	.062	124	3	12	70 - 130
Benzene	0.05	.059	118	5	14	70 - 130
Bromoform	0.05	.058	116	2	12	70 - 130
Carbon Tetrachloride	0.05	.058	116	4	11	70 - 130
cis-1,3-Dichloropropene	0.05	.063	126	3	12	70 - 130
Tetrachloroethene (PCE)	0.05	.055	110	0	12	70 - 130
Trichloroethene (TCE)	0.05	.054	108	4	13	70 - 130
Vinyl Chloride	0.05	.041	82	0	14	70 - 130

Spike Recovery: 0 out of 24 outside QC limits.
RPD: 0 out of 12 outside QC limits.

Analyst E.D.

Reviewed [signature]

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: 01/21/97
Lab ID: MBW96365
Matrix: Water
Date Extracted: 12/31/96

Parameter	Result	PQL	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	20	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	10	ug/L
3-Methylphenol/4-Methylphenol	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Continued

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: 01/21/97
Lab ID: MBW96365
Matrix: Water
Date Extracted: 12/31/96

Parameter	Result	PQL	Units
Continued			
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	10	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	10	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

Continued

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: 01/21/97
Lab ID: MBW96365
Matrix: Water
Date Extracted: 12/31/96

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	67	10 - 123
2-Fluorobiphenyl	54	43 - 116
2-Fluorophenol	59	21 - 110
Nitrobenzene-d5	62	35 - 114
Phenol-d6	51	10 - 110
Terphenyl-d14	99	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst ______

Reviewed ______

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8270
MATRIX SPIKE

Date Analyzed: **01/21/97**
Lab ID: 0596H11424 SK1
Matrix: Water
Date Extracted: 12/31/96

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	57	57	39 - 98
1,4-Dichlorobenzene	100	0	57	57	36 - 97
2,4-Dinitrotoluene	100	0	97	97 *	24 - 96
2-Chlorophenol	200	0	144	72	27 -123
4-Chloro-3-methylphenol	200	0	152	76	23 - 97
4-Nitrophenol	200	0	70	35	10 - 80
Acenaphthene	100	0	71	71	46 -118
N-Nitrosodi-n-propylamine	100	0	115	115	41 -116
Pentachlorophenol	200	0	49	25	9 -103
Phenol	200	0	99	50	12 - 89
Pyrene	100	0	109	109	26 -127

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	66	10 -123
2-Fluorobiphenyl	66	43 -116
2-Fluorophenol	61	21 -110
Nitrobenzene-d5	72	35 -114
Phenol-d6	52	10 -110
Terphenyl-d14	100	33 -141

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 1 out of 11 outside QC limits.

Analyst ________

Reviewed ________

Inter·Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8270
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: **01/21/97**
Lab ID: BSW96365
Matrix: Water
Date Extracted: 12/31/96

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	BS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	34	34 *	39 - 98
1,4-Dichlorobenzene	100	0	33	33 *	36 - 97
2,4-Dinitrotoluene	100	0	97	97 *	24 - 96
2-Chlorophenol	200	0	146	73	27 -123
4-Chloro-3-methylphenol	200	0	162	81	23 - 97
4-Nitrophenol	200	0	83	42	10 - 80
Acenaphthene	100	0	54	54	46 -118
N-Nitrosodi-n-propylamine	100	0	99	99	41 -116
Pentachlorophenol	200	0	156	78	9 -103
Phenol	200	0	100	50	12 - 89
Pyrene	100	0	104	104	26 -127

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,2,4-Trichlorobenzene	100	41	41	19	28	39 - 98
1,4-Dichlorobenzene	100	42	42	24	28	36 - 97
2,4-Dinitrotoluene	100	84	84	14	38	24 - 96
2-Chlorophenol	200	138	69	6	40	27 -123
4-Chloro-3-methylphenol	200	151	76	7	42	23 - 97
4-Nitrophenol	200	79	40	5	50	10 - 80
Acenaphthene	100	56	56	4	31	46 -118
N-Nitrosodi-n-propylamine	100	100	100	1	38	41 -116
Pentachlorophenol	200	143	72	9	50	9 -103
Phenol	200	96	48	4	42	12 - 89
Pyrene	100	97	97	7	31	26 -127

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 3 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst ______

Reviewed CCB

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT - BLMFLD

Project Location:

Sampler: (Signature) [signature]

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601, 602	610	BTEX		Remarks
RIVER-U	12/24	1130		H_2O	2	X				
RIVER-B	12/24	1135			3	X	X			
RIVER-D	12/24	1140			3	X	X			
NOWP-E	12/24	1157			2			X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12/24/96	1:15PM	[signature]	12/24/96	1316
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

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☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43924

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - U		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970036	0396G02819	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970036	0396G02819	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - U		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970036	0396G02819	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	94	76 - 114
Bromofluorobenzene	98	86 - 115
Toluene-d8	105	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed CRB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	GIANT REFINING COMPANY		Date Reported:	01/22/97
Sample ID:	River - U		Date Sampled:	12/31/96
Project ID:	Bloomfield, NM		Date Received:	01/03/97
Lab ID:	B970036	0396G02819	Date Extracted:	01/07/97
Matrix:	Water		Date Analyzed:	01/11/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	58	10 - 123
2-Fluorobiphenyl	58	43 - 116
2-Fluorophenol	33	21 - 110
Nitrobenzene-d5	68	35 - 114
Phenol-d6	33	10 - 110
Terphenyl-d14	100	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ______

Reviewed CAB

Inter·Mountain Laboratories, Inc.

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - B
Project ID: Bloomfield, NM
Lab ID: B970037 0396G02820
Matrix: Water

Date Reported: 01/07/97
Date Sampled: 12/31/96
Date Received: 01/03/97
Date Extracted: 01/06/97
Date Analyzed: 01/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970037	0396G02820	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - B		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970037	0396G02820	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	97	76 - 114
Bromofluorobenzene	95	86 - 115
Toluene-d8	104	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst PRD

Reviewed CCB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	**GIANT REFINING COMPANY**		Date Reported:	01/20/97
Sample ID:	River - B		Date Sampled:	12/31/96
Project ID:	Bloomfield, NM		Date Received:	01/03/97
Lab ID:	B970037	0396G02820	Date Extracted:	01/07/97
Matrix:	Water		Date Analyzed:	01/17/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	61	10 - 123
2-Fluorobiphenyl	75	43 - 116
2-Fluorophenol	57	21 - 110
Nitrobenzene-d5	84	35 - 114
Phenol-d6	55	10 - 110
Terphenyl-d14	122	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ______

Reviewed CVB ______

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970038	0396G02821	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**				
Sample ID:	River - D			Date Reported:	01/07/97
Project ID:	Bloomfield, NM			Date Sampled:	12/31/96
Lab ID:	B970038	0396G02821		Date Received:	01/03/97
Matrix:	Water			Date Extracted:	01/06/97
				Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - D		Date Reported:	01/07/97
Project ID:	Bloomfield, NM		Date Sampled:	12/31/96
Lab ID:	B970038	0396G02821	Date Received:	01/03/97
Matrix:	Water		Date Extracted:	01/06/97
			Date Analyzed:	01/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	95	76 - 114
Bromofluorobenzene	95	86 - 115
Toluene-d8	105	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed CEB

Inter-Mountain Laboratories, Inc.

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EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	GIANT REFINING COMPANY		Date Reported:	01/20/97
Sample ID:	River - D		Date Sampled:	12/31/96
Project ID:	Bloomfield, NM		Date Received:	01/03/97
Lab ID:	B970038	0396G02821	Date Extracted:	01/07/97
Matrix:	Water		Date Analyzed:	01/17/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	59	10 - 123
2-Fluorobiphenyl	68	43 - 116
2-Fluorophenol	58	21 - 110
Nitrobenzene-d5	83	35 - 114
Phenol-d6	51	10 - 110
Terphenyl-d14	115	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ______

Reviewed ______

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY		
Sample ID:	Trip Blank	Date Reported:	01/07/97
Project ID:	Bloomfield, NM	Date Sampled:	12/31/96
Lab ID:	B970039	Date Received:	01/03/97
Matrix:	Water	Date Extracted:	01/06/97
		Date Analyzed:	01/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	Trip Blank	Date Reported:	01/07/97
Project ID:	Bloomfield, NM	Date Sampled:	12/31/96
Lab ID:	B970039	Date Received:	01/03/97
Matrix:	Water	Date Extracted:	01/06/97
		Date Analyzed:	01/06/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	Trip Blank	Date Reported:	01/07/97
Project ID:	Bloomfield, NM	Date Sampled:	12/31/96
Lab ID:	B970039	Date Received:	01/03/97
Matrix:	Water	Date Extracted:	01/06/97
		Date Analyzed:	01/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	94	76 - 114
Bromofluorobenzene	96	86 - 115
Toluene-d8	103	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed CEB

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QUALITY ASSURANCE / QUALITY CONTROL

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LAB QA/QC
EPA METHOD 8240
METHOD BLANK

Date Analyzed: **01/06/97**
Lab ID: MBW97006
Matrix: Water
Date Extracted: 01/06/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
2-Butanone (MEK)	ND	20	ug/L
2-Hexanone	ND	5.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Disulfide	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
o-Xylene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8240
METHOD BLANK

Date Analyzed: **01/06/97**
Lab ID: MBW97006
Matrix: Water
Date Extracted: 01/06/97

Parameter	Result	PQL	Units
Continued			
Vinyl Chloride	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	94	76 - 114
Bromofluorobenzene	99	86 - 115
Toluene-d8	104	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst RRD

Reviewed CCB

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LAB QA/QC
EPA METHOD 8240
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **01/06/97**
Lab ID: 0596H11431
Matrix: Water
Date Extracted: 01/06/97

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	5.0	0	4.3	86	75 - 145
Benzene	5.0	2.8	7.4	92	71 - 120
Chlorobenzene	5.0	0	4.6	92	76 - 127
Toluene	5.0	8.3	13	94	71 - 127
Trichloroethene (TCE)	5.0	0	4.7	94	75 - 130

Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	MSD Result (mg/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	5.0	4.1	82	5	14	75 - 145
Benzene	5.0	7.3	90	1	14	71 - 120
Chlorobenzene	5.0	4.6	92	0	11	76 - 127
Toluene	5.0	13	94	0	13	71 - 127
Trichloroethene (TCE)	5.0	4.5	90	4	13	75 - 130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst RRD

Reviewed CCB

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LAB QA/QC
EPA METHOD 8240
LAB CONTROL SAMPLE DUPLICATE SUMMARY

Date Analyzed: **01/06/97**
Lab ID: LCW97006
Matrix: Water
Date Extracted 01/06/97

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	0.02	0	0.02	100	70 - 130
1,2-Dibromoethane (EDB)	0.02	0	0.018	90	70 - 130
1,2-Dichloroethane	0.02	0	0.018	90	70 - 130
1,2-Dichloropropane	0.02	0	0.02	100	70 - 130
1,4-Dichlorobenzene	0.02	0	0.022	110	70 - 130
Benzene	0.02	0	0.019	95	70 - 130
Bromoform	0.02	0	0.018	90	70 - 130
Carbon Tetrachloride	0.02	0	0.018	90	70 - 130
cis-1,3-Dichloropropene	0.02	0	0.019	95	70 - 130
Tetrachloroethene (PCE)	0.02	0	0.019	95	70 - 130
Trichloroethene (TCE)	0.02	0	0.019	95	70 - 130
Vinyl Chloride	0.02	0	0.013	65 *	70 - 130

Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	LCSD Result (mg/L)	LCSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,1,2-Trichloroethane	0.02	0.02	100	0	12	70 - 130
1,2-Dibromoethane (EDB)	0.02	.018	90	0	12	70 - 130
1,2-Dichloroethane	0.02	.019	95	5	13	70 - 130
1,2-Dichloropropane	0.02	0.02	100	0	12	70 - 130
1,4-Dichlorobenzene	0.02	.022	110	0	12	70 - 130
Benzene	0.02	0.02	100	5	14	70 - 130
Bromoform	0.02	.017	85	6	12	70 - 130
Carbon Tetrachloride	0.02	.019	95	5	11	70 - 130
cis-1,3-Dichloropropene	0.02	.019	95	0	12	70 - 130
Tetrachloroethene (PCE)	0.02	.019	95	0	12	70 - 130
Trichloroethene (TCE)	0.02	.019	95	0	13	70 - 130
Vinyl Chloride	0.02	.014	70	7	14	70 - 130

Spike Recovery: 1 out of 24 outside QC limits.
RPD: 0 out of 12 outside QC limits.

Analyst RPD

Reviewed CB

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **01/10/97**
Lab ID: MBW97007
Matrix: Water
Date Extracted: 01/07/97

Parameter	Result	PQL	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	10	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

Continued

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **01/10/97**
Lab ID: MBW97007
Matrix: Water
Date Extracted: 01/07/97

Parameter	Result	PQL	Units
Continued			
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	50	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	50	ug/L
Di-n-Octylphthalate	ND	50	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

Continued

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **01/10/97**
Lab ID: MBW97007
Matrix: Water
Date Extracted: 01/07/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	70	10 - 123
2-Fluorobiphenyl	56	43 - 116
2-Fluorophenol	44	21 - 110
Nitrobenzene-d5	66	35 - 114
Phenol-d6	37	10 - 110
Terphenyl-d14	92	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst ____________

Reviewed CZB ____________

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8270
MATRIX SPIKE

Date Analyzed: **01/17/96**
Lab ID: 0597H00036 SK1 0396G02819
Matrix:
Date Extracted: 01/07/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	65	65	39 - 98
1,4-Dichlorobenzene	100	0	62	62	36 - 97
2,4-Dinitrotoluene	100	0	81	81	24 - 96
2-Chlorophenol	200	0	137	69	27 -123
4-Chloro-3-methylphenol	200	0	155	78	23 - 97
4-Nitrophenol	200	0	102	51	10 - 80
Acenaphthene	100	0	77	77	46 -118
N-Nitrosodi-n-propylamine	100	0	97	97	41 -116
Pentachlorophenol	200	0	210	105 *	9 -103
Phenol	200	0	104	52	12 - 89
Pyrene	100	0	118	118	26 -127

QUALITY CONTROL - Surrogate Recovery	%		QC Limits
2,4,6-Tribromophenol	121		10 -123
2-Fluorobiphenyl	69		43 -116
2-Fluorophenol	57		21 -110
Nitrobenzene-d5	75		35 -114
Phenol-d6	56		10 -110
Terphenyl-d14	145	#	33 -141

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 1 out of 11 outside QC limits.

- Surrogate Recovery not within control limits.

Analyst ____

Reviewed CCB ____

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: 01/17/96
Lab ID: BSW97007
Matrix: Water
Date Extracted: 01/07/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	BS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	66	66	39 - 98
1,4-Dichlorobenzene	100	0	66	66	36 - 97
2,4-Dinitrotoluene	100	0	77	77	24 - 96
2-Chlorophenol	200	0	153	77	27 -123
4-Chloro-3-methylphenol	200	0	164	82	23 - 97
4-Nitrophenol	200	0	80	40	10 - 80
Acenaphthene	100	0	80	80	46 -118
N-Nitrosodi-n-propylamine	100	0	101	101	41 -116
Pentachlorophenol	200	0	165	83	9 -103
Phenol	200	0	111	56	12 - 89
Pyrene	100	0	119	119	26 -127

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %		QC Limits RPD	QC Limits Rec.
1,2,4-Trichlorobenzene	100	70	70	6		28	39 - 98
1,4-Dichlorobenzene	100	69	69	4		28	36 - 97
2,4-Dinitrotoluene	100	79	79	3		38	24 - 96
2-Chlorophenol	200	155	78	1		40	27 -123
4-Chloro-3-methylphenol	200	165	83	1		42	23 - 97
4-Nitrophenol	200	44	22	58	*	50	10 - 80
Acenaphthene	100	80	80	0		31	46 -118
N-Nitrosodi-n-propylamine	100	99	99	2		38	41 -116
Pentachlorophenol	200	95	48	54	*	50	9 -103
Phenol	200	103	52	7		42	12 - 89
Pyrene	100	119	119	0		31	26 -127

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 22 outside QC limits.
RPD: 2 out of 11 outside QC limits.

Analyst ________

Reviewed ________

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO- BLMFLD

Project Location:

Sampler: (Signature) Lyn Shelton

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601,602	610			Remarks
RIVER-U	12/31/96	1544		H_2O	3	X	X			
RIVER-B	12/31/96	1548		H_2O	3	X	X			
RIVER-D	12/31/96	1554		H_2O	3	X	X			cool & intact
TRIP BLANK										

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lyn Shelton	12/31/96	1655	Wanda Manley	12/31/96	1655
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

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- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43934

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: River - U
Project ID: Bloomfield, NM
Lab ID: B970180 0397G00048
Matrix: Water

Date Reported: 01/16/97
Date Sampled: 01/10/97
Date Received: 01/14/97
Date Extracted: NA
Date Analyzed: 01/16/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970180	0397G00048	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/16/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970180	0397G00048	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/16/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	87	81 - 126
Bromofluorobenzene	92	78 - 112
Toluene-d8	100	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client: **GIANT REFINING COMPANY**
Sample ID: River - U
Project ID: Bloomfield, NM
Lab ID: B970180 0397G00048
Matrix: Water

Date Reported: 01/30/97
Date Sampled: 01/10/97
Date Received: 01/14/97
Date Extracted: 01/16/97
Date Analyzed: 01/29/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	68	10 - 123
2-Fluorobiphenyl	66	43 - 116
2-Fluorophenol	76	21 - 110
Nitrobenzene-d5	77	35 - 114
Phenol-d6	73	10 - 110
Terphenyl-d14	55	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ________

Reviewed ________

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970181	0397G00049	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/15/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970181	0397G00049	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/15/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	River - D	Date Reported:	01/16/97
Project ID:	Bloomfield, NM	Date Sampled:	01/10/97
Lab ID:	B970181 0397G00049	Date Received:	01/14/97
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/15/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	101	81 - 126
Bromofluorobenzene	91	78 - 112
Toluene-d8	91	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E. D.

Reviewed CZB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	01/30/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970181	0397G00049	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	01/16/97
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	62	10 - 123
2-Fluorobiphenyl	68	43 - 116
2-Fluorophenol	65	21 - 110
Nitrobenzene-d5	79	35 - 114
Phenol-d6	70	10 - 110
Terphenyl-d14	55	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ________

Reviewed ________

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: River - B
Project ID: Bloomfield, NM
Lab ID: B970182 0397G00050
Matrix: Water

Date Reported: 01/16/97
Date Sampled: 01/10/97
Date Received: 01/14/97
Date Extracted: NA
Date Analyzed: 01/15/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - B
Project ID: Bloomfield, NM
Lab ID: B970182 0397G00050
Matrix: Water

Date Reported: 01/16/97
Date Sampled: 01/10/97
Date Received: 01/14/97
Date Extracted: NA
Date Analyzed: 01/15/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	River - B	Date Reported:	01/16/97
Project ID:	Bloomfield, NM	Date Sampled:	01/10/97
Lab ID:	B970182 0397G00050	Date Received:	01/14/97
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/15/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	101	81 - 126
Bromofluorobenzene	92	78 - 112
Toluene-d8	93	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CCB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
POLYNUCLEAR AROMATIC HYDROCARBONS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	01/30/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970182	0397G00050	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	01/16/97
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	65	10 - 123
2-Fluorobiphenyl	68	43 - 116
2-Fluorophenol	68	21 - 110
Nitrobenzene-d5	80	35 - 114
Phenol-d6	71	10 - 110
Terphenyl-d14	57	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, November 1990.

Analyst ________

Reviewed ________

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: 01/29/97
Lab ID: MBW97016
Matrix: Water
Date Extracted: 01/16/97

Parameter	Result	PQL	Units
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Chrysene	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L
Phenanthrene	ND	10	ug/L
Pyrene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	70	10 - 123
2-Fluorobiphenyl	66	43 - 116
2-Fluorophenol	72	21 - 110
Nitrobenzene-d5	75	35 - 114
Phenol-d6	70	10 - 110
Terphenyl-d14	54	33 - 141

Analyst ______ Reviewed ______

Inter-Mountain Laboratories, Inc.

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	Trip Blank		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970183	0397G00050	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/15/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	Trip Blank		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970183	0397G00050	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/15/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	Trip Blank		Date Reported:	01/16/97
Project ID:	Bloomfield, NM		Date Sampled:	01/10/97
Lab ID:	B970183	0397G00050	Date Received:	01/14/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/15/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	100	81 - 126
Bromofluorobenzene	94	78 - 112
Toluene-d8	92	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.P.

Reviewed [signature]

Inter-Mountain Laboratories, Inc.
1160 Research Drive
Bozeman, Montana 59718

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/15/97**
Lab ID: IBW97015A
Matrix: Water

Parameter	Result	PQL	Units
Naphthalene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: 01/15/97
Lab ID: IBW97015A
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/15/97**
Lab ID: IBW97015A
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	100	78 - 112
1,2-Dichloroethane-d4	85	81 - 126
Toluene-d8	120	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D

Reviewed CEB

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/16/97**
Lab ID: IBW96016A
Matrix: Water

Parameter	Result	PQL	Units
Naphthalene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/16/97**
Lab ID: IBW96016A
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/16/97**
Lab ID: IBW96016A
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	95	78 - 112
1,2-Dichloroethane-d4	87	81 - 126
Toluene-d8	95	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.O

Reviewed [illegible]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE

Date Analyzed: 01/15/97
Lab ID: 0597H00180 SK1 0397G00048
Matrix:

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	37	74 *	75 -145
Benzene	50	0	37	74	71 -120
Chlorobenzene	50	0	39	78	76 -127
Toluene	50	0	36	72	71 -127
Trichloroethene (TCE)	50	0	38	76	75 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	103	81 -126
Bromofluorobenzene	98	78 -112
Toluene-d8	94	83 -127

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 1 out of 5 outside QC limits.

Analyst E.D.

Reviewed [illegible]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **01/16/97**
Lab ID: 0597H00181
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	70	140	75 - 145
Benzene	50	0	57	114	71 - 120
Chlorobenzene	50	0	47	94	76 - 127
Toluene	50	0	58	116	71 - 127
Trichloroethene (TCE)	50	0	49	98	75 - 130

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %		QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	50	58	116	19	*	14	75 - 145
Benzene	50	49	98	15	*	14	71 - 120
Chlorobenzene	50	39	78	19	*	11	76 - 127
Toluene	50	45	90	25	*	13	71 - 127
Trichloroethene (TCE)	50	45	90	9		13	75 - 130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 4 out of 5 outside QC limits.

Analyst E.O.

Reviewed CZB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **01/15/97**
Lab ID: LCW97015
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	0.05	0	0.065	130	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.061	122	70 -130
1,2-Dichloroethane	0.05	0	0.056	112	70 -130
1,2-Dichloropropane	0.05	0	0.061	122	70 -130
1,4-Dichlorobenzene	0.05	0	0.068	136 *	70 -130
Benzene	0.05	0	0.064	128	70 -130
Bromoform	0.05	0	0.065	130	70 -130
Carbon Tetrachloride	0.05	0	0.06	120	70 -130
cis-1,3-Dichloropropene	0.05	0	0.068	136 *	70 -130
Tetrachloroethene (PCE)	0.05	0	0.064	128	70 -130
Trichloroethene (TCE)	0.05	0	0.058	116	70 -130
Vinyl Chloride	0.05	0	0.041	82	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	91	81 -126
Bromofluorobenzene	93	78 -112
Toluene-d8	93	83 -127

Spike Recovery: 2 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.D.

Reviewed [illegible]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **01/16/97**
Lab ID: LCW97016
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	0.05	0	0.05	100	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.053	106	70 -130
1,2-Dichloroethane	0.05	0	0.05	100	70 -130
1,2-Dichloropropane	0.05	0	0.053	106	70 -130
1,4-Dichlorobenzene	0.05	0	0.05	100	70 -130
Benzene	0.05	0	0.054	108	70 -130
Bromoform	0.05	0	0.051	102	70 -130
Carbon Tetrachloride	0.05	0	0.052	104	70 -130
cis-1,3-Dichloropropene	0.05	0	0.056	112	70 -130
Tetrachloroethene (PCE)	0.05	0	0.051	102	70 -130
Trichloroethene (TCE)	0.05	0	0.052	104	70 -130
Vinyl Chloride	0.05	0	0.05	100	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	99	81 -126
Bromofluorobenzene	94	78 -112
Toluene-d8	88	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.D. **Reviewed** [illegible]

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
MATRIX SPIKE

Date Analyzed: 01/29/97
Lab ID: 0597H00181 SK1 0397G00049
Matrix:
Date Extracted: 01/16/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	63	63	39 - 98
1,4-Dichlorobenzene	100	0	69	69	36 - 97
2,4-Dinitrotoluene	100	0	93	93	24 - 96
2-Chlorophenol	200	0	140	70	27 -123
4-Chloro-3-methylphenol	200	0	118	59	23 - 97
4-Nitrophenol	200	0	39	20	10 - 80
Acenaphthene	100	0	61	61	46 -118
N-Nitrosodi-n-propylamine	100	0	95	95	41 -116
Pentachlorophenol	200	0	107	54	9 -103
Phenol	200	0	117	59	12 - 89
Pyrene	100	0	63	63	26 -127

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	79	10 -123
2-Fluorobiphenyl	62	43 -116
2-Fluorophenol	76	21 -110
Nitrobenzene-d5	82	35 -114
Phenol-d6	62	10 -110
Terphenyl-d14	52	33 -141

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 11 outside QC limits.

Analyst ____________ Reviewed ____________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: 01/29/97
Lab ID: BSW97016
Matrix: Water
Date Extracted: 01/16/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	BS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	60	60	39 - 98
1,4-Dichlorobenzene	100	0	66	66	36 - 97
2,4-Dinitrotoluene	100	0	90	90	24 - 96
2-Chlorophenol	200	0	142	71	27 -123
4-Chloro-3-methylphenol	200	0	120	60	23 - 97
4-Nitrophenol	200	0	49	25	10 - 80
Acenaphthene	100	0	62	62	46 -118
N-Nitrosodi-n-propylamine	100	0	93	93	41 -116
Pentachlorophenol	200	0	126	63	9 -103
Phenol	200	0	118	59	12 - 89
Pyrene	100	0	61	61	26 -127

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,2,4-Trichlorobenzene	100	62	62	3	28	39 - 98
1,4-Dichlorobenzene	100	65	65	2	28	36 - 97
2,4-Dinitrotoluene	100	88	88	2	38	24 - 96
2-Chlorophenol	200	138	69	3	40	27 -123
4-Chloro-3-methylphenol	200	116	58	3	42	23 - 97
4-Nitrophenol	200	52	26	6	50	10 - 80
Acenaphthene	100	59	59	5	31	46 -118
N-Nitrosodi-n-propylamine	100	93	93	0	38	41 -116
Pentachlorophenol	200	123	62	2	50	9 -103
Phenol	200	116	58	2	42	12 - 89
Pyrene	100	58	58	5	31	26 -127

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst ______

Reviewed ______

Inter- Mountain Laboratories, Inc.

CHAIN OF COUSTODY RECORD

Client/Project Name: GIANT REFINING CO - BLOOMFIELD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.:

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601	602	610		Remarks
RIVER - U	1/10/97	1545		H_2O	3		X	X		
RIVER - B	1/10/97	1548		H_2O	5	X	X	X		
RIVER - D	1/10/97	1554		H_2O	3		X	X		
TRIP BLANK										
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	1/10/97	1700	Chris Raymer	1-10-97	1700
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43933

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY		
Sample ID:	River - U	Date Reported:	02/05/97
Project ID:	Bloomfield	Date Sampled:	01/15/97
Lab ID:	B970363 0397G00117	Date Received:	01/28/97
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970363	0397G00117	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970363	0397G00117	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	126	81 - 126
Bromofluorobenzene	111	78 - 112
Toluene-d8	101	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CRB

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970364	0397G00118	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970364	0397G00118	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970364	0397G00118	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	126	81 - 126
Bromofluorobenzene	111	78 - 112
Toluene-d8	107	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.O. **Reviewed** CEB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970367	0397G00121	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: River - B
Project ID: Bloomfield
Lab ID: B970367 0397G00121
Matrix: Water

Date Reported: 02/05/97
Date Sampled: 01/15/97
Date Received: 01/28/97
Date Extracted: NA
Date Analyzed: 01/29/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970367	0397G00121	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	95	81 - 126
Bromofluorobenzene	97	78 - 112
Toluene-d8	98	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CRB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970363	0397G00117	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	01/29/97
			Date Analyzed:	02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	62	32 - 84
Terphenyl	68	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ________

Reviewed ________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY		
Sample ID:	River - D	Date Reported:	02/11/97
Project ID:	Bloomfield	Date Sampled:	01/15/97
Lab ID:	B970364 0397G00118	Date Received:	01/28/97
Matrix:	Water	Date Extracted:	01/29/97
		Date Analyzed:	02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	80	32 - 84
Terphenyl	74	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______

Reviewed ______

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/15/97
Lab ID:	B970367	0397G00121	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	01/29/97
			Date Analyzed:	02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	72	32 - 84
Terphenyl	76	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ________

Reviewed ________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	Trip Blank	Date Reported:	02/05/97
Project ID:	Bloomfield	Date Sampled:	01/15/97
Lab ID:	B970369	Date Received:	01/28/97
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: Trip Blank
Project ID: Bloomfield
Lab ID: B970369
Matrix: Water

Date Reported: 02/05/97
Date Sampled: 01/15/97
Date Received: 01/28/97
Date Extracted: NA
Date Analyzed: 01/29/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	Trip Blank	Date Reported:	02/05/97
Project ID:	Bloomfield	Date Sampled:	01/15/97
Lab ID:	B970369	Date Received:	01/28/97
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	125	81 - 126
Bromofluorobenzene	107	78 - 112
Toluene-d8	114	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CEB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY	Date Reported:	02/05/97
Sample ID:	River - U	Date Sampled:	01/24/97
Project ID:	Bloomfield	Date Received:	01/28/97
Lab ID:	B970365 0397G00119	Date Extracted:	NA
Matrix:	Water	Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970365	0397G00119	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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1160 Research Drive
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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970365	0397G00119	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	126	81 - 126
Bromofluorobenzene	109	78 - 112
Toluene-d8	105	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.P.

Reviewed CEB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: River - D
Project ID: Bloomfield
Lab ID: B970366 0397G00120
Matrix: Water

Date Reported: 02/05/97
Date Sampled: 01/24/97
Date Received: 01/28/97
Date Extracted: NA
Date Analyzed: 01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970366	0397G00120	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - D		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970366	0397G00120	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	86	81 - 126
Bromofluorobenzene	101	78 - 112
Toluene-d8	114	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D

Reviewed CEB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - B
Project ID: Bloomfield
Lab ID: B970368 0397G00122
Matrix: Water

Date Reported: 02/05/97
Date Sampled: 01/24/97
Date Received: 01/28/97
Date Extracted: NA
Date Analyzed: 01/29/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: GIANT REFINING COMPANY
Sample ID: River - B
Project ID: Bloomfield
Lab ID: B970368 0397G00122
Matrix: Water

Date Reported: 02/05/97
Date Sampled: 01/24/97
Date Received: 01/28/97
Date Extracted: NA
Date Analyzed: 01/29/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/05/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970368	0397G00122	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	01/29/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	98	81 - 126
Bromofluorobenzene	95	78 - 112
Toluene-d8	95	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed CZB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: 02/05/97
Lab ID: MBW97029
Matrix: Water
Date Extracted 01/29/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	78	32 - 84
Terphenyl	48	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst ~~~~

Reviewed CCB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: **02/05/97**
Lab ID: 0597H00363 SK1 0397G00117
Matrix: Water
Date Extracted: 01/29/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene	100	0	91	91	5 -124
Acenaphthylene	100	0	90	90	5 -139
Anthracene	100	0	100	100	5 -126
Benzo(a)anthracene	10	0	8.7	87	12 -135
Benzo(a)pyrene	10	0	7.8	78	5 -128
Benzo(b)fluoranthene	15	0	10	67	6 -150
Benzo(g,h,i)perylene	10	0	7.2	72	5 -116
Benzo(k)fluoranthene	15	0	10	67	5 -159
Chrysene	10	0	8.9	89	5 -199
Dibenz(a,h)anthracene	20	0	14	70	5 -110
Fluoranthene	10	0	9.1	91	14 -123
Fluorene	100	0	97	97	5 -142
Indeno(1,2,3-cd)pyrene	20	0	14	70	5 -116
Naphthalene	100	0	85	85	5 -122
Phenanthrene	100	0	99	99	5 -155
Pyrene	10	0	9.2	92	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	84	32 - 84
Terphenyl	72	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst ______

Reviewed ______

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: 02/05/97
Lab ID: BSW97029
Matrix: Water
Date Extracted: 01/29/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	BS Recovery %	QC Limits Rec.
Acenaphthene	100	0	92	92	33 - 124
Acenaphthylene	100	0	90	90	5 - 139
Anthracene	100	0	100	100	5 - 126
Benzo(a)anthracene	10	0	8.4	84	12 - 135
Benzo(a)pyrene	10	0	7.8	78	5 - 128
Benzo(b)fluoranthene	15	0	8.8	59	6 - 150
Benzo(g,h,i)perylene	10	0	7.4	74	5 - 116
Benzo(k)fluoranthene	15	0	8.8	59	5 - 159
Chrysene	10	0	9.1	91	5 - 199
Dibenz(a,h)anthracene	20	0	14	70	5 - 110
Fluoranthene	10	0	8.7	87	14 - 123
Fluorene	100	0	96	96	5 - 142
Indeno(1,2,3-cd)pyrene	20	0	14	70	5 - 116
Naphthalene	100	0	86	86	5 - 122
Phenanthrene	100	0	99	99	5 - 155
Pyrene	10	0	8.5	85	5 - 140

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Acenaphthene	100	90	90	2	50	33 - 124
Acenaphthylene	100	88	88	2	50	5 - 139
Anthracene	100	97	97	3	50	5 - 126
Benzo(a)anthracene	10	8.4	84	0	50	12 - 135
Benzo(a)pyrene	10	7.6	76	3	50	5 - 128
Benzo(b)fluoranthene	15	9.8	65	11	50	6 - 150
Benzo(g,h,i)perylene	10	7.1	71	4	50	5 - 116
Benzo(k)fluoranthene	15	9.8	65	11	50	5 - 159
Chrysene	10	9.6	96	5	50	5 - 199
Dibenz(a,h)anthracene	20	13	65	7	50	5 - 110
Fluoranthene	10	8.9	89	2	50	14 - 123
Fluorene	100	96	96	0	50	5 - 142
Indeno(1,2,3-cd)pyrene	20	13	65	7	50	5 - 116
Naphthalene	100	80	80	7	50	5 - 122
Phenanthrene	100	96	96	3	50	5 - 155

Analyst DS

Reviewed CCB

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: **02/05/97**
Lab ID: BSW97029
Matrix: Water
Date Extracted: 01/29/97

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Pyrene	10	8.8	88	3	50	5 -140

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 32 outside QC limits.
RPD: 0 out of 16 outside QC limits.

Analyst ZS

Reviewed CKB

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/29/97**
Lab ID: IBW97029
Matrix: Water

Parameter	Result	PQL	Units
Naphthalene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L

Continued

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: 01/29/97
Lab ID: IBW97029
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **01/29/97**
Lab ID: IBW97029
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	103	78 - 112
1,2-Dichloroethane-d4	95	81 - 126
Toluene-d8	100	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.O.

Reviewed CZB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **01/29/97**
Lab ID: LCW97029
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	0.05	0	0.054	108	70 -130
1,1,2-Trichloroethane	0.05	0	0.046	92	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.063	126	70 -130
1,2-Dichloroethane	0.05	0	0.061	122	70 -130
1,2-Dichloropropane	0.05	0	0.044	88	70 -130
Benzene	0.05	0	0.041	82	70 -130
Bromoform	0.05	0	0.059	118	70 -130
Carbon Tetrachloride	0.05	0	0.061	122	70 -130
cis-1,3-Dichloropropene	0.05	0	0.048	96	70 -130
Tetrachloroethene (PCE)	0.05	0	0.056	112	70 -130
Trichloroethene (TCE)	0.05	0	0.056	112	70 -130
Vinyl Chloride	0.05	0	0.047	94	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	114 #	78 -112
1,2-Dichloroethane-d4	123	81 -126
Toluene-d8	102	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recovery affected by Matrix Effect.

Analyst E.O.

Reviewed CZB

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970365	0397G00119	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	01/29/97
			Date Analyzed:	02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	82	32 - 84
Terphenyl	82	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______ **Reviewed** ______

Inter-Mountain Laboratories, Inc.

EPA METHOD 8100

POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

1160 Research Drive
Bozeman, Montana 59718

Client: **GIANT REFINING COMPANY**
Sample ID: River - B
Project ID: Bloomfield
Lab ID: B970368 0397G00122
Matrix: Water

Date Reported: 02/11/97
Date Sampled: 01/24/97
Date Received: 01/28/97
Date Extracted: 01/29/97
Date Analyzed: 02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	62	32 - 84
Terphenyl	70	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ________

Reviewed ________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/24/97
Lab ID:	B970366	0397G00120	Date Received:	01/28/97
Matrix:	Water		Date Extracted:	01/29/97
			Date Analyzed:	02/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	76	32 - 84
Terphenyl	82	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ________ Reviewed ________

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

12 March 1997

Mr. Shelton:

Enclosed please find the reports for the sample received by our laboratory for analysis on Febraury 26, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Company

Case Narrative

On February 26, 1997, fourteen water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. Analysis for Polynuclear Aromatic Hydrocarbons (610 PAH List), Aromatic Volatile Compounds (602 List), and Halogenated Volatiles (601 List), were performed on the samples as per the accompanying Chain of Custody form. All parameters were analyzed within the required holding times.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies.

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 anytime at your convenience.

Sincerely,

Sharon Williams

Sharon Williams/Organic Analyst

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River-U		Date Reported:	03/04/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971012	0397G00267	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/03/97
			Date Analyzed:	03/03/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	117	81 - 126
Bromofluorobenzene	94	78 - 112
Toluene-d8	93	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River-U		Date Reported:	03/06/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971012	0397G00267	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/04/97
			Date Analyzed:	03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	64	32 - 84
Terphenyl	68	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River-D		Date Reported:	03/04/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971013	0397G00268	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/03/97
			Date Analyzed:	03/03/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	110	81 - 126
Bromofluorobenzene	92	78 - 112
Toluene-d8	94	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River-D		Date Reported:	03/06/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971013	0397G00268	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/04/97
			Date Analyzed:	03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	72	32 - 84
Terphenyl	72	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ________ Reviewed ________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	GIANT REFINING COMPANY		Date Reported:	03/04/97
Sample ID:	River-B		Date Sampled:	02/26/97
Project ID:	Bloomfield, NM		Date Received:	02/28/97
Lab ID:	B971014	0397G00269	Date Extracted:	03/03/97
Matrix:	Water		Date Analyzed:	03/03/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	1.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L

Continued

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	GIANT REFINING COMPANY		Date Reported:	03/04/97
Sample ID:	River-B		Date Sampled:	02/26/97
Project ID:	Bloomfield, NM		Date Received:	02/28/97
Lab ID:	B971014	0397G00269	Date Extracted:	03/03/97
Matrix:	Water		Date Analyzed:	03/03/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	112	81 - 126
Bromofluorobenzene	91	78 - 112
Toluene-d8	91	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River-B		Date Reported:	03/04/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971014	0397G00269	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/03/97
			Date Analyzed:	03/03/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	112	81 - 126
Bromofluorobenzene	91	78 - 112
Toluene-d8	91	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed JC

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River-B		Date Reported:	03/06/97
Project ID:	Bloomfield, NM		Date Sampled:	02/26/97
Lab ID:	B971014	0397G00269	Date Received:	02/28/97
Matrix:	Water		Date Extracted:	03/04/97
			Date Analyzed:	03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	48	32 - 84
Terphenyl	70	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

1160 Research Drive
Bozeman, Montana 59718

QUALITY ASSURANCE / QUALITY CONTROL

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **03/03/97**
Lab ID: MBW97062
Matrix: Water
Date Extracted: 03/03/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
2-Chloro-1,3-butadiene (Chloroprene)	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L
Acetone	ND	5.0	ug/L
Acrolein	ND	5.0	ug/L
Acrylonitrile	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **03/03/97**
Lab ID: MBW97062
Matrix: Water
Date Extracted: 03/03/97

Parameter	Result	PQL	Units
Continued			
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Disulfide	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Iodomethane	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **03/03/97**
Lab ID: MBW97062
Matrix: Water
Date Extracted: 03/03/97

Parameter	Result	PQL	Units
Continued			
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	96	80 - 120
Bromofluorobenzene	100	86 - 115
Toluene-d8	97	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst RRD

Reviewed

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: **03/05/97**
Lab ID: MBW97063
Matrix: Water
Date Extracted 03/04/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	64	32 - 84
Terphenyl	46	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **03/03/97**
Lab ID: 0597H00867
Matrix: Water
Date Extracted: 03/03/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	52	104	75 -145
Benzene	50	0	56	112	71 -120
Chlorobenzene	50	0	60	120	76 -127
Toluene	50	0	53	106	71 -127
Trichloroethene (TCE)	50	0	52	104	75 -130

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %		QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	50	49	98	6		14	75 -145
Benzene	50	51	102	9		14	71 -120
Chlorobenzene	50	52	104	14	*	11	76 -127
Toluene	50	48	96	10		13	71 -127
Trichloroethene (TCE)	50	47	94	10		13	75 -130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 1 out of 5 outside QC limits.

Analyst RRD

Reviewed [signature]

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **03/03/97**
Lab ID: LCW97062
Matrix: Water
Date Extracted 03/03/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	LCS Result (ug/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	50	0	39	78	70 -130
1,1,2-Trichloroethane	50	0	41	82	70 -130
1,2-Dibromoethane (EDB)	50	0	41	82	70 -130
1,2-Dichloroethane	50	0	43	86	70 -130
1,2-Dichloropropane	50	0	42	84	70 -130
Benzene	50	0	44	88	70 -130
Bromoform	50	0	40	80	70 -130
Carbon Tetrachloride	50	0	41	82	70 -130
cis-1,3-Dichloropropene	50	0	43	86	70 -130
Tetrachloroethene (PCE)	50	0	40	80	70 -130
Trichloroethene (TCE)	50	0	43	86	70 -130
Vinyl Chloride	50	0	45	90	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	101	78 -112
1,2-Dichloroethane-d4	94	81 -126
Toluene-d8	99	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst RRD

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: **03/05/97**
Lab ID: 0597H01013 SK1 0397G00268
Matrix: Water
Date Extracted: 03/04/97

Parameter		Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene		100	0	77	77	5 -124
Acenaphthylene		100	0	76	76	5 -139
Anthracene		100	0	84	84	5 -126
Benzo(a)anthracene		10	0	9.0	90	12 -135
Benzo(a)pyrene		10	0	7.5	75	5 -128
Benzo(b)fluoranthene	C	15	0	11.5	77	6 -150
Benzo(g,h,i)perylene		10	0	6.8	68	5 -116
Benzo(k)fluoranthene	C	15	0	11.5	77	5 -159
Chrysene		10	0	9.2	92	5 -199
Dibenz(a,h)anthracene	CC	20	0	13.6	68	5 -110
Fluoranthene		10	0	10.3	103	14 -123
Fluorene		100	0	81	81	5 -142
Indeno(1,2,3-cd)pyrene	CC	20	0	13.6	68	5 -116
Naphthalene		100	0	74	74	5 -122
Phenanthrene		100	0	82	82	5 -155
Pyrene		10	0	10.2	102	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	74	32 - 84
Terphenyl	70	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst ________

Reviewed ________

iml Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO- BLMFLD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601	602	610		Remarks
RIVER-U	2/26/97	2:30		H_2O	4		X	X		
RIVER-B	"	2:35		"	6	X	X	X		
RIVER-D	"	2:42		"	4		X	X		
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	2/26/97	1649	Chris Raymer	2-26-97	1649
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43938

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

12 March 1997

Mr. Shelton:

Enclosed please find the reports for the sample received by our laboratory for analysis on Febraury 14, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Giant Refining Company

Case Narrative

On February 14, 1997, eleven water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. Analysis for Polynuclear Aromatic Hydrocarbons (610 PAH List), Aromatic Volatile Compounds (602 List), and Halogenated Volatiles (601 List), were performed on the samples as per the accompanying Chain of Custody form.

The sample labeled "River-D", was received broken. Lynn Shelton was notified on February 21, of the broken sample. We attempted to run Polynuclear Aromatic Hydrocarbons (610) on the remainder of another sample (labeled River-D) that was submitted. As indicated in the report, the PQL's are elevated due to the small amount of sample. We decided to submit the report, however, you will not be charged for the testing.

It is the policy of this laboratory to employ, whenever possible, preparatory and analytical methods which have been approved by regulatory agencies.

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 anytime at your convenience.

Sincerely,

Sharon Williams

Sharon Williams/Organic Analyst

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/28/97
Project ID:	Bloomfield, NM		Date Sampled:	02/07/97
Lab ID:	B970791	0397G00220	Date Received:	02/18/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/21/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	123	81 - 126
Bromofluorobenzene	104	78 - 112
Toluene-d8	98	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - U		Date Reported:	03/06/97
Project ID:	Bloomfield, NM		Date Sampled:	02/07/97
Lab ID:	B970791	0397G00220	Date Received:	02/18/97
Matrix:	Water		Date Extracted:	03/04/97
			Date Analyzed:	03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	66	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client: **GIANT REFINING COMPANY**
Sample ID: River - D
Project ID: Bloomfield, NM
Lab ID: B970792 0397G00221
Matrix: Water

Date Reported: 02/28/97
Date Sampled: 02/07/97
Date Received: 02/18/97
Date Extracted: NA
Date Analyzed: 02/21/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	126	81 - 126
Bromofluorobenzene	100	78 - 112
Toluene-d8	101	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client: **GIANT REFINING COMPANY**
Sample ID: River - D
Project ID: Bloomfield, NM
Lab ID: B970792 0397G00221
Matrix: Water

Date Reported: 03/06/97
Date Sampled: 02/07/97
Date Received: 02/18/97
Date Extracted: 03/04/97
Date Analyzed: 03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	28	ug/L
Acenaphthylene		ND	28	ug/L
Anthracene		ND	28	ug/L
Benzo(a)anthracene		ND	28	ug/L
Benzo(a)pyrene		ND	28	ug/L
Benzo(b)fluoranthene	C	ND	28	ug/L
Benzo(g,h,i)perylene		ND	28	ug/L
Benzo(k)fluoranthene	C	ND	28	ug/L
Chrysene		ND	28	ug/L
Dibenzo(a,h)anthracene	CC	ND	28	ug/L
Fluoranthene		ND	28	ug/L
Fluorene		ND	28	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	28	ug/L
Naphthalene		ND	28	ug/L
Phenanthrene		ND	28	ug/L
Pyrene		ND	28	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	60	32 - 84
Terphenyl	54	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst [signature]

Reviewed [signature]

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client: **GIANT REFINING COMPANY**
Sample ID: River - B
Project ID: Bloomfield, NM
Lab ID: B970793 0397G00222
Matrix: Water

Date Reported: 02/28/97
Date Sampled: 02/07/97
Date Received: 02/18/97
Date Extracted: NA
Date Analyzed: 02/21/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - B		Date Reported:	02/28/97
Project ID:	Bloomfield, NM		Date Sampled:	02/07/97
Lab ID:	B970793	0397G00222	Date Received:	02/18/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/21/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	120	81 - 126
Bromofluorobenzene	108	78 - 112
Toluene-d8	114	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/28/97
Project ID:	Bloomfield, NM		Date Sampled:	02/07/97
Lab ID:	B970793	0397G00222	Date Received:	02/18/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/21/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	120	81 - 126
Bromofluorobenzene	108	78 - 112
Toluene-d8	114	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - B		Date Reported:	03/06/97
Project ID:	Bloomfield, NM		Date Sampled:	02/07/97
Lab ID:	B970793	0397G00222	Date Received:	02/18/97
Matrix:	Water		Date Extracted:	03/04/97
			Date Analyzed:	03/05/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	70	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

1160 Research Drive
Bozeman, Montana 59718

QUALITY ASSURANCE / QUALITY CONTROL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: 03/05/97
Lab ID: MBW97063
Matrix: Water
Date Extracted 03/04/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	64	32 - 84
Terphenyl	46	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst ________

Reviewed ________

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/21/97**
Lab ID: IBW97052B
Matrix: Water

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/21/97**
Lab ID: IBW97052B
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	93	78 - 112
1,2-Dichloroethane-d4	82	81 - 126
Toluene-d8	116	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D.

Reviewed

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/21/97**
Lab ID: IBW97052A
Matrix: Water

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	82	78 - 112
1,2-Dichloroethane-d4	93	81 - 126
Toluene-d8	116	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D.

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE

Date Analyzed: **02/21/97**
Lab ID: 0597H00793 SK1 0397G00222
Matrix: Water

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	49	98	75 -145
Benzene	50	0	50	100	71 -120
Chlorobenzene	50	0	50	100	76 -127
Toluene	50	0	45	90	71 -127
Trichloroethene (TCE)	50	0	58	116	75 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	107	81 -126
Bromofluorobenzene	98	78 -112
Toluene-d8	86	83 -127

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 5 outside QC limits.

Analyst E.D.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **02/21/97**
Lab ID: LCW97052
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,1,2-Trichloroethane	0.05	0	0.039	78	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.038	76	70 -130
1,2-Dichloroethane	0.05	0	0.046	92	70 -130
1,2-Dichloropropane	0.05	0	0.042	84	70 -130
1,4-Dichlorobenzene	0.05	0	0.039	78	70 -130
Benzene	0.05	0	0.039	78	70 -130
Bromoform	0.05	0	0.036	72	70 -130
Carbon Tetrachloride	0.05	0	0.044	88	70 -130
cis-1,3-Dichloropropene	0.05	0	0.044	88	70 -130
Tetrachloroethene (PCE)	0.05	0	0.037	74	70 -130
Trichloroethene (TCE)	0.05	0	0.043	86	70 -130
Vinyl Chloride	0.05	0	0.039	78	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	112	81 -126
Bromofluorobenzene	103	78 -112
Toluene-d8	100	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.D.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: **03/05/97**
Lab ID: 0597H01013 SK1 0397G00268
Matrix: Water
Date Extracted: 03/04/97

Parameter		Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene		100	0	77	77	5 -124
Acenaphthylene		100	0	76	76	5 -139
Anthracene		100	0	84	84	5 -126
Benzo(a)anthracene		10	0	9.0	90	12 -135
Benzo(a)pyrene		10	0	7.5	75	5 -128
Benzo(b)fluoranthene	C	15	0	11.5	77	6 -150
Benzo(g,h,i)perylene		10	0	6.8	68	5 -116
Benzo(k)fluoranthene	C	15	0	11.5	77	5 -159
Chrysene		10	0	9.2	92	5 -199
Dibenz(a,h)anthracene	CC	20	0	13.6	68	5 -110
Fluoranthene		10	0	10.3	103	14 -123
Fluorene		100	0	81	81	5 -142
Indeno(1,2,3-cd)pyrene	CC	20	0	13.6	68	5 -116
Naphthalene		100	0	74	74	5 -122
Phenanthrene		100	0	82	82	5 -155
Pyrene		10	0	10.2	102	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	74	32 - 84
Terphenyl	70	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst TB

Reviewed

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO - BLOOMFIELD

Project Location:

Sampler: (Signature)

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601	602	610		Remarks
RIVER - U	2-7-97	10:02		H_2O	3		X	X		
RIVER - B	2-7-97	1007		H_2O	5	X	X	X		
RIVER - D	2-7-97	1014		H_2O	3		X	X		

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	2/11/97	1648		2/11/97	16:48
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945

☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43936

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

5 March 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on Febraury 19, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	03/03/97
Project ID:	Bloomfield, NM		Date Sampled:	02/15/97
Lab ID:	B970849		Date Received:	02/21/97
Matrix:	Water		Date Extracted:	02/28/97
			Date Analyzed:	02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	101	81 - 126
Bromofluorobenzene	93	78 - 112
Toluene-d8	93	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	**GIANT REFINING COMPANY**		
Sample ID:	River - U	Date Reported:	03/04/97
Project ID:	Bloomfield, NM	Date Sampled:	02/15/97
Lab ID:	B970849	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/22/97
		Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	56	32 - 84
Terphenyl	64	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client: **GIANT REFINING COMPANY**
Sample ID: River - D
Project ID: Bloomfield, NM
Lab ID: B970850
Matrix: Water

Date Reported: 03/03/97
Date Sampled: 02/15/97
Date Received: 02/21/97
Date Extracted: 02/28/97
Date Analyzed: 02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	105	81 - 126
Bromofluorobenzene	94	78 - 112
Toluene-d8	94	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed JC

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - D	Date Reported:	03/04/97
Project ID:	Bloomfield, NM	Date Sampled:	02/15/97
Lab ID:	B970850	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/22/97
		Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	72	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______

Reviewed ______

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - B	Date Reported:	03/03/97
Project ID:	Bloomfield, NM	Date Sampled:	02/15/97
Lab ID:	B970851	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/28/97
		Date Analyzed:	02/28/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	1.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L

Continued

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	03/03/97
Project ID:	Bloomfield, NM		Date Sampled:	02/15/97
Lab ID:	B970851		Date Received:	02/21/97
Matrix:	Water		Date Extracted:	02/28/97
			Date Analyzed:	02/28/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	107	81 - 126
Bromofluorobenzene	94	78 - 112
Toluene-d8	93	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	03/03/97
Project ID:	Bloomfield, NM		Date Sampled:	02/15/97
Lab ID:	B970851		Date Received:	02/21/97
Matrix:	Water		Date Extracted:	02/28/97
			Date Analyzed:	02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	107	81 - 126
Bromofluorobenzene	94	78 - 112
Toluene-d8	93	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

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Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - B	Date Reported:	03/04/97
Project ID:	Bloomfield, NM	Date Sampled:	02/15/97
Lab ID:	B970851	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/22/97
		Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	58	32 - 84
Terphenyl	68	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ **Reviewed** ____________

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client: GIANT REFINING COMPANY
Sample ID: River - B
Project ID: Bloomfield, NM
Lab ID: B970852
Matrix: Water

Date Reported: 03/03/97
Date Sampled: 02/19/97
Date Received: 02/21/97
Date Extracted: 02/28/97
Date Analyzed: 02/28/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	1.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
601 LIST

Client:	**GIANT REFINING COMPANY**
Sample ID:	River - B
Project ID:	Bloomfield, NM
Lab ID:	B970852
Matrix:	Water

Date Reported:	03/03/97
Date Sampled:	02/19/97
Date Received:	02/21/97
Date Extracted:	02/28/97
Date Analyzed:	02/28/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	108	81 - 126
Bromofluorobenzene	92	78 - 112
Toluene-d8	92	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY
Sample ID:	River - B
Project ID:	Bloomfield, NM
Lab ID:	B970852
Matrix:	Water

Date Reported:	03/03/97
Date Sampled:	02/19/97
Date Received:	02/21/97
Date Extracted:	02/28/97
Date Analyzed:	02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	108	81 - 126
Bromofluorobenzene	92	78 - 112
Toluene-d8	92	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed

Inter-Mountain Laboratories, Inc.

1160 Research Drive
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EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - B	Date Reported:	03/04/97
Project ID:	Bloomfield, NM	Date Sampled:	02/19/97
Lab ID:	B970852	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/24/97
		Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	72	32 - 84
Terphenyl	74	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______

Reviewed ______

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client: **GIANT REFINING COMPANY**
Sample ID: River - U
Project ID: Bloomfield, NM
Lab ID: B970853
Matrix: Water

Date Reported: 03/03/97
Date Sampled: 02/19/97
Date Received: 02/21/97
Date Extracted: 02/28/97
Date Analyzed: 02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	106	81 - 126
Bromofluorobenzene	91	78 - 112
Toluene-d8	94	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RPD

Reviewed JK

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	03/04/97
Project ID:	Bloomfield, NM		Date Sampled:	02/19/97
Lab ID:	B970853		Date Received:	02/21/97
Matrix:	Water		Date Extracted:	02/24/97
			Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	68	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________ Reviewed ____________

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Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS
602 LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - D	Date Reported:	03/03/97
Project ID:	Bloomfield, NM	Date Sampled:	02/19/97
Lab ID:	B970854	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/28/97
		Date Analyzed:	02/28/97

Parameter	Result	PQL	Units
1,2-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Toluene	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	111	81 - 126
Bromofluorobenzene	95	78 - 112
Toluene-d8	94	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst RRD

Reviewed

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Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
610 PAH LIST

Client:	GIANT REFINING COMPANY		
Sample ID:	River - D	Date Reported:	03/04/97
Project ID:	Bloomfield, NM	Date Sampled:	02/19/97
Lab ID:	B970854	Date Received:	02/21/97
Matrix:	Water	Date Extracted:	02/24/97
		Date Analyzed:	02/27/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	70	32 - 84
Terphenyl	74	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______ Reviewed ______

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Bozeman, Montana 59718

QUALITY ASSURANCE / QUALITY CONTROL

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **02/28/97**
Lab ID: MBW97059
Matrix: Water
Date Extracted: 02/28/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Butanone (MEK)	ND	5.0	ug/L
2-Chloro-1,3-butadiene (Chloroprene)	ND	5.0	ug/L
2-Chloroethylvinyl ether	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5.0	ug/L
Acetone	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L

Continued

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **02/28/97**
Lab ID: MBW97059
Matrix: Water
Date Extracted: 02/28/97

Parameter	Result	PQL	Units
Continued			
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Disulfide	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Iodomethane	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
trans-1,3-Dichloropropene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L

Continued

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1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
METHOD BLANK

Date Analyzed: **02/28/97**
Lab ID: MBW97059
Matrix: Water
Date Extracted: 02/28/97

Parameter	Result	PQL	Units
Continued			
Vinyl Chloride	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	93	80 - 120
Bromofluorobenzene	99	86 - 115
Toluene-d8	97	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst RRD

Reviewed

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LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: **02/27/97**
Lab ID: MBW97053
Matrix: Water
Date Extracted 02/22/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	48	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst ______

Reviewed ______

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: **02/27/97**
Lab ID: MBW97055
Matrix: Water
Date Extracted 02/24/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Dibenzo(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	64	32 - 84
Terphenyl	52	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst ______

Reviewed ______

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **02/28/97**
Lab ID: 0597H00849
Matrix: Water
Date Extracted: 02/28/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	50	100	75 - 145
Benzene	50	0	52	104	71 - 120
Chlorobenzene	50	0	53	106	76 - 127
Toluene	50	0	48	96	71 - 127
Trichloroethene (TCE)	50	0	48	96	75 - 130

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	50	56	112	11	14	75 - 145
Benzene	50	59	118	13	14	71 - 120
Chlorobenzene	50	64	128 *	19 *	11	76 - 127
Toluene	50	56	112	15 *	13	71 - 127
Trichloroethene (TCE)	50	56	112	15 *	13	75 - 130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 1 out of 10 outside QC limits.
RPD: 3 out of 5 outside QC limits.

Analyst RRD

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LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: 02/27/97
Lab ID: 0597H00851 SK1
Matrix: Water
Date Extracted: 02/22/97

Parameter		Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene		100	0	69	69	5 -124
Acenaphthylene		100	0	68	68	5 -139
Anthracene		100	0	78	78	5 -126
Benzo(a)anthracene		10	0	8.9	89	12 -135
Benzo(a)pyrene		10	0	7.7	77	5 -128
Benzo(b)fluoranthene	C	15	0	11	73	6 -150
Benzo(g,h,i)perylene		10	0	7.3	73	5 -116
Benzo(k)fluoranthene	C	15	0	11	73	5 -159
Chrysene		10	0	9.0	90	5 -199
Dibenz(a,h)anthracene	CC	20	0	14	70	5 -110
Fluoranthene		10	0	10	100	14 -123
Fluorene		100	0	75	75	5 -142
Indeno(1,2,3-cd)pyrene	CC	20	0	14	70	5 -116
Naphthalene		100	0	66	66	5 -122
Phenanthrene		100	0	76	76	5 -155
Pyrene		10	0	10	100	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	68	32 - 84
Terphenyl	68	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst ________

Reviewed ________

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LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: **02/27/97**
Lab ID: 0597H00852 SK1
Matrix: Water
Date Extracted: 02/24/97

Parameter		Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene		100	0	76	76	5 -124
Acenaphthylene		100	0	76	76	5 -139
Anthracene		100	0	88	88	5 -126
Benzo(a)anthracene		10	0	9.8	98	12 -135
Benzo(a)pyrene		10	0	8.3	83	5 -128
Benzo(b)fluoranthene	C	15	0	12	80	6 -150
Benzo(g,h,i)perylene		10	0	8.2	82	5 -116
Benzo(k)fluoranthene	C	15	0	12	80	5 -159
Chrysene		10	0	9.8	98	5 -199
Dibenz(a,h)anthracene	CC	20	0	16	80	5 -110
Fluoranthene		10	0	11	110	14 -123
Fluorene		100	0	84	84	5 -142
Indeno(1,2,3-cd)pyrene	CC	20	0	16	80	5 -116
Naphthalene		100	0	71	71	5 -122
Phenanthrene		100	0	88	88	5 -155
Pyrene		10	0	11	110	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	76	32 - 84
Terphenyl	76	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst ____________

Reviewed ____________

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **02/28/97**
Lab ID: LCW97059
Matrix: Water
Date Extracted 02/28/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	LCS Result (ug/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	50	0	34	68 *	70 -130
1,1,2-Trichloroethane	50	0	40	80	70 -130
1,2-Dibromoethane (EDB)	50	0	39	78	70 -130
1,2-Dichloroethane	50	0	40	80	70 -130
1,2-Dichloropropane	50	0	42	84	70 -130
Benzene	50	0	44	88	70 -130
Bromoform	50	0	41	82	70 -130
Carbon Tetrachloride	50	0	37	74	70 -130
cis-1,3-Dichloropropene	50	0	43	86	70 -130
Tetrachloroethene (PCE)	50	0	37	74	70 -130
Trichloroethene (TCE)	50	0	43	86	70 -130
Vinyl Chloride	50	0	45	90	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	101	78 -112
1,2-Dichloroethane-d4	89	81 -126
Toluene-d8	99	83 -127

Spike Recovery: 1 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst CRD

Reviewed [signature]

Inter- Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO - BLMFLD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601	602	610		Remarks
RIVER-U	2/15/97	1007		H_2O	3		X	X		
RIVER-B	"	1012		"	5	X	X	X		
RIVER-D	"	1018		"	3		X	X		
RIVER-U	2/19/97	245		H_2O	4		X	X		
RIVER-B	"	252		"	6	X	X	X		
RIVER-D	"	300		"	4		X	X		
										Cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	2-19-97	1625	Chris Raymer	2-19-97	1625
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43937

Inter·Mountain
Laboratories, Inc.

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

Lynn Shelton
Giant Refining Company
P.O. Box 159
Bloomfield, NM 87413

26 February 1997

Mr. Shelton:

Enclosed please find the reports for the samples received by our laboratory for analysis on January 28, 1997.

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

Sincerely,

Sharon Williams

Sharon Williams
Organic Analyst

Enclosures

xc: File

CASE NARRATIVE

Client: GIANT REFINING COMPANY
Project: Bloomfield   Received on: 01/30/97
Set ID: 0597H00413   # samples: 3

Suites: 610 PAH, 8100 HSL's, 8260 Standard

Samples were received for analysis at Inter-Mountain Laboratories (IML), Bozeman, Montana. Enclosed are the results of these analyses.

Laboratory samples B97-0413,B97-0414, and B97-0415 were all initially analyzed on 2/06/97. All samples were re-analyzed on 2/19/97 and 2/21/97 in an effort to bring surrogate recoveries within current IML control limits. The surrogate 1,2-Dichloroethane-d4 showed inconsistant recoveries for sample B97-00415. The sample was analyzed on three separate occassions with each analysis the surrogate varied, however the surrogate recovery was always out of the control limit. Therefore the surrogate was flagged out of control due to matrix effect.

All three analysis days had Laboratory Control Samples within IML control limits, however the RPD in the matrix spike/ matrix spike duplicate was above the set control limits for 1,1-Dichloroethene and Trichloroethene. The sample was re-analyzed with similar results. The results were flagged out of control due to matrix effects.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges. Quantitations have been calculated on an as received basis.

Ed Detzi

Ed Detzi
IML-Bozeman

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - U
Project ID: Bloomfield
Lab ID: B970413 0397G00130
Matrix: Water

Date Reported: 02/24/97
Date Sampled: 01/28/97
Date Received: 01/30/97
Date Extracted: NA
Date Analyzed: 02/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970413	0397G00130	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - U		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970413	0397G00130	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	125	81 - 126
Bromofluorobenzene	98	78 - 112
Toluene-d8	103	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)
Re-analyzed on 2/21/97 for surrogate recoveries.

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E. D

Reviewed [signature]

Inter-Mountain Laboratories, Inc.
1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - U		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970413	0397G00130	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	02/03/97
			Date Analyzed:	02/07/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	66	32 - 84
Terphenyl	68	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ______ **Reviewed** ______

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: River - D
Project ID: Bloomfield
Lab ID: B970414 0397G00131
Matrix: Water

Date Reported: 02/24/97
Date Sampled: 01/28/97
Date Received: 01/30/97
Date Extracted: NA
Date Analyzed: 02/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970414	0397G00131	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Parameter	Result	PQL	Units
Continued			
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

Inter-Mountain Laboratories, Inc.

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - D		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970414	0397G00131	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	112	81 - 126
Bromofluorobenzene	98	78 - 112
Toluene-d8	89	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)
Re-analyzed on 2/19/97 for surrogate recoveries.

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed [signature]

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EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - D		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970414	0397G00131	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	02/03/97
			Date Analyzed:	02/07/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	78	32 - 84
Terphenyl	72	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst TS

Reviewed

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970415	0397G00132	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970415	0397G00132	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Continued

Parameter	Result	PQL	Units
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
Naphthalene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**			
Sample ID:	River - B		Date Reported:	02/24/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970415	0397G00132	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	NA
			Date Analyzed:	02/06/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%		QC Limits
1,2-Dichloroethane-d4	73	##	81 - 126
Bromofluorobenzene	112		78 - 112
Toluene-d8	97		83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)
- Surrogate Recovery not within control limits due to matrix/dilution effect.
Re-analyzed on 2/21/97 for surrogate recoveries.

Reference: Method 8260, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

Analyst E.D.

Reviewed [signature]

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EPA METHOD 8100
POLYNUCLEAR AROMATIC HYDROCARBONS
HSL List

Client:	GIANT REFINING COMPANY			
Sample ID:	River - B		Date Reported:	02/11/97
Project ID:	Bloomfield		Date Sampled:	01/28/97
Lab ID:	B970415	0397G00132	Date Received:	01/30/97
Matrix:	Water		Date Extracted:	02/03/97
			Date Analyzed:	02/07/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	78	32 - 84
Terphenyl	72	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Reference: Method 8100, Polynuclear Aromatic Hydrocarbon (PAH). Determination of Organic Analytes by Gas Chromatographic Methods, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

Analyst ____________

Reviewed ____________

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QUALITY ASSURANCE / QUALITY CONTROL

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: **02/06/97**
Lab ID: IBW97037
Matrix: Water

Parameter	Result	PQL	Units
Naphthalene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/06/97**
Lab ID: IBW97037
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	102	78 - 112
1,2-Dichloroethane-d4	84	81 - 126
Toluene-d8	98	83 - 127

Continued

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: **02/06/97**
Lab ID: IBW97037
Matrix: Water

Parameter	Result	PQL	Units

Continued

ND - Not Detected at Practical Quantitation Level (PQL)
Re-analyzed on 2/21/97 for surrogate recoveries.

Analyst E.D.

Reviewed JC

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LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **02/06/97**
Lab ID: LCW97037
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	0.05	0	0.047	94	70 -130
1,1,2-Trichloroethane	0.05	0	0.039	78	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.045	90	70 -130
1,2-Dichloroethane	0.05	0	0.036	72	70 -130
1,2-Dichloropropane	0.05	0	0.037	74	70 -130
Benzene	0.05	0	0.041	82	70 -130
Bromoform	0.05	0	0.046	92	70 -130
Carbon Tetrachloride	0.05	0	0.039	78	70 -130
cis-1,3-Dichloropropene	0.05	0	0.042	84	70 -130
Tetrachloroethene (PCE)	0.05	0	0.046	92	70 -130
Trichloroethene (TCE)	0.05	0	0.041	82	70 -130
Vinyl Chloride	0.05	0	0.045	90	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	103	78 -112
1,2-Dichloroethane-d4	85	81 -126
Toluene-d8	100	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.O.

Reviewed JL

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: **02/19/97**
Lab ID: IBW97050
Matrix: Water

Parameter	Result	PQL	Units
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloro-1,2,2-trifluoroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichlorobenzene	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Disulfide	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
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Date Analyzed: 02/19/97
Lab ID: IBW97050
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	5.0	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/19/97**
Lab ID: IBW97050
Matrix: Water

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	115	81 - 126
Bromofluorobenzene	103	78 - 112
Toluene-d8	102	83 - 127

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.D.

Reviewed

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **02/19/97**
Lab ID: LCW97050A
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	0.05	0	0.046	92	70 -130
1,1,2-Trichloroethane	0.05	0	0.042	84	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.039	78	70 -130
1,2-Dichloroethane	0.05	0	0.05	100	70 -130
1,2-Dichloropropane	0.05	0	0.046	92	70 -130
Benzene	0.05	0	0.045	90	70 -130
Bromoform	0.05	0	0.035	70	70 -130
Carbon Tetrachloride	0.05	0	0.051	102	70 -130
cis-1,3-Dichloropropene	0.05	0	0.047	94	70 -130
Tetrachloroethene (PCE)	0.05	0	0.045	90	70 -130
Trichloroethene (TCE)	0.05	0	0.052	104	70 -130
Vinyl Chloride	0.05	0	0.041	82	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	106	78 -112
1,2-Dichloroethane-d4	107	81 -126
Toluene-d8	97	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.D.

Reviewed JL

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **02/19/97**
Lab ID: 0597H00414
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	50	0	40	80	75 - 145
Benzene	50	0	46	92	71 - 120
Chlorobenzene	50	0	45	90	76 - 127
Toluene	50	0	60	120	71 - 127
Trichloroethene (TCE)	50	0	50	100	75 - 130

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %		QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	50	48	96	18	*	14	75 - 145
Benzene	50	51	102	10		14	71 - 120
Chlorobenzene	50	50	100	11		11	76 - 127
Toluene	50	59	118	2		13	71 - 127
Trichloroethene (TCE)	50	58	116	15	*	13	75 - 130

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 2 out of 5 outside QC limits.

Analyst E. D.

Reviewed JL

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/21/97**
Lab ID: IBW97052
Matrix: Water

Parameter	Result	PQL	Units
Naphthalene	ND	5.0	ug/L
1,3-Dichlorobenzene	ND	5.0	ug/L
1,4-Dichlorobenzene	ND	5.0	ug/L
1,1,1,2-Tetrachloroethane	ND	5.0	ug/L
1,1,1-Trichloroethane	ND	5.0	ug/L
1,1,2,2-Tetrachloroethane	ND	5.0	ug/L
1,1,2-Trichloroethane	ND	5.0	ug/L
1,1-Dichloroethane	ND	5.0	ug/L
1,1-Dichloroethene	ND	5.0	ug/L
1,1-Dichloropropene	ND	5.0	ug/L
1,2,3-Trichlorobenzene	ND	5.0	ug/L
1,2,3-Trichloropropane	ND	5.0	ug/L
1,2,4-Trichlorobenzene	ND	5.0	ug/L
1,2,4-Trimethylbenzene	ND	5.0	ug/L
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.0	ug/L
1,2-Dibromoethane (EDB)	ND	5.0	ug/L
1,2-Dichloroethane	ND	5.0	ug/L
1,2-Dichloropropane	ND	5.0	ug/L
1,3,5-Trimethylbenzene	ND	5.0	ug/L
1,3-Dichloropropane	ND	5.0	ug/L
2,2-Dichloropropane	ND	5.0	ug/L
2-Chlorotoluene	ND	5.0	ug/L
4-Chlorotoluene	ND	5.0	ug/L
4-Isopropyltoluene	ND	5.0	ug/L
Benzene	ND	5.0	ug/L
Bromobenzene	ND	5.0	ug/L
Bromochloromethane	ND	5.0	ug/L
Bromodichloromethane	ND	5.0	ug/L
Bromoform	ND	5.0	ug/L
Bromomethane	ND	5.0	ug/L
Carbon Tetrachloride	ND	5.0	ug/L
Chlorobenzene	ND	5.0	ug/L
Chloroethane	ND	5.0	ug/L

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: 02/21/97
Lab ID: IBW97052
Matrix: Water

Parameter	Result	PQL	Units
Continued			
Chloroform	ND	5.0	ug/L
Chloromethane	ND	5.0	ug/L
cis-1,2-Dichloroethene	ND	5.0	ug/L
cis-1,3-Dichloropropene	ND	5.0	ug/L
Dibromochloromethane	ND	5.0	ug/L
Dibromomethane	ND	5.0	ug/L
Dichlorodifluoromethane	ND	5.0	ug/L
Ethylbenzene	ND	5.0	ug/L
Hexachlorobutadiene	ND	5.0	ug/L
Isopropylbenzene	ND	5.0	ug/L
m,p-Xylene	ND	5.0	ug/L
Methylene chloride	ND	20	ug/L
n-Butylbenzene	ND	5.0	ug/L
n-Propylbenzene	ND	5.0	ug/L
o-Xylene	ND	5.0	ug/L
sec-Butylbenzene	ND	5.0	ug/L
Styrene	ND	5.0	ug/L
tert-Butylbenzene	ND	5.0	ug/L
Tetrachloroethene (PCE)	ND	5.0	ug/L
Toluene	ND	5.0	ug/L
trans-1,2-Dichloroethene	ND	5.0	ug/L
Trichloroethene (TCE)	ND	5.0	ug/L
Trichlorofluoromethane	ND	5.0	ug/L
Vinyl Chloride	ND	5.0	ug/L
Xylenes (total)	ND	5.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	93	78 - 112
1,2-Dichloroethane-d4	82	81 - 126
Toluene-d8	116	83 - 127

Continued

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LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **02/21/97**
Lab ID: IBW97052
Matrix: Water

Parameter	Result	PQL	Units

Continued

ND - Not Detected at Practical Quantitation Level (PQL)
Re-analyzed on 2/21/97 for surrogate recoveries.

Analyst E.D.

Reviewed

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LAB QA/QC
EPA METHOD 8260
LAB CONTROL SAMPLE

Date Analyzed: **02/21/97**
Lab ID: LCW97052
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	LCS Result (mg/L)	LCS Recovery %	QC Limits Rec.
1,4-Dichlorobenzene	0.05	0	0.039	78	70 -130
1,1,2-Trichloroethane	0.05	0	0.039	78	70 -130
1,2-Dibromoethane (EDB)	0.05	0	0.038	76	70 -130
1,2-Dichloroethane	0.05	0	0.046	92	70 -130
1,2-Dichloropropane	0.05	0	0.042	84	70 -130
Benzene	0.05	0	0.039	78	70 -130
Bromoform	0.05	0	0.036	72	70 -130
Carbon Tetrachloride	0.05	0	0.044	88	70 -130
cis-1,3-Dichloropropene	0.05	0	0.044	88	70 -130
Tetrachloroethene (PCE)	0.05	0	0.037	74	70 -130
Trichloroethene (TCE)	0.05	0	0.043	86	70 -130
Vinyl Chloride	0.05	0	0.039	78	70 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	103	78 -112
1,2-Dichloroethane-d4	112	81 -126
Toluene-d8	100	83 -127

Spike Recovery: 0 out of 12 outside QC limits.
Surrogates: Surrogate Recoveries within QC Limits.

Analyst E.D.

Reviewed [signature]

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
METHOD BLANK

Date Analyzed: **02/07/97**
Lab ID: MBW97034
Matrix: Water
Date Extracted 02/03/97

Parameter		Result	PQL	Units
Acenaphthene		ND	2.0	ug/L
Acenaphthylene		ND	2.0	ug/L
Anthracene		ND	2.0	ug/L
Benzo(a)anthracene		ND	2.0	ug/L
Benzo(a)pyrene		ND	2.0	ug/L
Benzo(b)fluoranthene	C	ND	2.0	ug/L
Benzo(g,h,i)perylene		ND	2.0	ug/L
Benzo(k)fluoranthene	C	ND	2.0	ug/L
Chrysene		ND	2.0	ug/L
Dibenz(a,h)anthracene	CC	ND	2.0	ug/L
Fluoranthene		ND	2.0	ug/L
Fluorene		ND	2.0	ug/L
Indeno(1,2,3-cd)pyrene	CC	ND	2.0	ug/L
Naphthalene		ND	2.0	ug/L
Phenanthrene		ND	2.0	ug/L
Pyrene		ND	2.0	ug/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	76	32 - 84
Terphenyl	56	20 - 99

ND - Not Detected at Practical Quantitation Level (PQL)
C - Parameters coelute.
CC - Parameters coelute.

Analyst ~~TS~~

Reviewed

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
MATRIX SPIKE

Date Analyzed: **02/07/97**
Lab ID: 0597H00413 SK1 0397G00130
Matrix: Water
Date Extracted: 02/03/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Acenaphthene	100	0	75	75	5 -124
Acenaphthylene	100	0	73	73	5 -139
Anthracene	100	0	84	84	5 -126
Benzo(a)anthracene	10	0	9.0	90	12 -135
Benzo(a)pyrene	10	0	7.5	75	5 -128
Benzo(b)fluoranthene	15	0	11	73	6 -150
Benzo(g,h,i)perylene	10	0	7.3	73	5 -116
Benzo(k)fluoranthene	15	0	11	73	5 -159
Chrysene	10	0	8.9	89	5 -199
Dibenz(a,h)anthracene	20	0	15	75	5 -110
Fluoranthene	10	0	10	100	14 -123
Fluorene	100	0	80	80	5 -142
Indeno(1,2,3-cd)pyrene	20	0	15	75	5 -116
Naphthalene	100	0	70	70	5 -122
Phenanthrene	100	0	83	83	5 -155
Pyrene	10	0	11	110	5 -140

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2-Fluorobiphenyl	76	32 - 84
Terphenyl	74	20 - 99

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 16 outside QC limits.

C - Parameters coelute.
CC - Parameters coelute.

Analyst ED

Reviewed JC

Inter-Mountain Laboratories, Inc.

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LAB QA/QC
EPA METHOD 8100
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: **02/07/97**
Lab ID: BSW97034
Matrix: Water
Date Extracted: 02/03/97

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	BS Recovery %	QC Limits Rec.
Acenaphthene	100	0	73	73	33 -124
Acenaphthylene	100	0	72	72	5 -139
Anthracene	100	0	80	80	5 -126
Benzo(a)anthracene	10	0	8.5	85	12 -135
Benzo(a)pyrene	10	0	6.9	69	5 -128
Benzo(b)fluoranthene	15	0	10	67	6 -150
Benzo(g,h,i)perylene	10	0	6.8	68	5 -116
Benzo(k)fluoranthene	15	0	10	67	5 -159
Chrysene	10	0	8.8	88	5 -199
Dibenz(a,h)anthracene	20	0	13	65	5 -110
Fluoranthene	10	0	9.9	99	14 -123
Fluorene	100	0	78	78	5 -142
Indeno(1,2,3-cd)pyrene	20	0	13	65	5 -116
Naphthalene	100	0	68	68	5 -122
Phenanthrene	100	0	79	79	5 -155
Pyrene	10	0	10	100	5 -140

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Acenaphthene	100	68	68	7	50	33 -124
Acenaphthylene	100	68	68	6	50	5 -139
Anthracene	100	73	73	9	50	5 -126
Benzo(a)anthracene	10	8.3	83	2	50	12 -135
Benzo(a)pyrene	10	6.8	68	1	50	5 -128
Benzo(b)fluoranthene	15	9.8	65	2	50	6 -150
Benzo(g,h,i)perylene	10	6.6	66	3	50	5 -116
Benzo(k)fluoranthene	15	9.8	65	2	50	5 -159
Chrysene	10	8.4	84	5	50	5 -199
Dibenz(a,h)anthracene	20	13	65	0	50	5 -110
Fluoranthene	10	9.5	95	4	50	14 -123
Fluorene	100	72	72	8	50	5 -142
Indeno(1,2,3-cd)pyrene	20	13	65	0	50	5 -116
Naphthalene	100	65	65	5	50	5 -122
Phenanthrene	100	72	72	9	50	5 -155

Analyst ______ Reviewed ______

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8100
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: 02/07/97
Lab ID: BSW97034
Matrix: Water
Date Extracted: 02/03/97

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	BSD Result (ug/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Pyrene	10	9.5	95	5	50	5 - 140

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 32 outside QC limits.
RPD: 0 out of 16 outside QC limits.

Analyst _______________ Reviewed _______________

iml
Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: GIANT REFINING CO- BLOOMFIELD

Project Location:

Sampler: (Signature) Lynn Shelton

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	601	602	610	BTEX	Remarks
RIVER-U	1/28/97	1333		H_2O	3		X	X		
RIVER-D	1/28/97	1340		H_2O	3		X	X		
RIVER-B	1/28/97	1348		H_2O	5	X	X	X		
NOWP-E	1/28/97	1358		H_2O	2				X	
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Shelton	1/28/97	1650	Chris Raymond	1-28-97	1650
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

43635

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FEB - 5 1998
OIL CONSERVATION DIVISION

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

January 30, 1997

Mr. Warren Arthur (6EN-HX)
USEPA Region VI
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

Re: Monthly Progress Report
EPA ID No. NMD 089416416

Administrative Order on Consent
U.S. EPA Docket No. VI-303-H

Dear Mr. Arthur:

In accordance with VI.5.b. of the Order, Giant Refining Company - Bloomfield (GRC) submits this monthly progress report.

Interim Measures (IM) Progress

1. Interim Measures, including product recovery from onsite recovery wells, continues. The product recovery wells have been shut in and the pumps removed for maintenance. Additional groundwater measurements will be taken between now and March 1, 1998.

Corrective Measures Study (CMS)

1. GRC is still waiting for the submission of the groundwater model for this facility. An additional survey was performed to verify the locations of the monitor and injection wells. A pilot test will be performed on February 4, 1998 to calculate drawdown and area of influence as well as to quantify VOC emissions from a vacuum blower unit.

If you require additional information, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Roger Anderson, NMOCD
Benito Garcia, NMED

December Report

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 8:30 AM	Date 7-19-96

Originating Party	Other Parties
Pat Sanchez - OCD	Lynn Shelton - Giant Refining GW-001

Subject Analytical Results from May, 1996 - for MW #1 & MW #5 (Letter day 7/15/96 from Giant to OCD.)

Discussion (1.) OCD needs all sample analytical work to include a copy of the lab report to include QA/QC information.

(2.) The facility is permitted as GW-001 Not GRW-1; please correct.

Conclusions or Agreements Mr. Shelton will send the Lab results w/ No. (1.) above and correct No. (2) Above. When OCD reviews, ~~and~~ further information may be required.

Distribution File,

Signed [signature]

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

OIL CONSERVATION DIVISION
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July 15, 1996

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 S. Pacheco
Santa Fe, New Mexico 87505

GW-1 ; 7-19-96

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Environmental Bu.
Oil Conservation Division

RE: Discharge Plan ~~GW-1~~
Giant Refining Company
50 County Road 4990
Bloomfield, New Mexico

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the analytical results for the May, 1996 sampling event of monitoring wells MW-1 and MW-5 as required in the facility's discharge plan. The wells were sampled by personnel from Inter-Mountain Laboratories.

If you need additional information, please contact me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

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Environmental Bureau
Oil Conservation Division

GW

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - ~~GRW~~-1A

7/14/96

Well #MW-1

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	0.016
Barium	mg/l	0.02	1	0.01	ND	ND	0.25
Cadmium	mg/l	0.001	0.01	0.007	0.003	0.002	0.01
Chromium	mg/l	0.02	0.05	ND	ND	ND	0.018
Lead	mg/l	0.005	0.05	ND	ND	ND	0.086
Boron	mg/l	0.1	0.75	0.34	0.71	0.40	0.268
Iron	mg/l	0.03	1	0.2	0.19	1.00	46.268
Manganese	mg/l	0.02	0.2	0.17	9.22	7.20	0.943
Total Dissolved Solids	mg/l	10	1000	2390	4400	4850	3516
Chloride	mg/l	5	250	728	1300	1730	1070.5
Sulfate	mg/l	10	600	531	960	899	815.5
Phenols	mg/l	0.05	0.005	ND	ND	ND	0.055
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND
Nitrate, Nitrite as N	mg/l	0.05	10	7.6	15.00	3.00	5.725
Ammonia	mg/l	0.07		0.6	3.9	4.8	
Total Kjeldahl Nitrogen	mg/l	0.5		7.6	10	10	
Benzene	ug/l	0.5	10	ND	ND	ND	ND
Toluene	ug/l	0.5	750	0.3	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	0.4	ND	ND	ND
pH	s.u.	0.01		7.3	7.16	7.00	7.31
Elevation at T.O.P.	ft	0.01		5515.78	5515.78	5515.78	5515.78
Depth to Water	ft	0.01		10.7	17.65	15.64	16.19
Elevation at T.O.W.	ft	0.01		5505.08	5498.13	5500.14	5499.59

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Oil Conservation Division

GW-1

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - ~~GRW~~-1A

JLB 7/19/96

Well #MW-5

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	0.004
Barium	mg/l	0.02	1	0.03	ND	ND	ND
Cadmium	mg/l	0.001	0.01	ND	ND	ND	0.015
Chromium	mg/l	0.02	0.05	ND	ND	ND	ND
Lead	mg/l	0.005	0.05	0.72	ND	ND	0.015
Boron	mg/l	0.1	0.75	0.54	0.81	0.50	0.48
Iron	mg/l	0.03	1	0.72	0.08	ND	0.061
Manganese	mg/l	0.02	0.2	0.58	0.24	0.10	0.128
Total Dissolved Solids	mg/l	10	1000	6350	7500	7720	4746
Chloride	mg/l	5	250	2260	2600	3180	1402
Sulfate	mg/l	10	600	918	780	943	1299
Phenols	mg/l	0.05	0.005	ND	0.37	ND	0.008
Cyanide	mg/l	0.01	0.2	ND	ND	ND	0.013
Nitrate, Nitrite as N	mg/l	0.05	10	14.5	16.00	19.30	24
Ammonia	mg/l	0.07		0.6	ND	0.2	
Total Kjeldahl Nitrogen	mg/l	0.5		3.5	5	1.2	
Benzene	ug/l	0.5	10	ND	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND	ND
pH	s.u.	0.01		7	7.16	7.00	7.41
Elevation at T.O.P.	ft	0.01		5545.13	5545.13	5545.13	5545.13
Depth to Water	ft	0.01		4.5*	44.45	43.98	41.85
Elevation at T.O.W.	ft	0.01		5540.63*	5500.68	5501.28	5503.28

* Wrong depth. Will try to get correct depth to water from lab.

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Oil Conservation Division

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - GW-1A

Well #MW-1

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	0.016
Barium	mg/l	0.02	1	0.01	ND	ND	0.25
Cadmium	mg/l	0.001	0.01	0.007	0.003	0.002	0.01
Chromium	mg/l	0.02	0.05	ND	ND	ND	0.018
Lead	mg/l	0.005	0.05	ND	ND	ND	0.086
Boron	mg/l	0.1	0.75	0.34	0.71	0.40	0.268
Iron	mg/l	0.03	1	0.2	0.19	1.00	46.268
Manganese	mg/l	0.02	0.2	0.17	9.22	7.20	0.943
Total Dissolved Solids	mg/l	10	1000	2390	4400	4850	3516
Chloride	mg/l	5	250	728	1300	1730	1070.5
Sulfate	mg/l	10	600	531	960	899	815.5
Phenols	mg/l	0.05	0.005	ND	ND	ND	0.055
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND
Nitrate, Nitrite as N	mg/l	0.05	10	7.6	15.00	3.00	5.725
Ammonia	mg/l	0.07		0.6	3.9	4.8	
Total Kjeldahl Nitrogen	mg/l	0.5		7.6	10	10	
Benzene	ug/l	0.5	10	ND	ND	ND	ND
Toluene	ug/l	0.5	750	0.3	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	0.4	ND	ND	ND
pH	s.u.	0.01		7.3	7.16	7.00	7.31
Elevation at T.O.P.	ft	0.01		5515.78	5515.78	5515.78	5515.78
Depth to Water	ft	0.01		10.7	17.65	15.64	16.19
Elevation at T.O.W.	ft	0.01		5505.08	5498.13	5500.14	5499.59

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JUL 2 4 1996

Environmental Bureau
Oil Conservation Division

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - GW-1A

Well #MW-5

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	0.004
Barium	mg/l	0.02	1	0.03	ND	ND	ND
Cadmium	mg/l	0.001	0.01	ND	ND	ND	0.015
Chromium	mg/l	0.02	0.05	ND	ND	ND	ND
Lead	mg/l	0.005	0.05	0.72	ND	ND	0.015
Boron	mg/l	0.1	0.75	0.54	0.81	0.50	0.48
Iron	mg/l	0.03	1	0.72	0.08	ND	0.061
Manganese	mg/l	0.02	0.2	0.58	0.24	0.10	0.128
Total Dissolved Solids	mg/l	10	1000	6350	7500	7720	4746
Chloride	mg/l	5	250	2260	2600	3180	1402
Sulfate	mg/l	10	600	918	780	943	1299
Phenols	mg/l	0.05	0.005	ND	0.37	ND	0.008
Cyanide	mg/l	0.01	0.2	ND	ND	ND	0.013
Nitrate, Nitrite as N	mg/l	0.05	10	14.5	16.00	19.30	24
Ammonia	mg/l	0.07		0.6	ND	0.2	
Total Kjeldahl Nitrogen	mg/l	0.5		3.5	5	1.2	
Benzene	ug/l	0.5	10	ND	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND	ND
pH	s.u.	0.01		7	7.16	7.00	7.41
Elevation at T.O.P.	ft	0.01		5545.13	5545.13	5545.13	5545.13
Depth to Water	ft	0.01		4.5*	44.45	43.98	41.85
Elevation at T.O.W.	ft	0.01		5540.63*	5500.68	5501.28	5503.28

* Wrong depth. Will try to get correct depth to water from lab.

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JUL 2 4 1996

Environmental Bureau
Oil Conservation Division

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - RCRA PART B PERMIT

PARAMETER	UNIT	UP GRADIENT		DOWN GRADIENT		
		MW-21	RW-15	MW-20	MW-9	RW-18
Date of Sample		5/31/95	5/31/95	5/31/95	5/31/95	5/31/95

HYDROCARBON INDICATORS						
Benzene	mg/l	0.917	18.9	0.047	14.9	0.461
Ethylbenzene	mg/l	0.93	1.84	0.023	0.766	0.819
Toluene	mg/l	0.002	24.3	0.017	0.951	1.07
Xylenes (total)	mg/l	ND	19.05	0.32	4.125	5.89

pH	s.u.	6.8	6.9	7.1	6.8	6.6
pH	s.u.	7.0	7.1	7.0	6.9	6.9
pH	s.u.	7.0	7.1	7.1	6.9	6.9
pH	s.u.	7.0	7.1	7.1	6.9	6.9
Specific Conductance	us/cm	4510	4800	3220	2800	1145
Specific Conductance	us/cm	4380	4810	3240	2820	1110
Specific Conductance	us/cm	4380	4810	3240	2820	1110
Specific Conductance	us/cm	4380	4810	3240	2820	1110
Total Organic Carbon	mg/l	21.0	32.0	23.0	67.0	free product
Total Organic Halogen	mg/l	0.112	0.209	0.109	0.034	0.074

GROUNDWATER LEVELS						
Elevation - TOP	feet	5518.62	5533.44	5516.46	5519.77	5526.08
Depth to Water	feet	20.0	NM	17.8	21.1	NM
Elevation - GW	feet	5498.62	NM	5498.66	5498.67	NM
HC Thickness	feet	0	0	0		
Elevation - Liquid	feet					
Total Depth from TOP	feet	30.93	43.3	27.18	33.99	40.95

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MAY 14 1996
OIL CONSERVATION DIVISION

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

May 9, 1996

Roger Anderson
Environmental Bureau Chief
New Mexico OCD
2040 South Pacheco
Santa Fe, New Mexico 87505

Denny Foust
Deputy Oil & Gas Inspector
New Mexico OCD
1000 Rio Brazos Road
Aztec, New Mexico 87410

Re: **Monthly Water Effluent Report**

Dear Sirs:

Attached is the April, 1996 waste water effluent (GW-001) and injection well (GW-130) report for Giant Refining Company's Bloomfield Refinery. The injection well has operated very well since the sand fracture during the month of March. A permit modification has been applied for to raise the allowable surface injection pressure.

Analytical data from the 1st quarter sampling is included with this report. Giant expects to perform the 2nd quarter sampling in late May.

If you require additional information, please do not hesitate to contact me at (505) 632 8013.

Sincerely,

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes
Ron Weaver
Chad King

Note: original in GW-130.
RWB 5-17-96

GIANT REFINING COMPANY - BLOOMFIELD
P.O. BOX 159
BLOOMFIELD, NEW MEXICO 87413

MONTHLY INJECTION WELL REPORT
DISCHARGE PLAN GW-130 EXP. DATE 11/4/98
NE1/4 SE1/4 SECTION 27, T29N, R11W
NMPM, SAN JUAN COUNTY, NEW MEXICO

PERIOD 1996	AMOUNT OF WATER FROM RIVER (GALLONS)	AMOUNT TO SOLAR EVAP PONDS (GALLONS)	TOTALIZER AMOUNT INJECTED (GALLONS)	CALCULATED AMOUNT INJECTED (GALLONS)	DOWN-TIME (HRS)	INJECTION PRESSURE			ANNULAR PRESSURE			ON-LINE FLOW RATES		
						MAX (PSIA)	MIN (PSIA)	AVG (PSIA)	MAX (PSIA)	MIN (PSIA)	AVG (PSIA)	MAX (GPM)	MIN (GPM)	AVG (GPM)
JAN	10,943,000	5,296,800	2,784,200	2,349,216	528	961.4	866	886.11	21.5	-0.1	1.15	142.6	69	108.76
FEB	9,951,000	3,975,700	3,908,900	3,357,330	0	946.8	889.4	915.27	195.1	-0.2	106.94	132.5	110.2	116.77
MAR	9,755,000	2,970,900	4,329,400	4,980,917	192	1014	938.0	975.7	215.3	9.5	97.0	156.0	138.8	150.39
APR	10,960,000	3,546,200	4,464,100	5,301,850	8	1166	901.3	954.84	220	74.1	149.06	160.1	102.1	126.96
MAY														
JUN														
JUL														
AUG														
SEP														
OCT														
NOV														
DEC														

CERTIFICATION: Lynn Shelton

DATE: 5/9/96

GIANT
REFINING CO.

50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

December 24, 1996

Mr. Roger Anderson
Environmental Bureau Chief
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Exploratory Boring Logs Giant Refining Company - Bloomfield (GW-001)

Dear Mr. Anderson:

Please find enclosed a copy of the boring (lithologic) logs from the recent drilling on the bluff above the San Juan River at the Bloomfield Refinery facility.

These borings were made to a depth of just below the river level as an attempt to characterize the Nacimiento formation and to verify that there was not a hydraulic conduit present in the Nacimiento formation for migration of hydrocarbon to the river level.

Please note that Giant is planning on drilling two borings on the sand bar adjacent to the river when the weather and site conditions allow.

Giant continues recovery operations through the culvert near the river and no sheen is present on the river.

If you require additional information, please do not hesitate to call me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLs/tls

Enclosure

cc: w/enclosure Denny Foust, OCD Aztec

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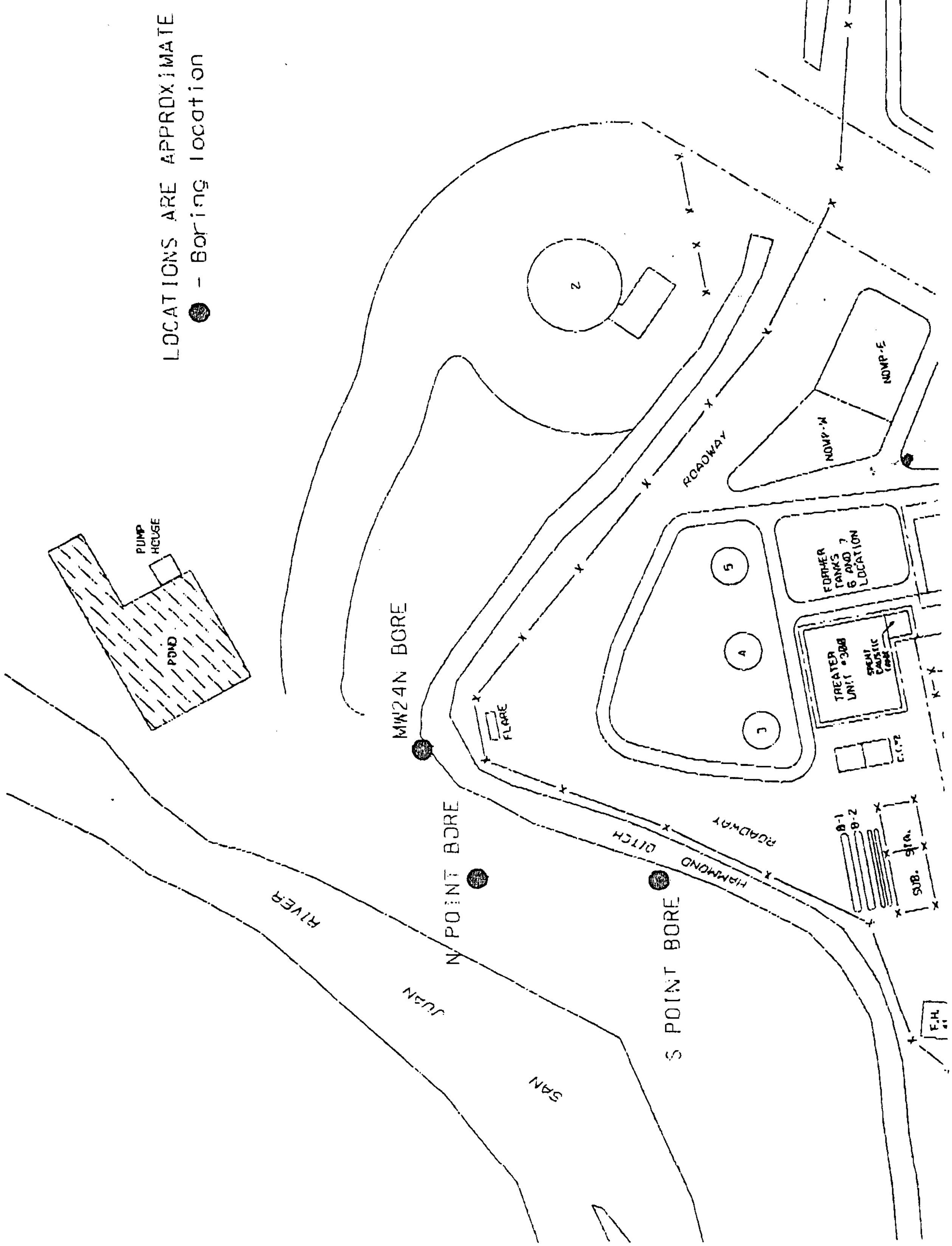
JAN - 3 1997

Environmental Bureau
Oil Conservation Division



PRECISION ENGINEERING, INC.

LOG OF TEST BORINGS

PROJECT: Bloomfield Refinery
Bluff Investigation

FILE #:	96-181
ELEVATION:	
TOTAL DEPTH:	85'
LOGGED BY:	Kingsley
DATE:	12/10/1996
STATIC WATER:	10.2'
BORING ID:	MW24N Bore
PAGE:	1

DEPTH	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE, CONDITION, COLOR, GRAINSIZE, ETC.)	PID (ppm)
0-10.2	000o000oo0		▼	Cobbles, gravelly, sandy, very dense, rounded and disked, composed of chrystalline	
	o00oo00oo		▼	intrusives and high density metamorphic rocks, dry to 10.2 feet where the soil	
	000o000o0			becomes water bearing. Generally light colored rocks and light brown fine grained	
	o000o000oo		▼	soils.	
10.2-12.5	000o000o0			As above but water bearing. Materials coated black and have hydrocarbon odor.	
12.5	o00oo00oo		▼	Odor is of older fetted hydrocarbon. Sheen on water, no free hydrocarbon observed.	
12.5-39.0	*********		▼	Sandstone, fine, poorly cemented, argillaceous, hand sample crumbles, grey blue,	
	*********		▼	wet but not water bearing, weak hydrocarbon odor, mod. dense, massive (no jointing)	
	*********		▼	Yellow brown color at 13.0', no hydrocarbon odor, slightly less moisture.	
	*********	20	▼	Blue grey at 15.0', no hydrocarbon odor. Sandstone dries white to light grey.	
	*********		▼	Sample recovery 100%. Cores are high quality. Core rate using carbide NWD4 bit	
	*********		▼	approx. 1'/min	
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼	Thin (<1cm) carbonaceous shale seams, appears coaly, random orientation but	
	*********		▼	typically near flat lying. No free water, samples moist.	
39.0	*********		▼		
39.0-42.0	---------	40	▼	Shale, damp to moist, no water at interface of sandstone above and shale, blue grey	
42.0	---------		▼	to steel grey, crumbles easily in hand samples but dense in situ. Core rate 3"/min	
42.0-85.0	*********		▼	No jointing observed in cores. Recovery 100%. Occasional sandstone stringer	
	*********		▼	6" or less in thickness (rare). Cores are high quality. Some carbonaceous zones.	
	*********		▼	Sandstone, fine, weakly cemented, argillaceous, sample crumbles with difficulty,	
	*********		▼	grey to light brown, some calcite filling along flat lying bedding planes, moist	
	*********		▼	dense, more cemented than sandstone above. Core rate 7"/min.	
	*********		▼	Some shale in very thin lenses >60'.	
	*********		▼		
	*********		▼		
	*********	60	▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********	80	▼		
	*********		▼		
85.0	*********		▼		
TD					

LOGGED BY: Kingsley

SIZE AND TYPE OF BORING: 8-5/8 od HSA to 12.5', NWD4 core to 85'

PROJECT: Bloomfield Refinery
Bluff Investigation

PRECISION ENGINEERING, INC.

LOG OF TEST BORINGS

FILE #: 96-181
ELEVATION:
TOTAL DEPTH: 80
LOGGED BY: Kingsley
DATE: 12/11-12/1996
STATIC WATER: 11.7
BORING ID: - N Point Bore
PAGE: 1

DEPTH	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE,CONDITION,COLOR,GRAINSIZE,ETC.)	PID (ppm)
0-11.7	000o000oo0		▼	Cobbles, gravelly, sandy, very dense, rounded and disked, composed of chrystalline	
	o00ou000oo			intrusives and high density metamorphic rocks, dry to 11.7 feet where the soil	
	000o000oo0			becomes water bearing. Generally light colored rocks and light brown fine grained	
	o00ou000oo		▼	soils.	
11.7-12.0	000o000oo0			As above but water bearing. Materials coated black and have hydrocarbon odor.	
12.0	o00ou000oo		▼	Odor is of older fetted hydrocarbon. No sheen observed, no free hydrocarbon.	
12.0-34.7	*********		▼	Sandstone, fine, poorly cemented, argillaceous, hand sample crumbles, grey blue,	
	*********			wet but not water bearing, weak hydrocarbon odor to 13.0, >13.0 no odor, mod. dense	
	*********			Yellow brown color at 13.0', no hydrocarbon odor, slightly less moisture.	
	*********	20	▼	Auger drill to 20.0'. Rotary drill using NWD4 core with carbide bit to TD.	
	*********		▼	21'-23' carbonaceous shale laminae in the sandstone <5mm. >25' sandstone is	
	*********		▼	yellow streaked (limonitic banding).	
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
34.7	*********		▼		
34.7-52.0	---------		▼	Shale, damp to moist, no water at interface of sandstone above and shale, blue grey	
	---------		▼	to steel grey, crumbles easily in hand samples but dense in situ. Core rate 2"/min	
	---------	40	▼	No jointing observed in cores. Recovery 100%. Cores are high quality.	
	---------		▼		
	---------		▼		
	---------		▼		
	---------		▼		
	---------		▼		
52.0	---------		▼		
52.0-80.0	*********		▼	Sandstone, fine, moderately cemented, argillaceous, sample difficult to crumble,	
	*********		▼	grey to light brown, some calcite filling along flat lying bedding planes, moist	
	*********		▼	dense, more cemented than sandstone above. Core rate 5"/min.	
	*********	60	▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼	mud volume virtually unchanged during the coring.	
	*********		▼	significantly more dense at 73'. Core rate 3"/min.	
	*********		▼		
	*********		▼		
	*********		▼		
80.0	*********	80	▼		
TD					

LOGGED BY: Kingsley

SIZE AND TYPE OF BORING: 8-5/8 od HSA to 20', NWD4 core to 80'

PROJECT: Bloomfield Refinery
Bluff Investigation

PRECISION ENGINEERING, INC.

LOG OF TEST BORINGS

FILE #: 96-181
ELEVATION:
TOTAL DEPTH: 85
LOGGED BY: Kingsley
DATE: 12/13/1996
STATIC WATER: 19.5
BORING ID: - 5 Point Bore
PAGE: 1

DEPTH	PLOT	SCALE	SAMPLE	MATERIAL CHARACTERISTICS (MOISTURE CONDITION, COLOR, GRAINSIZE, ETC.)	PID (ppm)
0-19.5	00o00000o0		▼	Cobbles, gravelly, sandy, very dense, rounded and disked, composed of chrystalline	
	o00o0000o0			intrusives and high density metamorphic rocks, dry to 19.5 feet where the soil	
	00o000o0o0			becomes water bearing. Generally light colored rocks and light brown fine grained	
	o00o0000o0		▼	soils.	
	00o000o0o0				
	o00o0000o0		▼		
	00o000o0o0		▼		
	o00o0000o0				
19.5-22.0	00o000o0o0			As above but water bearing. Materials coated black and have hydrocarbon odor.	
	o00o0000o0	20	▼	Odor is of older fetted hydrocarbon. Slight sheen observed, no free hydrocarbon.	
22.0	00o000o0o0		▼		
22.0-36.0	*********		▼	Sandstone, fine, poorly cemented, argillaceous, hand sample crumbles, grey blue.	
	*********		▼	wet but not water bearing, weak hydrocarbon odor to 22.6, >22.6 no odor, mod. dense	
	*********		▼		
	*********		▼	Auger drill to 25.0'. Rotary drill using NWD4 core with carbide bit to TD.	
	*********		▼		
	*********		▼	Some limonitic banding >30'.	
36.0	*********		▼		
36.0-50.5	---------		▼	Shale, damp to moist, no water at interface of sandstone above and shale, blue grey	
	---------	40	▼	to steel grey, crumbles easily in hand samples but dense in situ. Core rate 2"/min	
	---------		▼	No jointing observed in cores. Recovery 100%. Cores are high quality.	
	---------		▼		
	---------		▼		
	---------		▼		
50.5	---------		▼		
50.5-85.0	*********		▼	Sandstone, fine, moderately cemented, argillaceous, sample difficult to crumble,	
	*********		▼	grey to light brown, some calcite filling along flat lying bedding planes, moist	
	*********		▼	dense, more cemented than sandstone above. Core rate 4.5"/min.	
	*********		▼		
	*********	60	▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼		
	*********		▼	mud volume virtually unchanged during the coring.	
	*********		▼	more dense at 75'. Core rate 3.5"/min.	
	*********		▼		
	*********		▼		
	*********		▼		
	*********	80	▼		
	*********		▼		
85.0	*********		▼		
TD					

LOGGED BY: Kingsley

SIZE AND TYPE OF BORING: 8-5/8 od HSA to 25.0'. NWD4 core to 85'

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

MEMORANDUM OF MEETING
December 19, 1996

TO: Mr. Lynn Shelton, Environmental Manager
Giant Industries

FROM: Patricio W. Sanchez, Petroleum Engineering Specialist PWS
NMOCD

RE: Report of Release Meeting, December 19, 1996.

Dear Mr. Shelton:

The New Mexico Oil Conservation Division (OCD) and Giant met today to discuss what further action and reporting would be required by the OCD regarding the above referenced release. (see attached memo of conversation.)

1. Point (1.) and (2.) of the letter from OCD dated December 11, 1996, were discussed and it was agreed that point number (1.) due date would be changed to February 28, 1997.

2. Sample stations for the surface water would be established at three locations for dissolved phase. (A.) One up-gradient of the oil-boom area, (B.) One in the oil-boom area, and (C.) One down-gradient from the oil-boom area. (A.) and (C.) will be sampled using EPA method 602, 610, and station (B.) for EPA method 601/602, and 610. If Station (B.) shows an 601 constituents than (A.) and (C.) must also be sampled for 601 constituents. The sampling will be on a weekly basis until February 28, 1997.

3. Soil will be sampled at the soil/water interface for BETX (method 8020) and TPH (method 418.1) during the boring program.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☐ Telephone ☒ Personal	Time 10:00 AM	Date 12-19-96

RCA, WO, PWS Originating Party	Other Parties
OCD - see letter from OCD dated December 11, 1996.	Giant Refining - GW-001 Lynn Shelton, John Stokes.

Subject "Report of Release" 12/3/96 and letter from OCD dated 12/11/96

Discussion (A) Points (1) and (2.) of the letter (12/11/96)
- No. (1.) due date changed to February 28, 1997.

(B) Sample surface water station (1) - upgradient (2) - within the boom area (3) one - down gradient. (601/602, 610)
* - Weekly until report is submitted - Feb. 28, 1996.)
(C) Sample at soil/water interface (BETX - 8020 TPH - 418.1 on soil) during boring program.

* 601 only for boomed area - if present, other stations also.

Conclusions or Agreements

All parties present agree.

Distribution File, Giant, Denny Foust.

Signed [signature] Bill Olson
NMOCD
[signature] Lynn Shelton
[signature] John Stokes
GIANT REFINING - GW-001

NEW MEXICO ENERGY, MINERALS
& NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION
2040 South Pacheco Street
Santa Fe, New Mexico 87505
(505) 827-7131

December 11, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P-288-258-717

Mr. Lynn Shelton
Environmental Manager
Giant Industries
P.O. Box 159
Bloomfield, NM 87413

RE: "Report of Release" dated December 3, 1996
Giant Refining Company-Bloomfield(GRCB)
GW-001, "San Juan Refining Company"
San Juan County, NM

Dear Mr. Shelton:

The New Mexico Oil Conservation Division (OCD) has received the GRCB notification dated December 3, 1996 for the **GRCB, San Juan Refining Company GW-001** facility located in the **NW/4 NE/4 and the S/2 NE/4 and the N/2 NE/4 SE/4 of Section 27, and the S/2 NW/4 and the N/2 NW/4 SW/4 and the SE/4 NW/4 SW/4 and the NE/4 SW/4 of Section 26, Township 29 North, Range 11 West, NMPM, San Juan County, New Mexico.** The GRCB notification was in accordance with WQCC 1203 and OCD Rule 116. The notification outlined the corrective measures and reporting that Giant implemented to date (i.e. as of December 3, 1996).

Based upon review of the above mentioned notification from Giant the OCD will require the following:

(1.) Giant will prepare and submit a "Summary Report" to the OCD that will outline and discuss the findings and actions taken to date at the facility beginning with the initial discharge plan approval dated June 5, 1978 up to present. The report will also include a summary regarding the "Corrective Measures Study" as prepared for US EPA and its findings and recommendations to date.(This report is due for submittal to the OCD Santa Fe Division Office by January 31, 1997 - with a copy sent to the Aztec OCD Office.)

Mr. Lynn Shelton
Giant Refining
GW-001
December 11, 1996
page 2

(2.) Giant will meet with the OCD on Thursday December 19, 1996 at 10:00 AM to discuss the status of the remedial efforts thus far and future remedial action(s) to be taken to address the above listed notification and the groundwater remediation at the site.

In the mean time should Giant have any questions, or updates regarding this letter please feel free to call myself at (505)-827-7152 or Pat Sanchez of the OCD Santa Fe Office at (505)-827-7156.

Sincerely,

Roger C. Anderson

Roger C. Anderson
Bureau Chief
OCD - Environmental Bureau

RCA/pws

xc: Mr. Denny Foust - Aztec OCD District Office

P 288 258 717

US Postal Service
Receipt for Certified Mail
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Do not use for International Mail *(See reverse)*

Sent to GIANT - Shelton	
Street & Number GW-001,	
Post Office, State, & ZIP Code SUMMARY REPORT.	
Postage	$
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Restricted Delivery Fee	
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Return Receipt Showing to Whom, Date, & Addressee's Address	
TOTAL Postage & Fees	$
Postmark or Date	

PS Form **3800**, April 1995

GIANT
REFINING CO.
50 Road 4990
P.O. Box 159
Bloomfield, New Mexico 87413
505
632-8013

December 3, 1996

CERTIFIED MAIL
RETURN RECEIPT NO. P 478 605 036

Mr. Roger Anderson
Environmental Bureau Chief
New Mexico Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

Re: Report of Release Giant Refining Company - Bloomfield (GW-1)

Dear Mr. Anderson:

Giant Refining Company - Bloomfield, owner and operator of the Bloomfield Refinery, submits this written report as a follow-up to the verbal report made to the OCD district office in Aztec on November 26, 1996 at 1:47 PM.

A sheen of what appears to be hydrocarbons, was discovered on the San Juan River near our facility at approximately 9:20 AM on that day and immediate measures were taken to control the sheen. The weather was overcast, with snow flurries and a temperature of approximately 35 degrees F. A boom was placed around the sheen, absorbent pillows were placed within the boomed area and a shallow hole was dug on the bank for a culvert as an interceptor between the river and the hydrocarbon source. A diaphragm pump was used to recover water and hydrocarbon. These measures prevented any additional sheen from appearing within the boomed area. The south bank of the San Juan River was inspected to approximately 1000' west and approximately 1000' to the east of the site for visual evidence of an additional sheen or discoloration. There were none.

Mr. Denny Foust of the OCD District Office in Aztec visited the site at 2:08 PM. Your office was called while Mr. Foust was onsite to discuss the situation.

Bill Kingsley, of Precision Engineering, Inc., was flown in to assist in designing a system to create a barrier to prevent movement of hydrocarbons to the river.

On Wednesday, November 27, an excavation was made with a trackhoe to install a galvanized culvert, 4' in diameter, into the conductive formation for an additional hydrocarbon recovery point. An additional culvert is being installed today between the first culvert and the river, for an additional hydrocarbon recovery point. The boom and absorbent pillows are still in place.

The source of the hydrocarbon that created the sheen is not known and the volume of hydrocarbon that entered the river cannot be estimated.

Giant will be taking additional steps to determine the source of the hydrocarbon so that steps can be taken to mitigate the problem. The site has been monitored 24 hours a day since the discovery of the sheen.

If you need additional information, please do not hesitate to call me at (505) 632 8013.

Sincerely:

Lynn Shelton

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

cc: John Stokes, Refinery Manager
Denny Foust, OCD Aztec

RECEIVED

DEC 06 1996

Environmental Bureau
Oil Conservation Division

GROUNDWATER
TECHNOLOGY ®

Groundwater Technology, Inc.

2501 Yale Boulevard, SE, Suite 204, Albuquerque, NM 87106 USA
Tel: (505) 242-3113 Fax: (505) 242-1103

26 April 1995

Mr. Greg J. Lyssy
Project Coordinator
RCRA Technical Section - Enforcement Branch
U.S. Environmental Protection Agency
Region 6
1445 Ross Avenue, Suite 1200
Dallas, Texas 75202-2733

RE: Bloomfield Refining Company
#50 County Road 4990
Bloomfield, New Mexico
EPA ID# NM089416416
Administrative Order on Consent - Docket No. VI-303-H
Results of the Offsite Well Installations/Groundwater Sampling

Dear Mr. Lyssy:

This letter provides the results of the additional offsite groundwater monitoring well installations and groundwater sampling conducted to complete hydrocarbon delineation at the above-referenced facility. Groundwater Technology, Inc. (GTI) supervised the installation of three monitoring wells on 23 February 1995. Layne Environmental Services, Inc., the subcontracted driller, used a Drill Systems 180 air hammer percussion rig. Figure 1 indicates the well locations. Appendix A provides well logs.

WORK SCOPE

Well Installations

The purpose of the additional offsite investigation was to complete delineation of the hydrocarbon plumes to the southwest of the facility, to supplement work performed as part of the RCRA Facility Investigation (RFI). All three wells were installed on the Bureau of Land Management (BLM) right-of-way, and permits were obtained prior to drilling. Well MW-32 is located southeast of MW-26 and MW-27 (on the opposite side of the El Paso Natural Gas pipeline); MW-33 is located south-southwest of MW-27 and south-southeast of MW-11; and MW-34 is located southwest of MW-11.

The wells were installed to the top of the Nacimiento Formation, which appeared as a weathered to competent limestone at each location. The surficial sediments consist of poorly graded sands to sands with gravel and cobbles overlying the limestone.

Table 1 provides a summary of well construction specifications. Wells are four-inches in diameter, and are constructed of fiberglass-reinforced epoxy (FRE) materials with 0.02-inch slot screen. Sand filter pack was installed in the annular space to two feet above the top of well screen, followed by a two-feet thick bentonite seal and cement/bentonite grout to the surface.

TABLE 1
Well Construction Specifications

Well #	Date Installed	Diameter/ Material	Total Depth (below grade)	Screened Interval	Silt Leg Interval
MW-32	02/23/95	4" FRE	27.5 feet	11-25 feet	25-27 feet
MW-33	02/23/95	4" FRE	23 feet	7.9-21.9 feet	21.9-22.9 feet
MW-34	02/23/95	4" FRE	19 feet	2.5-16.5 feet	16.5-18.5 feet

Soil cuttings were screened using a photo-ionization detector (PID) during drilling and the readings were recorded on the well logs (Appendix A). Readings were within background range (0-3 ppm, relative to isobutylene gas calibration) at all each of the three well locations.

Wells were developed by purging following installation.

Groundwater Sampling

On 1 March 1995, all site wells, except MW-6 and MW-24, were gauged using an Interface Probe for depth to water and the presence of separate-phase hydrocarbons (SPH). Measurements are shown on Table 2: Liquid Level Gauging Chart. Liquid levels were used to construct a water table contour map (Figure 2) and SPH thicknesses were used to construct a SPH isopleth map (Figure 3). As shown on Figure 2, groundwater flows to the west of the site, toward Hammond Ditch.

Figure 3 shows that SPH thicknesses in most of the active recovery wells were noted as a sheen. Well RW-2 and associated monitoring points (P-2 and MW-4) contained measurable SPH during the gauging event. Well RW-19 contained the greatest accumulation of SPH (1.99 feet). Wells MW-28, MW-9 and RW-23 in the northeastern portion of the facility contained measurable SPH (0.61, 0.15 and 0.47 feet, respectively). SPH sheen were also noted in two of the wells to the southwest of the facility, MW-26 and MW-27.

TABLE 2
Liquid Level Gauging Chart - 1 March 1995
Bloomfield Refining Company

Well#	Well Elevation	Depth to Water	Depth to Product	Product Thickness	Water Elevation	Product Elevation	Corrected Water Elevation
MW-1	5515.78	16.89	----	----	5498.89	----	----
MW-3	5535.88	34.46	----	----	5501.42	----	----
MW-4	5524.46	26.15	25.27	0.88	5498.31	5499.19	5498.97
MW-5	5545.13	43.73	----	----	5501.40	----	----
MW-6	5551.20	NR	----	----	----	----	----
MW-7	5524.25	23.37	----	----	5498.88	----	----
MW-8	5531.17	29.74	----	----	5501.43	----	----
MW-9	5519.77	22.34	22.19	0.15	5497.43	5497.58	5497.54
RW-1	5526.01	27.99	sheen	----	5498.02	----	----
P-1	5524.49	26.71	----	----	5497.78	----	----
RW-2	5523.61	25.85	25.40	0.45	5497.76	5498.21	5498.10
P-2	5523.86	25.72	24.79	0.93	5498.14	5499.07	5498.84
RW-3	5516.96	19.15	----	----	5497.81	----	----
P-3	5507.31	9.40	----	----	5497.91	----	----
MW-11	5506.89	10.34	----	----	5496.55	----	----
MW-12	5498.42	9.40	----	----	5489.02	----	----
MW-13	5538.54	38.87	----	----	5499.67	----	----
RW-14	5534.13	34.12	sheen	----	5500.01	----	----
RW-15	5533.44	33.72	sheen	----	5499.72	----	----
RW-16	5532.09	33.35	sheen	----	5498.74	----	----

GROUNDWATER TECHNOLOGY

Well#	Well Elevation	Depth to Water	Depth to Product	Product Thickness	Water Elevation	Product Elevation	Corrected Water Elevation
RW-17	5530.46	31.80	sheen	----	5498.66	----	----
RW-18	5526.08	NR	----	----	----	----	----
RW-19	5527.27	30.13	28.14	1.99	5497.14	5499.13	5498.63
MW-20	5516.46	18.57	----	----	5497.89	----	----
MW-21	5518.62	20.09	----	----	5498.53	----	----
RW-22	5521.05	23.13	----	----	5497.92	----	----
RW-23	5517.74	21.05	20.58	0.47	5496.69	5497.16	5497.04
MW-24	5508.23	NR	----	----	----	----	----
MW-25	5530.45	31.17	----	----	5499.28	----	----
MW-26	5514.54	16.08	sheen	----	5498.46	----	----
MW-27	5515.26	17.59	sheen	----	5497.67	----	----
MW-28	5524.52	26.90	26.29	0.61	5497.62	5498.23	5498.08
MW-29	5521.55	21.55	----	----	5500.00	----	----
MW-30	5533.42	32.17	----	----	5501.25	----	----
MW-31	5532.17	32.65	----	----	5499.52	----	----
MW-32	5522.22	24.01	----	----	5498.21	----	----
MW-33	5518.46	22.60	----	----	5495.86	----	----
MW-34	5508.23	13.71	----	----	5494.52	----	----

MEASUREMENTS ARE IN FEET.
NR = NOT RECORDED.

The three newly installed wells (MW-32, MW-33 and MW-34) were sampled on 2 March 1995, after first purging three volumes of water. Groundwater samples were submitted for analysis of volatile organic compounds (VOCs) by USEPA Method 8240 and semi-volatile organic compounds (SVOCs) by USEPA Method 8270.

Analyses were performed by Inter-Mountain Laboratories, Inc. Table 3 provides a summary of the analytical results. Laboratory reports are provided in Appendix B.

Results of Groundwater Sampling

VOCs were non-detectable in the groundwater sample collected from well MW-33. The sample from well MW-32 contained one detectable VOC: 5 ug/L of 1,1,1-trichloroethane. The sample from MW-34 contained 300 ug/L benzene, 1,300 ug/L m,p-xylene, and approximately 30 ug/L toluene. No SVOCs were detected in any the samples.

Delineation of the horizontal extent of separate phase hydrocarbons is complete. Horizontal delineation of dissolved hydrocarbons is essentially complete, although MW-34 (the southwesternmost well) contains detectable benzene, xylene, and toluene, above the corresponding New Mexico Water Quality Control Commission (NM WQCC) criteria of 10, 620, and 750 ug/L, respectively.

Should you have any questions concerning the information provided herein, please do not hesitate to contact me at (505) 242-3113.

Sincerely,
Groundwater Technology, Inc.

Cymantha Liakos

Cymantha Liakos
Project Manager

ATTACHMENTS

FIGURE 1 Monitoring Well and Recovery Well Locations
FIGURE 2 Water Table Contour Map (1 March 1995)
FIGURE 3 Separate Phase Hydrocarbon Isopleth Map (1 March 1995)

TABLE 1 Well Construction Specifications
TABLE 2 Liquid Level Gauging Chart (1 March 1995)
TABLE 3 Summary of Groundwater Sample Analytical Results (2 March 1995)

APPENDIX A Well Logs
APPENDIX B Laboratory Report of Groundwater Sample Analyses

cc: Coby Muckelroy - NMED Hazardous Waste Bureau
Roger Anderson - NM Oil Conservation Division
Joe Warr - BRC
Chris Hawley - BRC
Dave Roderick - BRC

TABLE 3
Summary of Groundwater Sample Analytical Results (March 2, 1995)
Bloomfield Refining Company
Offsite Wells

Targeted Volatile Organic Compounds	MW-32	MW-33	MW-34	Trip Blank
Benzene	ND	ND	300	ND
m,p-Xylene	ND	ND	1,300	ND
Toluene	ND	ND	30 J	ND
1,1,1-Trichloroethane	5	ND	ND	ND
Targeted Semi-Volatile Organic Compounds	ND	ND	ND	NA

Concentrations are shown in ug/L.
ND - Not Detected
NA - Not Analyzed
J - Meets identification criteria, below detection limit

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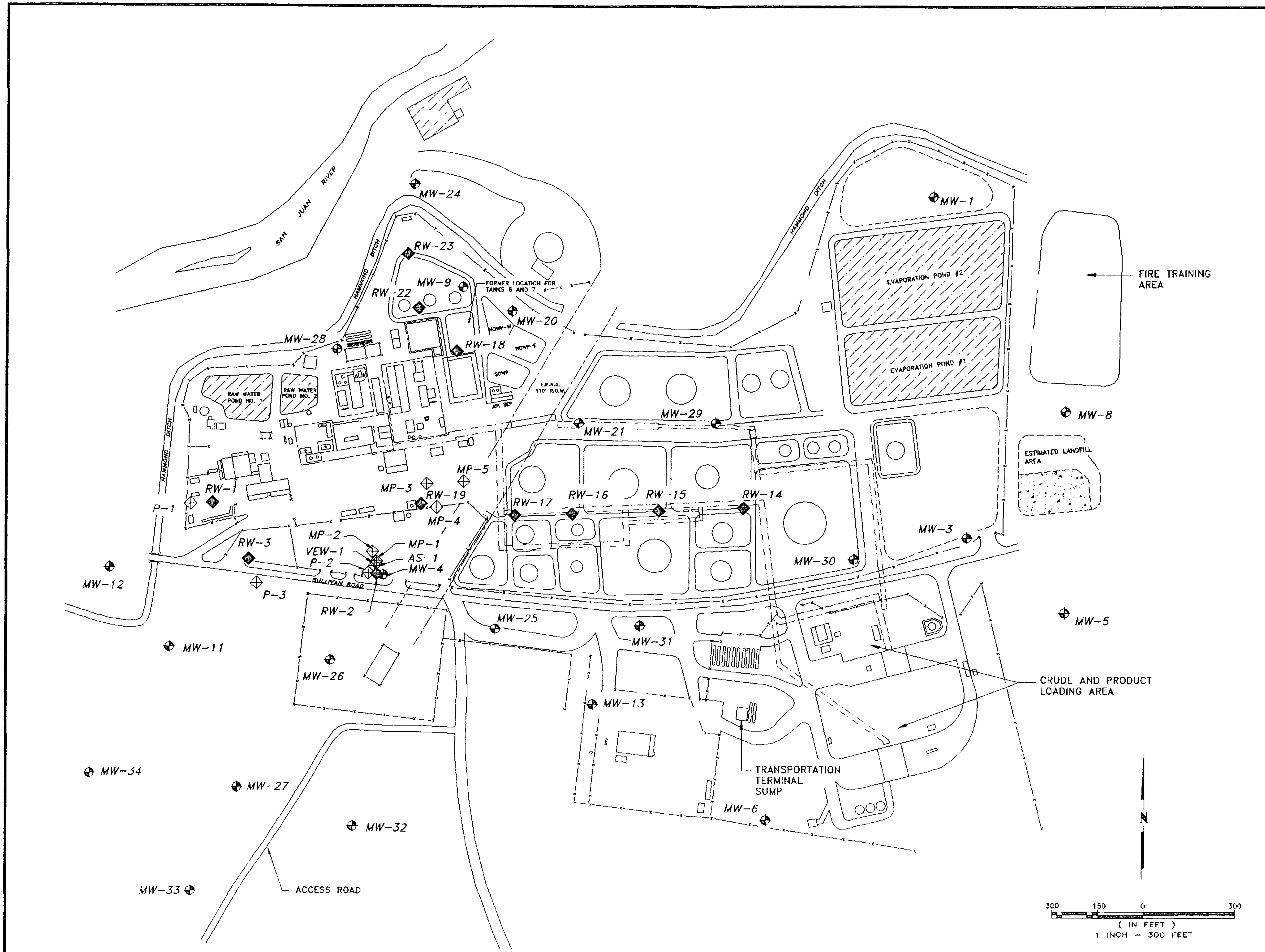

NO.	DATE	BY	REVISION

LEGEND

PIPEWAY

UNDERGROUND PIPEWAY

FENCE

MW-1 MONITORING WELL

RW-1 RECOVERY WELL

P-1 PIEZOMETER

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SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

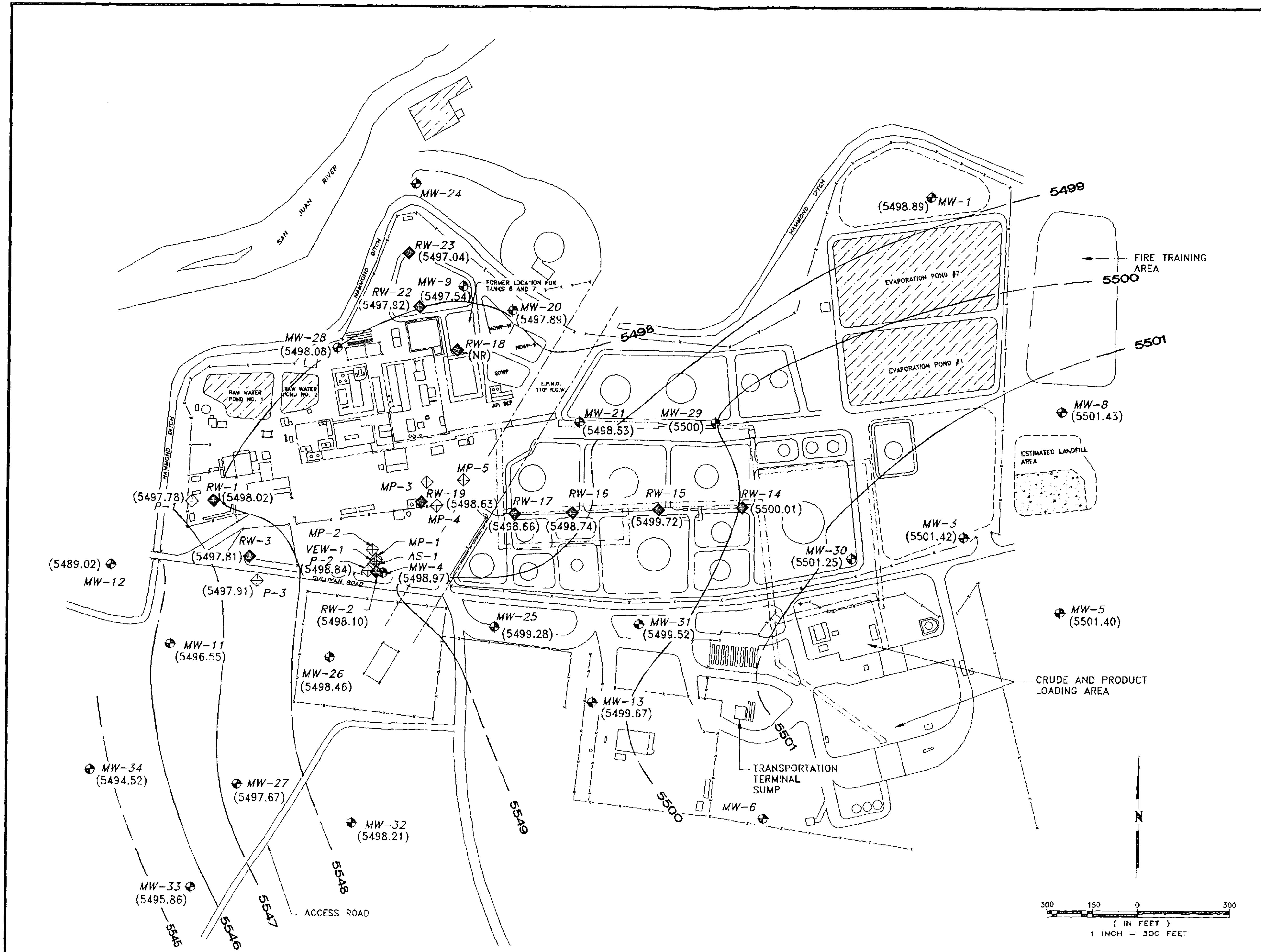
Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

MONITORING WELL AND RECOVERY WELL LOCATIONS

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
RS	PJWH	

DATE: 04/03/95	FILE: MW-LOCA1
PROJECT NO.: 023353014	CONTRACT:
DRAWING: FIGURE 1	REVISION:



NO.	DATE	BY	REVISION

LEGEND

- PIPEWAY
- UNDERGROUND PIPEWAY
- FENCE
- MW-1 MONITORING WELL
- RW-1 RECOVERY WELL
- P-1 PIEZOMETER
- INFERED WATER TABLE ELEVATION CONTOUR (feet +M.S.L.)
- (5501.25) WATER TABLE ELEVATION (feet +M.S.L.)
- (NR) NOT RECORDED

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SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

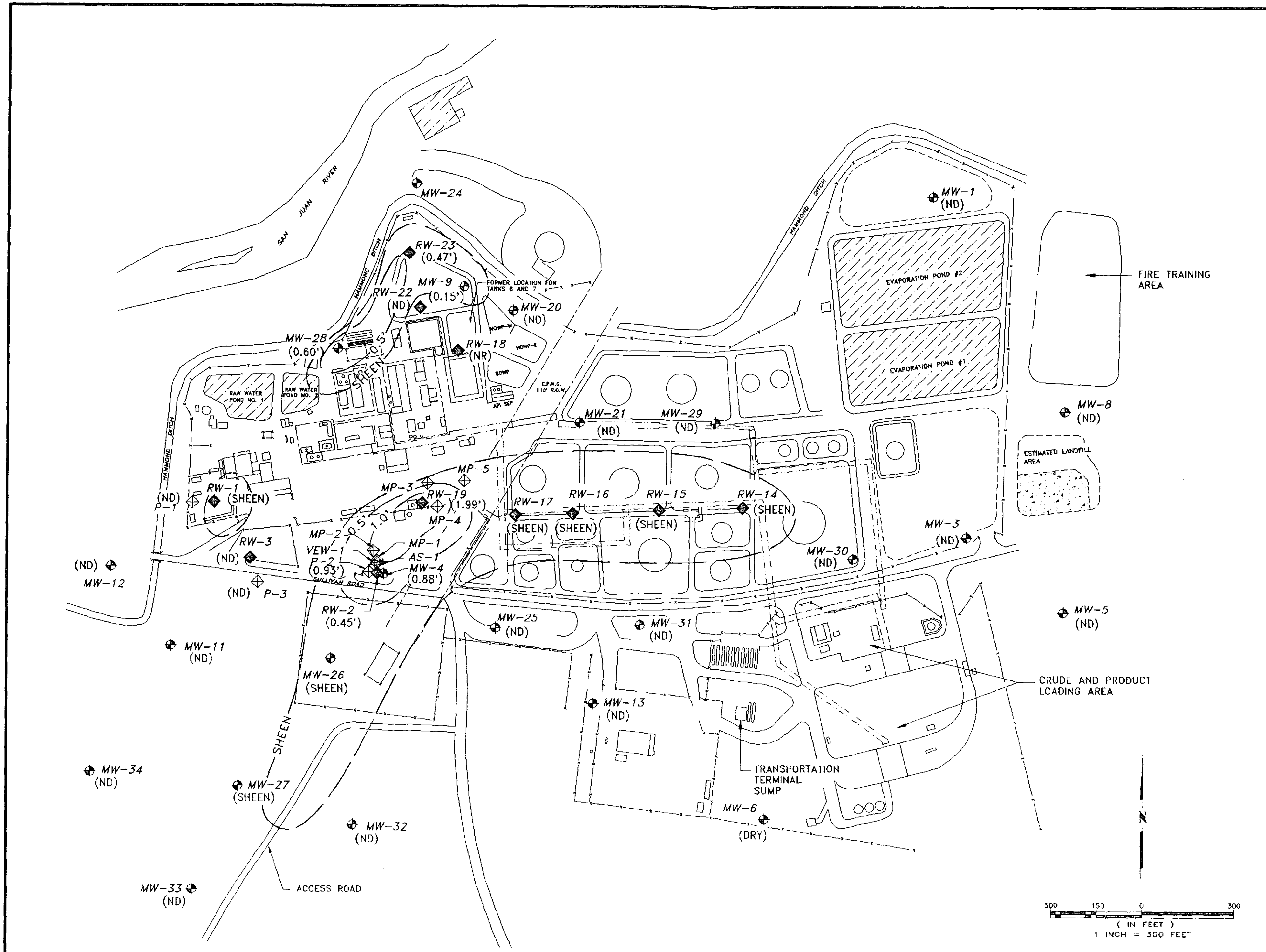
Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

WATER TABLE CONTOUR MAP MARCH 1, 1995

DESIGNED BY:	DRAFTED BY:	CHECKED BY:
CL	PJWH	

DATE:	FILE:
04/25/95	3014GW1
PROJECT NO.:	CONTRACT:
023353014	
DRAWING:	REVISION:
FIGURE 2	



NO.	DATE	BY	REVISION

LEGEND

PIPEWAY
UNDERGROUND PIPEWAY
FENCE
MW-1 MONITORING WELL
RW-1 RECOVERY WELL
P-1 PIEZOMETER
SPH SEPARATE PHASE HYDROCARBON
SPH THICKNESS CONTOUR (feet)
(0.01') SPH THICKNESS (feet)
(ND) NOT DETECTED
(NR) NOT RECORDED

SIGNATURE	DATE
PROJECT GEO:	
PROJECT ENGR:	
PROJECT MGR:	
CLIENT:	

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary
#50 COUNTY ROAD 4990
BLOOMFIELD, NEW MEXICO

GROUNDWATER TECHNOLOGY
2501 YALE BLVD. SE, SUITE 204
ALBUQUERQUE, NEW MEXICO 87106
(505) 242-3113

SEPARATE PHASE HYDROCARBON ISOPLETH MAP MARCH 1, 1995

DESIGNED BY: CL	DRAFTED BY: PJWH	CHECKED BY:
DATE: 04/25/95		FILE: 3014GW1
PROJECT NO.: 023353014		CONTRACT:
DRAWING: FIGURE 3		REVISION:

APPENDIX A

Well Logs

GROUNDWATER TECHNOLOGY

GROUNDWATER TECHNOLOGY

Drilling Log

Monitoring Well **MW-32**

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *50 County Road 4990, Bloomfield, NM* Proj. No. *023353014*
Surface Elev. ______ Total Hole Depth *27.5 ft.* Diameter *9 in.*
Top of Casing ______ Water Level Initial *23 ft.* Static ______
Screen: Dia *4 in.* Length *14 ft.* Type/Size *FRE/0.020 in.*
Casing: Dia *4 in.* Length *13.9 ft.* Type *FRE*
Fill Material *10/20 Silica Sand* Rig/Core *Drill Systems 180*
Drill Co. *Layne* Method *Air Hammer Percussion*
Driller *B. Morris* Log By *E. Shannon* Date *02/23/95* Permit # ______
Checked By ES 3-14-95 License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2							
0		0				SM	**0–7 ft.:** Brown medium to fine poorly-graded **SAND**, little coarse to fine gravel, occasional rounded cobbles (up to 4" dia.), dry.
2							
4							
6							
8		3				SP/SM	**7–10 ft.:** Grades to grayish brown coarse to fine well-graded **SAND**, trace silt, little coarse to fine grained gravel, occasional rounded cobbles.
10							
12		1				GM/SM	**10–18 ft.:** Brown coarse to fine **SAND**, and coarse to fine **GRAVEL/COBBLES** (up to 8" dia.), little silt.
14							
16							
18		1				GP/SP	**18–25 ft.:** Coarse to fine **GRAVEL/COBBLES** and coarse to fine **SAND**, trace silt.
20							
22							
24							Damp at 23 feet.

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-32**

Project *Bloomfield Refining Company* Owner *Bloomfield Refining Company*
Location *50 County Road 4990, Bloomfield, NM* Proj. No. *023353014*

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
24						GP SP	
25							25-26 ft.: Yellowish brown weathered silty LIMESTONE.
26							26-27.5 ft.: Gray LIMESTONE.
28							End of boring at 27.5 feet.
30							Set MW-32 with screened interval from 11-25 feet below grade.
32							
34							
36							
38							
40							
42							
44							
46							
48							
50							
52							
54							
56							

Drilling Log

GROUNDWATER TECHNOLOGY

Monitoring Well **MW-33**

Project Bloomfield Refining Company	**Owner** Bloomfield Refining Company
Location 50 County Road 4990, Bloomfield, NM	**Proj. No.** 023353014
Surface Elev.	**Total Hole Depth** 23 ft.
Diameter 9 in.	
Top of Casing	**Water Level Initial** 19 ft.
Static Dry ft.	
Screen: Dia 4 in.	**Length** 14 ft.
Type/Size FRE/0.020 in.	
Casing: Dia 4 in.	**Length** 11.6 ft.
Type FRE	
Fill Material 10/20 Silica Sand	**Rig/Core** Drill Systems 180
Drill Co. Layne	**Method** Air Hammer Percussion
Driller G. Rodriguez	**Log By** E. Shannon
Date 02/23/95	**Permit #**
Checked By ELS 3-14-95	**License No.**

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	PID (ppm)	Sample ID	Blow Count/ % Recovery	USCS Class.	Description (Color, Texture, Structure) Trace < 10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%
-2					
0				SM	0-7 ft.: Brown medium to fine SAND, little silt, little coarse to fine gravel, occasional cobbles, dry.
5	1				
7				GP/SP	7-20 ft.: Coarse to fine GRAVEL/COBBLES, some coarse to fine well graded sand, trace silty, dry.
12	1				
19					*Cuttings damp at 19'.*
20					20-22.8 ft.: Tanish brown SILT/weathered LIMESTONE, dry.
22.8					22.8-23 ft.: Gray LIMESTONE, weathered, dry.
23					End of boring at 23 feet. Set MW-33 with screened interval from 6.9-20.9 feet below grade.

Drilling Log

GROUNDWATER TECHNOLOGY

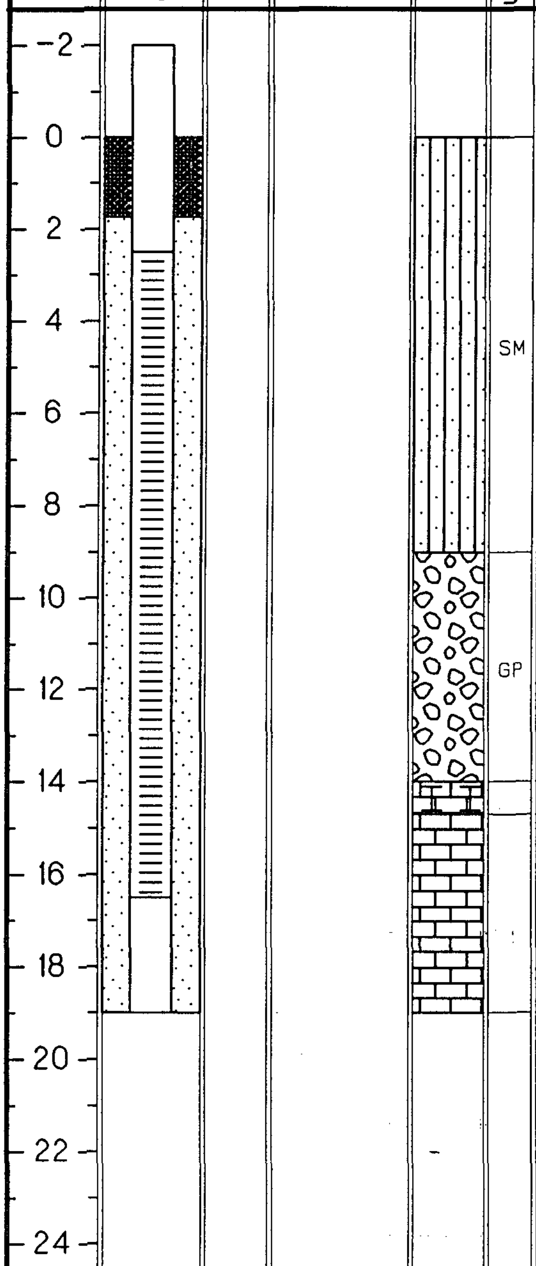
Monitoring Well **MW-34**

Project Bloomfield Refining Company Owner Bloomfield Refining Company
Location 50 County Road 4990, Bloomfield, NM Proj. No. 023353014
Surface Elev. ______ Total Hole Depth 19 ft. Diameter 10 in.
Top of Casing ______ Water Level Initial 12 ft. Static ______
Screen: Dia 4 in. Length 14 ft. Type/Size FRE/0.020 in.
Casing: Dia 4 in. Length 7.8 ft. Type FRE
Fill Material 10/20 Silica Sand Rig/Core Drill Systems 180
Drill Co. Layne Method Air Hammer Percussion
Driller G. Rodriguez Log By E. Shannon Date 02/23/95 Permit # ______
Checked By ES 3-14-95 License No. ______

See Site Map For Boring Location

COMMENTS:

Depth (ft.)	Well Completion	PID (ppm)	Sample ID	Blow Count/ % Recovery	Graphic Log	USCS Class.	Description (Color, Texture, Structure) Trace <10%, Little 10% to 20%, Some 20% to 35%, And 35% to 50%



0–9 ft.: Brown coarse to fine poorly graded SAND, little coarse to fine gravel, little silt, occasional cobbles.

9–14 ft.: Coarse to fine GRAVEL/COBBLES, some coarse to fine sand, trace silt, dry.

Wet at 12', gray-staining.

Yellowish brown SILT/weathered LIMESTONE, dry.

14.7–19 ft.: Gray LIMESTONE.

End or boring at 19 feet.

Set MW-34 with screened interval from 2.5–16.5 feet below grade.

APPENDIX B

Laboratory Report of Groundwater Sample Analyses

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

On March 3, 1995, three samples were received for analysis at Inter-Mountain Laboratories, Bozeman, Montana. The chain of custody form requested analysis for EPA methods 8240 and 8270. One of the sample containers for MW-34 was received broken, and the method 8270 analysis could not be performed. Client name/Project name was listed as Bloomfield Refinery Co. / #50 County Road 4990, Bloomfield, NM.

Detectable amounts of targeted compounds were present in some of the samples.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges.

Wy Sudtelgte

Wynn Sudtelgte
IML-Bozeman

0327brc

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-34	Date Reported:	03/15/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952079	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	50	ug/L
1,1,2,2-Tetrachloroethane	ND	50	ug/L
1,1,2-Trichloroethane	ND	50	ug/L
1,1-Dichloroethane	ND	50	ug/L
1,1-Dichloroethene	ND	50	ug/L
1,2-Dichloroethane	ND	50	ug/L
1,2-Dichloropropane	ND	50	ug/L
2-Butanone (MEK)	ND	200	ug/L
2-Hexanone	ND	50	ug/L
4-Methyl-2-pentanone (MIBK)	ND	50	ug/L
Acetone	ND	200	ug/L
Benzene	300	50	ug/L
Bromodichloromethane	ND	50	ug/L
Bromoform	ND	50	ug/L
Bromomethane	ND	50	ug/L
Carbon Disulfide	ND	50	ug/L
Carbon Tetrachloride	ND	50	ug/L
Chlorobenzene	ND	50	ug/L
Chloroethane	ND	50	ug/L
Chloroform	ND	50	ug/L
Chloromethane	ND	50	ug/L
cis-1,3-Dichloropropene	ND	50	ug/L
Dibromochloromethane	ND	50	ug/L
Ethylbenzene	ND	50	ug/L
m,p-Xylene	1300	50	ug/L
Methylene chloride	ND	200	ug/L
o-Xylene	ND	50	ug/L
Styrene	ND	50	ug/L

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-34	Date Reported:	03/15/95
Laboratory ID:	B952079	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/06/95

Parameter	Analytical Result		Detection Limit	Units
Tetrachloroethene (PCE)	ND		50	ug/L
Toluene	30	J	50	ug/L
trans-1,2-Dichloroethene	ND		50	ug/L
trans-1,3-Dichloropropene	ND		50	ug/L
Trichloroethene (TCE)	ND		50	ug/L
Vinyl Chloride	ND		50	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	94	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	96	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/15/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952080	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	5	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	20	ug/L
2-Hexanone	ND	5	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	5	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	20	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

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EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/15/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	95	76 - 114
Toluene-d8	102	88 - 110
Bromofluorobenzene	108	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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Bozeman, Montana 59715

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952080	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	03/09/95
		Date Analyzed:	03/20/95

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/20/95

Parameter	Analytical Result	Detection Limit	Units
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	50	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	50	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-32	Date Reported:	03/24/95
Laboratory ID:	B952080	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/20/95

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	60	21 - 100
Phenol-d6	54	10 - 94
Nitrobenzene-d5	70	35 - 114
2-Fluorobiphenyl	64	43 - 116
2,4,6-Tribromophenol	86	10 - 123
Terphenyl-d14	44	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-33	Date Reported:	03/15/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952081	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	20	ug/L
2-Hexanone	ND	5	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	5	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	20	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

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EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-33	Date Reported:	03/15/95
Laboratory ID:	B952081	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	94	76 - 114
Toluene-d8	99	88 - 110
Bromofluorobenzene	105	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.			
Sample ID:	MW-33	Date Reported:		03/24/95
Project ID:	Bloomfield, New Mexico	Date Sampled:		03/02/95
Laboratory ID:	B952081	Date Received:		03/03/95
Sample Matrix:	Water	Date Extracted:	#	03/09/95
		Date Analyzed:		03/23/95

#-Sample was re-extracted on 3/23/95 due to high surrogate recovery.

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	MW-33	Date Reported:	03/24/95
Laboratory ID:	B952081	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/23/95

Parameter	Analytical Result	Detection Limit	Units
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	50	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
Di-n-Butylphthalate	ND	50	ug/L
Di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
** - Compounds coelute by GCMS.
B - Compound detected in Method Blank.

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EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client:	**BLOOMFIELD REFINING CO.**		
Sample ID:	MW-33	Date Reported:	03/24/95
Laboratory ID:	B952081	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/23/95

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	31	21 - 100
Phenol-d6	30	10 - 94
Nitrobenzene-d5	43	35 - 114
2-Fluorobiphenyl	49	43 - 116
2,4,6-Tribromophenol	72	10 - 123
Terphenyl-d14	39	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	Trip Blank	Date Reported:	03/15/95
Project ID:	Bloomfield, New Mexico	Date Sampled:	03/02/95
Laboratory ID:	B952082	Date Received:	03/03/95
Sample Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
2-Butanone (MEK)	ND	20	ug/L
2-Hexanone	ND	5	ug/L
4-Methyl-2-pentanone (MIBK)	ND	5	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	5	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene chloride	ND	20	ug/L
o-Xylene	ND	5	ug/L
Styrene	ND	5	ug/L

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EPA METHOD 8240
HSL VOLATILE COMPOUNDS

Client:	BLOOMFIELD REFINING CO.		
Sample ID:	Trip Blank	Date Reported:	03/15/95
Laboratory ID:	B952082	Date Sampled:	03/02/95
Sample Matrix:	Water	Date Analyzed:	03/06/95

Parameter	Analytical Result	Detection Limit	Units
Tetrachloroethene (PCE)	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,2-Dichloroethene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene (TCE)	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	98	76 - 114
Toluene-d8	100	88 - 110
Bromofluorobenzene	101	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Third Edition, November 1986.

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QUALITY ASSURANCE / QUALITY CONTROL

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LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 03/06/95
Laboratory ID: 3B4-066A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
1,1,1-Trichloroethane	ND	5	ug/L
1,1,2,2-Tetrachloroethane	ND	5	ug/L
1,1,2-Trichloroethane	ND	5	ug/L
1,1-Dichloroethane	ND	5	ug/L
1,1-Dichloroethene	ND	5	ug/L
1,2-Dibromoethane	ND	5	ug/L
1,2-Dichloroethane	ND	5	ug/L
1,2-Dichloroethene	ND	5	ug/L
1,2-Dichloropropane	ND	5	ug/L
1,4-Dioxane	ND	500	ug/L
2-Butanone	ND	20	ug/L
2-Hexanone	ND	5	ug/L
4-Methyl-2-pentanone	ND	5	ug/L
Acetone	ND	20	ug/L
Benzene	ND	5	ug/L
Bromodichloromethane	ND	5	ug/L
Bromoform	ND	5	ug/L
Bromomethane	ND	5	ug/L
Carbon Disulfide	ND	5	ug/L
Carbon Tetrachloride	ND	5	ug/L
Chlorobenzene	ND	5	ug/L
Chloroethane	ND	5	ug/L
Chloroform	ND	5	ug/L
Chloromethane	ND	5	ug/L
cis-1,3-Dichloropropene	ND	5	ug/L
Cyclohexane	ND	5	ug/L
Dibromochloromethane	ND	5	ug/L
Ethylbenzene	ND	5	ug/L
m,p-Xylene	ND	5	ug/L
Methylene Chloride	ND	20	ug/L
o-Xylene	ND	5	ug/L

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LAB QA/QC
VOLATILE COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: 03/06/95
Laboratory ID: 3B4-066A
Sample Matrix: Water

Parameter	Analytical Result	Detection Limit	Units
Styrene	ND	5	ug/L
Tetrachloroethene	ND	5	ug/L
Toluene	ND	5	ug/L
trans-1,3-Dichloropropene	ND	5	ug/L
Trichloroethene	ND	5	ug/L
Vinyl Chloride	ND	5	ug/L

ND - Compound not detected at stated Detection Limit.
J - Meets identification criteria, below Detection Limit.
B - Compound detected in method blank.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	96	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	103	86 - 115

References:

Method 8240, Gas Chromatography/Mass Spectrometry for Volatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, Rev. 1, November 1992.

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: **03/23/95**
Laboratory ID: MB-082
Sample Matrix: Water
Date Extracted: 03/23/95

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

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Bozeman, Montana 59715

LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed:	03/23/95
Laboratory ID:	MB-082
Sample Matrix:	Water
Date Extracted:	03/23/95

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed:	**03/23/95**
Laboratory ID:	MB-082
Sample Matrix:	Water
Date Extracted:	03/23/95

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	45	21 - 100
Phenol-d6	44	10 - 94
Nitrobenzene-d5	65	35 - 114
2-Fluorobiphenyl	66	43 - 116
2,4,6-Tribromophenol	79	10 - 123
Terphenyl-d14	65	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed: **03/20/95**
Laboratory ID: MB-068
Sample Matrix: Water
Date Extracted: 03/09/95

Parameter	Analytical Result	Detection Limit	Units
1,2,4-Trichlorobenzene	ND	10	ug/L
1,2-Dichlorobenzene	ND	10	ug/L
1,3-Dichlorobenzene	ND	10	ug/L
1,4-Dichlorobenzene	ND	10	ug/L
1-Methylnaphthalene	ND	10	ug/L
2,4,5-Trichlorophenol	ND	10	ug/L
2,4,6-Trichlorophenol	ND	10	ug/L
2,4-Dichlorophenol	ND	10	ug/L
2,4-Dimethylphenol	ND	10	ug/L
2,4-Dinitrophenol	ND	50	ug/L
2,4-Dinitrotoluene	ND	10	ug/L
2,6-Dinitrotoluene	ND	10	ug/L
2-Chloronaphthalene	ND	10	ug/L
2-Chlorophenol	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
2-Methylphenol	ND	10	ug/L
2-Nitroaniline	ND	50	ug/L
2-Nitrophenol	ND	10	ug/L
3,3'-Dichlorobenzidine	ND	20	ug/L
3-Methylphenol/4-Methylphenol *	ND	10	ug/L
3-Nitroaniline	ND	50	ug/L
4,6-Dinitro-2-methylphenol	ND	50	ug/L
4-Bromophenyl-phenylether	ND	10	ug/L
4-Chloro-3-methylphenol	ND	20	ug/L
4-Chloroaniline	ND	20	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	20	ug/L
4-Nitrophenol	ND	50	ug/L
6-Methyl chrysene	ND	10	ug/L
7,12-Dimethylbenz(a)anthracene	ND	10	ug/L
Acenaphthene	ND	10	ug/L
Acenaphthylene	ND	10	ug/L
Anthracene	ND	10	ug/L
Benzenethiol	ND	10	ug/L
Benzo(a)anthracene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Benzo(b)fluoranthene	ND	10	ug/L

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed:	03/20/95
Laboratory ID:	MB-068
Sample Matrix:	Water
Date Extracted:	03/09/95

Parameter	Analytical Result	Detection Limit	Units
Benzo(g,h,i)perylene	ND	10	ug/L
Benzo(k)fluoranthene	ND	10	ug/L
Benzoic Acid	ND	50	ug/L
Benzyl Alcohol	ND	20	ug/L
bis(2-Chloroethoxy)methane	ND	10	ug/L
bis(2-Chloroethyl)ether	ND	10	ug/L
bis(2-Chloroisopropyl)ether	ND	10	ug/L
bis(2-Ethylhexyl)phthalate	ND	10	ug/L
Butylbenzylphthalate	ND	10	ug/L
Chrysene	ND	10	ug/L
di-n-Butylphthalate	ND	10	ug/L
di-n-Octylphthalate	ND	10	ug/L
Dibenz(a,h)acridine	ND	10	ug/L
Dibenz(a,h)anthracene	ND	10	ug/L
Dibenzofuran	ND	10	ug/L
Diethylphthalate	ND	10	ug/L
Dimethylphthalate	ND	10	ug/L
Fluoranthene	ND	10	ug/L
Fluorene	ND	10	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	20	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	ND	20	ug/L
Indene	ND	10	ug/L
Indeno(1,2,3-cd)pyrene	ND	10	ug/L
Isophorone	ND	10	ug/L
N-Nitrosodi-n-propylamine	ND	10	ug/L
N-Nitrosodiphenylamine	ND	10	ug/L
Naphthalene	ND	10	ug/L
Nitrobenzene	ND	10	ug/L
Pentachlorophenol	ND	50	ug/L
Phenanthrene	ND	10	ug/L
Phenol	ND	10	ug/L
Pyrene	ND	10	ug/L
Pyridine	ND	10	ug/L
Quinoline	ND	10	ug/L

ND - Compound not detected at stated Detection Limits.
* - Compounds Coelute by GC/MS.

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
METHOD BLANK

Date Analyzed:	**03/20/95**
Laboratory ID:	MB-068
Sample Matrix:	Water
Date Extracted:	03/09/95

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	59	21 - 100
Phenol-d6	56	10 - 94
Nitrobenzene-d5	74	35 - 114
2-Fluorobiphenyl	69	43 - 116
2,4,6-Tribromophenol	78	10 - 123
Terphenyl-d14	49	33 - 141

Reference:

Method 8270, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW846, USEPA, Third Edition, November 1986.

USEPA Contract Lab Program, Statement of Work for Organic Analysis, Multi-Media, Multi-Concentration, OLM01.0, December 1990.

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LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS BY GC/MS
LABORATORY CONTROL SAMPLE

Date Analyzed: 03/06/95
Laboratory ID: 3LCS-065
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
Vinyl Chloride	20	20	100	80-120
Carbon Tetrachloride	20	19	95	80-120
Benzene	20	19	95	80-120
1,2-Dichloroethane	20	19	95	80-120
Trichloroethene	20	20	100	80-120
1,2-Dichloropropane	20	19	95	80-120
cis-1,3-Dichloropropene	20	20	100	80-120
1,1,2-Trichloroethane	20	21	105	80-120
Tetrachloroethane	20	20	100	80-120
1,2-Dibromoethane	20	21	105	80-120
Bromoform	20	22	110	80-120
1,4-Dichlorobenzene	20	19	95	80-120

Spike Recovery: 0 out of 12 outside QC limits.

QUALITY CONTROL:

Surrogate Recovery	%	Water QC Limits
1,2-Dichloroethane-d4	99	76 - 114
Toluene-d8	98	88 - 110
Bromofluorobenzene	102	86 - 115

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LAB QA/QC
PURGEABLE ORGANIC COMPOUNDS
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **03/07/95**
Laboratory ID: 3MSD2119
Sample Matrix: Water

ORIGINAL SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)	QC Limits (% Rec.)
1,1-Dichloroethene	20	0	21	105	61-145
Trichloroethene	20	7	27	100	71-120
Benzene	20	0	21	105	76-127
Toluene	20	0	21	105	71-127
Chlorobenzene	20	0	22	110	75-130

DUPLICATE SAMPLE PARAMETERS

Parameter	Spike Added (ug/L)	MSD Conc. (ug/L)	MSD Recovery (%)	RPD (%)	QC Limits	
					RPD	Rec.
1,1-Dichloroethene	20	21	105	0	14	61-145
Trichloroethene	20	26	95	5	14	71-120
Benzene	20	21	105	0	11	76-127
Toluene	20	20	100	5	13	71-127
Chlorobenzene	20	21	105	5	13	75-130

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

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LAB QA/QC
SEMI-VOLATILE ORGANIC COMPOUNDS BY GC/MS
BLANK SPIKE

Date Analyzed: 03/20/95
Laboratory ID: BS-068
Sample Matrix: Water
Date Extracted: 03/09/95

Parameter	Spike Added (ug/L)	Sample Conc. (ug/L)	MS Conc. (ug/L)	MS Recovery (%)		QC Limits (% Rec.)
Phenol	200	0	77	39		12 - 89
2-Chlorophenol	200	0	112	56		27-123
1,4-Dichlorobenzene	100	0	51	51		36 - 97
n-Nitroso-di-n-propylamine	100	0	63	63		41-116
1,2,4-Trichlorobenzene	100	0	57	57		39 - 98
4-Chloro-3-methylphenol	200	0	130	65		23 -97
Acenaphthene	100	0	60	60		46 - 118
4-Nitrophenol	200	0	103	52		10 - 80
2,4-Dinitrotoluene	100	0	78	78		24 - 96
Pentachlorophenol	200	0	208	104	*	9 - 103
Pyrene	100	0	76	76		26 - 127

QUALITY CONTROL:

Surrogate Recoveries	%	Water QC Limits
2-Fluorophenol	58	21 - 100
Phenol-d5	49	10 - 94
Nitrobenzene-d5	65	35 - 114
2-Fluorobiphenyl	60	43 - 116
2,4,6-Tribromophenol	90	10 - 123
p-Terphenyl	50	33 - 141

Spike Recovery: 1 out of 11 outside QC limits.

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CHAIN OF CUSTODY RECORD

Client/Project Name: Bloomfield Refinery Co.

Project Location: #50 County Rd 4990, Bloomfield NM.

Sampler: (Signature) [signature]

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	EPA 8240	EPA 8270			Remarks
MW-34	3/2/95	0820	B952079	WATER	3	X	X			spotty sheen
MW-32	↓	0835	2080	water	3	X	X			
MW-33	↓	0850	2081	water	3	X	X			
trip blank			2082	water	1	✓				
										cooler temp. 2.7°
										samples intact except for liter container for MW-34 - broke in transit

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	3/2/95	0945	[signature] Walker	3-2-95	0945
[signature] Walker	3-2-95	3:00	Valerie Herzog	3/3/95	1005
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945

☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☒ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

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Inter-Mountain
Laboratories, Inc.

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

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JUL 24 1996

Environmental Bureau
Oil Conservation Division

16 May 1996

Lynn Shelton
Giant Refining Co.
P. O. Box 159
Bloomfield, NM 87413

Case Narrative

On May 31, 1996 seven water samples were submitted to Inter-Mountain Laboratories-Farmington, New Mexico. The samples were received cool and intact. The samples were analyzed for parameters requested by Lynn Shelton. All parameters were analyzed within the required holding times.

The sampling was done by Sharon Williams, Chris Rayner, and Anna Schaerer. Lynn Shelton assisted in the sampling as well as the site location. The sampling took place between 10:00am to 12:45pm. The weather was warm and breezy.

It is the policy of this laboratory to employ 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 U.S. E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes," 1983.

If there are any questions or comments regarding these analyses, please contact me at your earliest convenience.

Sincerely,

Anna Schaerer

Anna Schaerer
Organic Analyst/IML-Farmington

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	RW-18	Date Sampled:	05/31/96
Lab ID:	0396W00891	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/14-17/96

Target Analyte	Concentration (ppb)	Detection Limit (ppm)
Benzene	461	1.0
Toluene	1,070	1.0
Ethylbenzene	819	1.0
m,p-Xylenes	3,940	1.0
o-Xylene	1,950	1.0

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	76.3%	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

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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	MW-9	Date Sampled:	05/31/96
Lab ID:	0396W00892	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/14/96

Target Analyte	Concentration (ppb)	Detection Limit (ppm)
Benzene	14,900	0.4
Toluene	951	0.4
Ethylbenzene	766	0.4
m,p-Xylenes	3,840	0.4
o-Xylene	285	0.4

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	76.8%	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

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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	MW-20	Date Sampled:	05/31/96
Lab ID:	0396W00893	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/12/96

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	47.3	10.0
Toluene	17.1	10.0
Ethylbenzene	22.7	10.0
m,p-Xylenes	32.3	10.0
o-Xylene	ND	10.0

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	75.8%	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:

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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	MW-21	Date Sampled:	05/31/96
Lab ID:	0396W00894	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/13/96

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	917	1.0
Toluene	2.1	1.0
Ethylbenzene	92.9	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	82.2%	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:

dr
Analyst

SB
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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	RW-15	Date Sampled:	05/31/96
Lab ID:	0396W00895	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/14/96

Target Analyte	Concentration (ppb)	Detection Limit (ppm)
Benzene	18,900	2.0
Toluene	24,300	2.0
Ethylbenzene	1,840	2.0
m,p-Xylenes	14,000	2.0
o-Xylene	5,050	2.0

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	80.5%	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:

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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	MW-1	Date Sampled:	05/31/96
Lab ID:	0396W00896	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/13/96

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.2
Toluene	0.3	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	0.4	0.2
o-Xylene	ND	0.2

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	77.0%	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:

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VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	Bloomfield Refinery	Report Date:	06/20/96
Sample ID:	MW-5	Date Sampled:	05/31/96
Lab ID:	0396W00897	Date Received:	05/31/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/14/96

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	75.3%	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

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VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Duplicate Analysis

Lab ID:	0396W00897		Report Date:	06/20/96
Sample Matrix:	Water		Date Analyzed:	06/14/96
Condition:	Cool/Intact			

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

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	83.4%	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:

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Matrix Spike Analysis

Lab ID: 0396W00896
Sample Matrix: Water
Condition: Cool/Intact

Report Date: 06/20/96
Date Analyzed: 06/13/96

Target Analyte	Spiked Sample Result in ppb	Sample result in ppb	Spike Added (ppb)	% Recovery	Acceptance Limits (%)
Benzene	3.88	0.05	4.0	95.9%	70-130
Toluene	4.83	0.29	4.0	113.4%	70-130
Ethylbenzene	4.41	ND	4.0	110.2%	70-130
m,p-Xylenes	9.66	0.35	8.0	116.3%	70-130
o-Xylene	4.50	0.11	4.0	109.7%	70-130

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

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	77.1%	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:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis
BTEX

Client: **Giant Refining Co.**
Project: Bloomfield Refinery

Date Reported: 06/20/96
Date Analyzed: 06/13/96

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery	Acceptance Limits
Benzene	2.9	3.0	**97%**	70-130%
Toluene	3.2	3.0	**107%**	70-130%
Ethylbenzene	3.1	3.0	**104%**	70-130%
m+p-Xylene	6.1	6.0	**102%**	70-130%
o-Xylene	3.2	3.0	**106%**	70-130%

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Bromofluorobenzene	85.9%	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:

Reported by *dH* ____________

Reviewed by *JB* ____________

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix:	Water	Report Date:	06/20/96
Lab ID:	Method Blank	Date Analyzed:	06/14/96

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	75.4%	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:

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	RW-18	Date Sampled:	05/31/96
Laboratory ID:	0395W00891	Time Sampled:	10:10 AM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Well Depth................................	No depth taken	feet
Lab pH (1)...	6.6	s.u.
Lab pH (2)...	6.9	s.u.
Lab pH (3)...	6.9	s.u.
Lab pH (4)...	6.9	s.u.
Lab Conductivity @ 25° C (1)......................	1145	umhos/cm
Lab Conductivity @ 25° C (2)......................	1110	umhos/cm
Lab Conductivity @ 25° C (3)......................	1110	umhos/cm
Lab Conductivity @ 25° C (4)......................	1110	umhos/cm
Total Organic Carbon................................	**	mg/L
Total Organic Halogens..............................	0.074	mg/L
Total Organic Halogens (Duplicate)............	0.058	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments: **Sample produced inconclusive results due to presence of free product.

Reported by LM

Reviewed by JB

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	MW-9	Date Sampled:	05/31/96
Laboratory ID:	0395W00892	Time Sampled:	10:32 AM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Well Depth	21.1	feet
Lab pH (1)	6.8	s.u.
Lab pH (2)	6.9	s.u.
Lab pH (3)	6.9	s.u.
Lab pH (4)	6.9	s.u.
Lab Conductivity @ 25° C (1)	2800	umhos/cm
Lab Conductivity @ 25° C (2)	2820	umhos/cm
Lab Conductivity @ 25° C (3)	2820	umhos/cm
Lab Conductivity @ 25° C (4)	2820	umhos/cm
Total Organic Carbon	67.0	mg/L
Total Organic Halogens	0.034	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Reported by LM

Reviewed by SB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**			
Project:	Bloomfield Refinery		Date Reported:	06/20/96
Sample ID:	MW-20		Date Sampled:	05/31/96
Laboratory ID:	0395W00893		Time Sampled:	10:53 AM
Sample Matrix:	Water		Date Received:	05/31/96
Condition:	Cool/Intact			

Parameter	**Analytical Result**	**Units**
Well Depth	17.8	feet
Lab pH (1)	7.1	s.u.
Lab pH (2)	7.0	s.u.
Lab pH (3)	7.1	s.u.
Lab pH (4)	7.1	s.u.
Lab Conductivity @ 25° C (1)	3220	umhos/cm
Lab Conductivity @ 25° C (2)	3240	umhos/cm
Lab Conductivity @ 25° C (3)	3240	umhos/cm
Lab Conductivity @ 25° C (4)	3240	umhos/cm
Total Organic Carbon	23.0	mg/L
Total Organic Halogens	0.109	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Reported by ____________

Reviewed by ____________

Inter-Mountain Laboratories, Inc

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	MW-21	Date Sampled:	05/31/96
Laboratory ID:	0395W00894	Time Sampled:	11:12 AM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Well Depth	20.0	feet
Lab pH (1)	6.8	s.u.
Lab pH (2)	7.0	s.u.
Lab pH (3)	7.0	s.u.
Lab pH (4)	7.0	s.u.
Lab Conductivity @ 25° C (1)	4510	umhos/cm
Lab Conductivity @ 25° C (2)	4380	umhos/cm
Lab Conductivity @ 25° C (3)	4380	umhos/cm
Lab Conductivity @ 25° C (4)	4380	umhos/cm
Total Organic Carbon	21.0	mg/L
Total Organic Halogens	0.112	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments:

Reported by WM

Reviewed by JB

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	RW-15	Date Sampled:	05/31/96
Laboratory ID:	0395W00895	Time Sampled:	12:20 PM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Well Depth	No depth taken	feet
Lab pH (1)	6.9	s.u.
Lab pH (2)	7.1	s.u.
Lab pH (3)	7.1	s.u.
Lab pH (4)	7.1	s.u.
Lab Conductivity @ 25° C (1)	4800	umhos/cm
Lab Conductivity @ 25° C (2)	4810	umhos/cm
Lab Conductivity @ 25° C (3)	4810	umhos/cm
Lab Conductivity @ 25° C (4)	4810	umhos/cm
Total Organic Carbon	32.0	mg/L
Total Organic Halogens	0.209	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Reported by WM

Reviewed by JB

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	MW-1	Date Sampled:	05/31/96
Laboratory ID:	0396W00896	Time Sampled:	11:40 AM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Well Depth	10.7	feet		
Lab pH	7.3	s.u.		
Total Dissolved Solids @ 180°C	2,390	mg/L		
Chloride	728	mg/L	20.5	meq/L
Sulfate	531	mg/L	11.1	meq/L
Nitrogen as Nitrate	14.8	mg/L		
Nitrogen as TKN	7.6	mg/L		
Nitrogen as Ammonia	0.6	mg/L		
Cyanide	<0.01	mg/L		
Phenols	<0.01	mg/L		
Dissolved Metals				
Arsenic	<0.005	mg/L		
Barium	0.01	mg/L		
Boron	0.34	mg/L		
Cadmium	0.007	mg/L		
Chromium	<0.01	mg/L		
Iron	0.20	mg/L		
Lead	<0.005	mg/L		
Manganese	0.17	mg/L		

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Reported by WM

Reviewed by JB

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refinery**		
Project:	Bloomfield Refinery	Date Reported:	06/20/96
Sample ID:	MW-5	Date Sampled:	05/31/96
Laboratory ID:	0396W00897	Time Sampled:	12:38 PM
Sample Matrix:	Water	Date Received:	05/31/96
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Well Depth	4.5	feet		
Lab pH	7.0	s.u.		
Total Dissolved Solids @ 180°C	6,350	mg/L		
Chloride	2,260	mg/L	63.8	meq/L
Sulfate	918	mg/L	19.1	meq/L
Nitrogen as Nitrate	14.5	mg/L		
Nitrogen as TKN	3.5	mg/L		
Nitrogen as Ammonia	0.6	mg/L		
Cyanide	<0.01	mg/L		
Phenols	<0.01	mg/L		
Dissolved Metals				
Arsenic	<0.005	mg/L		
Barium	0.03	mg/L		
Boron	0.54	mg/L		
Cadmium	<0.001	mg/L		
Chromium	<0.01	mg/L		
Iron	0.72	mg/L		
Lead	<0.005	mg/L		
Manganese	0.58	mg/L		

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Reported by WM

Reviewed by SB

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

Dissolved Metals

Client: **Giant Refinery**
Project: Bloomfield Refinery
Lab ID: 0396W00896-897
Matrix: Water

Date Reported: 06/20/96
Date Sampled: 05/31/96
Date Received: 05/31/96

Known Analysis

Parameter	Found Result	Known Result	Units	Percent Recovery
Arsenic	0.010	0.010	mg/L	**100%**
Barium	0.99	1.00	mg/L	**99%**
Boron	1.07	1.00	mg/L	**107%**
Cadmium	0.003	0.003	mg/L	**93%**
Chromium	1.00	1.00	mg/L	**100%**
Iron	0.99	1.00	mg/L	**99%**
Lead	0.040	0.040	mg/L	**100%**
Manganese	0.98	1.00	mg/L	**98%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments: Quality control run concurrently with the above sample lab numbers.

Reported by: WM

Reviewed by: JB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Spike Analysis

Dissolved Metals

Client: **Giant Refinery**
Project: Bloomfield Refinery
Lab ID: 0396W00896-897
Matrix: Water

Date Reported: 06/20/96
Date Sampled: 05/31/96
Date Received: 05/31/96

Spike Analysis

Parameter	Spiked Sample Result	Sample Result	Spike Added	Percent Recovery
Arsenic	0.035	0.001	0.030	**113%**
Barium	1.00	<0.01	1.00	**100%**
Boron	0.99	0.17	1.00	**99%**
Cadmium	0.004	<0.001	0.005	**86%**
Chromium	0.97	<0.01	1.00	**97%**
Iron	0.97	0.10	1.00	**97%**
Lead	0.024	0.007	0.020	**102%**
Manganese	0.97	0.08	1.00	**97%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 19th ed., 1995.

Comments: Quality control run concurrently with the above sample lab numbers.

Reported by: WM

Reviewed by: SB

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: Giant Refinery Blmfld.

Project Location:

Sampler: (Signature) Anna Schaeres

Chain of Custody Tape No.:

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers					Remarks
RW-18	5-31-96	1010		H2O	6					
MW-9		1032			6					Depth 21.1 ft
MW-20		1053			6					depth 17.8 ft
MW-21		1112			6					Depth 20.01 ft.
MW-1		1140			7					Depth 10.7 ft
RW-15		1220			6					
MW-5		1238			7					Depth 45 ft
										Sampled from ≈
										9:00am to 1:00pm
										cool + intact

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Anna Schaeres	5/31/96	1330	Chris Rayner	5-31-96	1330
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945

☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945

☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737

☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450

☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945

☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

37211

GROUNDWATER
TECHNOLOGY ®

Groundwater Technology, Inc.

2501 Yale Boulevard, SE, Suite 204, Albuquerque, NM 87106 USA
Tel: (505) 242-3113 Fax: (505) 242-1103

12 January 1996

RECEIVED

JAN 1 6 1996

Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Land Office Building
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1
Giant Refining Company
50 County Road 4990
Bloomfield, New Mexico

Dear Mr. Anderson:

Enclosed are analytical results of groundwater samples collected from monitoring wells MW-1 and MW-5 on 7 December 1995, pursuant to the referenced facility's discharge plan. Should you have any questions concerning this matter, please contact Mr. Lynn Shelton of Giant at (505) 632-8013 or me at (505) 242-3113.

Sincerely,
Groundwater Technology, Inc.

Cymantha Liakos

Cymantha Liakos
Project Manager

ENCLOSURE
cc: L. Shelton - Giant Refining Company

GIANT REFINING COMPANY - BLOOMFIELD, NEW MEXICO
MONITORING UNDER DISCHARGE PLAN GRW-1-A

WELL MW-1

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	0.016
Barium	mg/l	0.02	1	ND	ND	0.25
Cadmium	mg/l	0.001	0.01	0.003	0.002	0.01
Chromium	mg/l	0.02	0.05	ND	ND	0.018
Lead	mg/l	0.005	0.05	ND	ND	0.086
Boron	mg/l	0.1	0.75	0.71	0.4	0.268
Iron	mg/l	0.03	1	0.19	1	46.268
Manganese	mg/l	0.02	0.2	9.22	7.2	0.943
Total Dissolved Solids	mg/l	10	1000	4400	4850	3516
Chloride	mg/l	5	250	1300	1730	1070.5
Sulfate	mg/l	10	600	780	899	815.5
Phenols	mg/l	0.05	0.005	ND	ND	0.055
Cyanide	mg/l	0.01	0.2	ND	ND	ND
Nitrate, Nitrite as N	mg/l	0.05	10	15	3	5.725
Ammonia	mg/l	0.07		3.9	4.8	
Total Kjeldahl Nitrogen	mg/l	0.5		10	10	
Benzene	ug/l	0.5	10	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND
pH	s.u.	0.01	6 to 9	7.16	7	7.31
Elevation at T.O.P.	ft	0.01		5515.78	5515.78	5515.78
Depth to Water	ft	0.01		17.65	15.64	16.19
Elevation at T.O.W.	ft	0.01		5498.13	5500.14	5499.59

ND = Not Detected
PQL = Practical Quantitation Level
NMWQ = New Mexico Water Quality

GROUNDWATER TECHNOLOGY ®

GIANT REFINING COMPANY - BLOOMFIELD, NEW MEXICO
MONITORING UNDER DISCHARGE PLAN GRW-1-A

WELL MW-5

			NMWQ	CURRENT	PREVIOUS	BASELINE
PARAMETER	UNIT	PQL	STANDARD	RESULT	RESULT	RESULT
Date of Sample				12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	0.004
Barium	mg/l	0.02	1	ND	ND	ND
Cadmium	mg/l	0.001	0.01	ND	ND	0.015
Chromium	mg/l	0.02	0.05	ND	ND	ND
Lead	mg/l	0.005	0.05	ND	ND	0.015
Boron	mg/l	0.1	0.75	0.81	0.5	0.48
Iron	mg/l	0.03	1	0.08	ND	0.061
Manganese	mg/l	0.02	0.2	0.24	0.1	0.128
Total Dissolved Solids	mg/l	10	1000	7500	7720	4746
Chloride	mg/l	5	250	2600	3180	1402
Sulfate	mg/l	10	600	960	943	1299
Phenols	mg/l	0.05	0.005	0.37	ND	0.008
Cyanide	mg/l	0.01	0.2	ND	ND	0.013
Nitrate, Nitrite as N	mg/l	0.05	10	16	19.3	24
Ammonia	mg/l	0.07		ND	0.2	
Total Kjeldahl Nitrogen	mg/l	0.5		5	1.2	
Benzene	ug/l	0.5	10	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND
pH	s.u.	0.01	6 to 9	7.16	7	7.41
Elevation at T.O.P.	ft	0.01		5545.13	5545.13	5545.13
Depth to Water	ft	0.01		44.45	43.98	41.85
Elevation at T.O.W.	ft	0.01		5500.68	5501.15	5503.28

ND = Not Detected
PQL = Practical Quantitation Level
NMWQ = New Mexico Water Quality

GROUNDWATER TECHNOLOGY®

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

CASE NARRATIVE

RECEIVED
JAN 09 1996

Client: GIANT REFINING COMPANY
Project: Bloomfield, NM Received on: 12/12/95
Set ID: 0595H10408 # samples: 7

Suites: 602, M+ Dissolved, Water Quality

Samples were received for analysis at Inter-Mountain Laboratories (IML), Bozeman, Montana. Enclosed are the results of these analyses.

Limits of detection for each instrument/analysis are determined by sample matrix effects, instrument performance under standard conditions, and dilution requirements to maintain chromatography output within calibration ranges. Quantitations have been calculated on an as received basis.

WS
Wynn Sudtelgte
IML-Bozeman

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	MW-1	Date Reported:	12/20/95
Project ID:	Bloomfield, NM	Date Sampled:	12/07/95
Lab ID:	B9510408	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/20/95

Parameter	Result	PQL	Units
Benzene	ND	0.5	ug/L
Ethylbenzene	ND	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	ND	0.5	ug/L
Toluene	ND	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

Reviewed us

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

DISSOLVED METALS ANALYSIS

Client: GIANT REFINING COMPANY
Sample ID: MW-1
Project ID: Bloomfield, NM
Lab ID: B9510408
Matrix: Water

Date Reported: 01/04/96
Date Sampled: 12/07/95
Date Received: 12/12/95

Parameter	Date Analyzed	Result	PQL	Units
Arsenic, Dissolved	01/03/96	ND	0.01	mg/L
Barium, Dissolved	01/03/96	ND	0.02	mg/L
Boron, Dissolved	01/03/96	0.71	0.1	mg/L
Cadmium, Dissolved	01/03/96	0.003	0.001	mg/L
Chromium, Dissolved	01/03/96	ND	0.02	mg/L
Iron, Dissolved	01/03/96	0.19	0.03	mg/L
Lead, Dissolved	01/03/96	ND	0.005	mg/L
Manganese, Dissolved	01/03/96	9.22	0.02	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).
Preparation: Method 3005: Acid Digestion of Waters.
Analysis: AA Graphite Furnace
Analysis: Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1983.
SW-846, United States Environmental Protection Agency, November, 1990.

Analyst

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

GENERAL PARAMETERS

Client: **GIANT REFINING COMPANY**
Sample ID: MW-1
Project ID: Bloomfield, NM
Lab ID: B9510408
Matrix: Water

Date Reported: 01/11/96
Date Sampled: 12/07/95
Date Received: 12/12/95
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL	Units
Ammonia as N	12/15/95	3.9	0.07	mg/L
Chloride	12/15/95	1300	5.0	mg/L
Cyanide, Total	12/21/95	ND	0.01	mg/L
Nitrate + Nitrite as N	12/15/95	15	0.05	mg/L
Nitrogen, Total Kjeldahl (TKN)	01/03/96	10	0.5	mg/L
Phenols	12/18/95	ND	0.05	mg/L
Solids, Total Dissolved (TDS)	12/15/95	4400	10	mg/L
Sulfate	12/14/95	780	10	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1982.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, Nov. 1986.

Analyst ms / ws

Reviewed ws

Inter-Mountain Laboratories, Inc.

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	MW-5	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/07/95
Lab ID:	B9510409	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/20/95

Parameter	Result	PQL	Units
Benzene	ND	0.5	ug/L
Ethylbenzene	ND	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	ND	0.5	ug/L
Toluene	ND	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

Reviewed ws

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

DISSOLVED METALS ANALYSIS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	MW-5	Date Reported:	01/04/96
Project ID:	Bloomfield, NM	Date Sampled:	12/07/95
Lab ID:	B9510409	Date Received:	12/12/95
Matrix:	Water		

Parameter	Date Analyzed	Result	PQL	Units
Arsenic, Dissolved	01/03/96	ND	0.01	mg/L
Barium, Dissolved	01/03/96	ND	0.02	mg/L
Boron, Dissolved	01/03/96	0.81	0.1	mg/L
Cadmium, Dissolved	01/03/96	ND	0.001	mg/L
Chromium, Dissolved	01/03/96	ND	0.02	mg/L
Iron, Dissolved	01/03/96	0.08	0.03	mg/L
Lead, Dissolved	01/03/96	ND	0.005	mg/L
Manganese, Dissolved	01/03/96	0.24	0.02	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).
Preparation: Method 3005: Acid Digestion of Waters.
Analysis: Method 6010: Inductively Coupled Plasma-Atomic Emission Spectroscopy
Analysis: AA Graphite Furnace

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1983.
SW-846, United States Environmental Protection Agency, November, 1990.

Analyst ____________ Reviewed ____________

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Bozeman, Montana 59715

GENERAL PARAMETERS

Client:	GIANT REFINING COMPANY		
Sample ID:	MW-5	Date Reported:	01/11/96
Project ID:	Bloomfield, NM	Date Sampled:	12/07/95
Lab ID:	B9510409	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA

Parameter	Date Analyzed	Result	PQL	Units
Ammonia as N	12/15/95	ND	0.07	mg/L
Chloride	12/15/95	2600	5.0	mg/L
Cyanide, Total	12/21/95	ND	0.01	mg/L
Nitrate + Nitrite as N	12/15/95	16	0.05	mg/L
Nitrogen, Total Kjeldahl (TKN)	01/03/96	5.0	0.5	mg/L
Phenols	12/18/95	0.37	0.05	mg/L
Solids, Total Dissolved (TDS)	12/15/95	7500	10	mg/L
Sulfate	12/14/95	960	10	mg/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1982.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, Nov. 1986.

Analyst ms / ud

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: MW-21
Project ID: Bloomfield, NM
Lab ID: B9510410
Matrix: Water

Date Reported: 12/22/95
Date Sampled: 12/08/95
Date Received: 12/12/95
Date Extracted: NA
Date Analyzed: 12/20/95

Parameter	Result	PQL	Units
Benzene	490	20	ug/L
Ethylbenzene	230	20	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	0.92	0.5	ug/L
Toluene	1.3	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	RW-15	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/08/95
Lab ID:	B9510411	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/21/95

Parameter	Result	PQL	Units
Benzene	18000	2000	ug/L
Ethylbenzene	2500	2000	ug/L
m,p-Xylene	9500	2000	ug/L
o-Xylene	5100	2000	ug/L
Toluene	22000	2000	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	MW-20	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/08/95
Lab ID:	B9510412	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/20/95

Parameter	Result	PQL	Units
Benzene	14	0.5	ug/L
Ethylbenzene	2.2	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	1.1	0.5	ug/L
Toluene	0.83	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	MW-9	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/08/95
Lab ID:	B9510413	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/21/95

Parameter	Result	PQL	Units
Benzene	14000	500	ug/L
Ethylbenzene	ND	500	ug/L
m,p-Xylene	4600	500	ug/L
o-Xylene	990	500	ug/L
Toluene	1600	500	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	RW-18	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/08/95
Lab ID:	B9510414	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/21/95

Parameter	Result	PQL	Units
Benzene	1800	100	ug/L
Ethylbenzene	ND	100	ug/L
m,p-Xylene	550	100	ug/L
o-Xylene	150	100	ug/L
Toluene	170	100	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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EPA METHOD 602
PURGEABLE AROMATIC COMPOUNDS

Client:	**GIANT REFINING COMPANY**		
Sample ID:	Trip Blank	Date Reported:	12/22/95
Project ID:	Bloomfield, NM	Date Sampled:	12/08/95
Lab ID:	B9510415	Date Received:	12/12/95
Matrix:	Water	Date Extracted:	NA
		Date Analyzed:	12/20/95

Parameter	Result	PQL	Units
Benzene	ND	1.0	ug/L
Ethylbenzene	ND	1.0	ug/L
m,p-Xylene	ND	1.0	ug/L
o-Xylene	ND	1.0	ug/L
Toluene	ND	1.0	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Reference: Method 602, Purgeable Aromatic Compounds, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, United States Environmental Protection Agency. Analysis Method: Gas Chromatograph / Purge and Trap / PID.

Analyst SR

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QUALITY ASSURANCE / QUALITY CONTROL

Inter-Mountain Laboratories, Inc.

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Bozeman, Montana 59715

LAB QA/QC
EPA METHOD 602
INSTRUMENT BLANK

Date Analyzed: **12/20/95**
Lab ID: IBW95354
Matrix: Water

Parameter	Result	PQL	Units
Benzene	ND	0.5	ug/L
Ethylbenzene	ND	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	ND	0.5	ug/L
Toluene	ND	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Analyst SR

Reviewed ud

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LAB QA/QC
EPA METHOD 602
INSTRUMENT BLANK

Date Analyzed: 12/19/95
Lab ID: IBW95353
Matrix: Water

Parameter	Result	PQL	Units
Benzene	ND	0.5	ug/L
Ethylbenzene	ND	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	ND	0.5	ug/L
Toluene	ND	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Analyst SR

Reviewed LS

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LAB QA/QC
EPA METHOD 602
INSTRUMENT BLANK

Date Analyzed: **12/21/95**
Lab ID: IBW95355
Matrix: Water

Parameter	Result	PQL	Units
Benzene	ND	0.5	ug/L
Ethylbenzene	ND	0.5	ug/L
m,p-Xylene	ND	0.5	ug/L
o-Xylene	ND	0.5	ug/L
Toluene	ND	0.5	ug/L

ND - Not Detected at Practical Quantitation Level (PQL).

Analyst SR

Reviewed US

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LAB QA/QC
EPA METHOD 602
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 12/20/95
Lab ID: 0595H10409
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Benzene	10	0	9.2	92	79 -117
Ethylbenzene	10	0	8.7	87	77 -121
m,p-Xylene	20	0	17	85	78 -134
o-Xylene	10	0	8.9	89	75 -117
Toluene	10	0	8.8	88	70 -126

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Benzene	10	8.9	89	3	25	79 -117
Ethylbenzene	10	8.7	87	0	25	77 -121
m,p-Xylene	20	17	85	0	25	78 -134
o-Xylene	10	8.7	87	2	25	75 -117
Toluene	10	8.8	88	0	25	70 -126

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst SR

Reviewed ub

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Bozeman, Montana 59715

LAB QA/QC
EPA METHOD 602
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: 12/19/95
Lab ID: 0595H10266
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Benzene	10	0	10	100	79 -117
Ethylbenzene	10	0	10	100	77 -121
m,p-Xylene	20	0	20	100	78 -134
o-Xylene	10	0	10	100	75 -117
Toluene	10	0	10	100	70 -126

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Benzene	10	9.8	98	2	25	79 -117
Ethylbenzene	10	9.5	95	5	25	77 -121
m,p-Xylene	20	19	95	5	25	78 -134
o-Xylene	10	9.3	93	7	25	75 -117
Toluene	10	9.3	93	7	25	70 -126

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst SR

Reviewed US

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LAB QA/QC
EPA METHOD 602
MATRIX SPIKE / MATRIX SPIKE DUPLICATE SUMMARY

Date Analyzed: **12/21/95**
Lab ID: 0595H10267
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
Benzene	10	0	11.5	115	79 -117
Ethylbenzene	10	0	10	100	77 -121
m,p-Xylene	20	0	22	110	78 -134
o-Xylene	10	0	11	110	75 -117
Toluene	10	0	11	110	70 -126

Duplicate Sample Parameters

Parameter	Spike Added (ug/L)	MSD Result (ug/L)	MSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Benzene	10	11	110	4	25	79 -117
Ethylbenzene	10	10	100	0	25	77 -121
m,p-Xylene	20	21	105	5	25	78 -134
o-Xylene	10	10	100	10	25	75 -117
Toluene	10	11	110	0	25	70 -126

Note: Spike Recoveries are calculated using zero for Sample result if Sample result was less than PQL (Practical Quantitation Level).

Spike Recovery: 0 out of 10 outside QC limits.
RPD: 0 out of 5 outside QC limits.

Analyst SR

Reviewed ub

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CHAIN OF CUSTODY RECORD

Client/Project Name: Giant Refining Co.

Project Location: Bloomfield, NM

Sampler: (Signature) Ken Cook

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX by USEPA 602	Dissolved Metals (As, Ba, Cd, Cr, Pb, Se, Fe & Mn)	TDS, chloride, sulfate, phenols, cyanide	Nitrate & nitrite, Total Kjeldahl Nitrogen, Ammonia	Remarks
~~MW-21~~ MW-1	12/7/95	1610	9510406	groundwater	6	X	X	X	X	Metals are unpreserved
~~BW-15~~ MW-5	↓	1740	10409	groundwater	6	X	X	X	X	& require filtering by
										lab immediately
										pH on ammonia
										< 2 and 12
										cyanide
										sample
										pH 7
										added NaOH

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Ken Cook	12/8/95	1150	Allison Pruitt	12/8/95	1156
IML - FM			Fed Ex (carrier)		
Fed Ex (carrier)			**Received by laboratory: (Signature)** Valerie Herzog	12/12/95	945am

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
- ☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19601

iml
Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
Giant Refining Co.	Bloomfield, NM
Sampler: (Signature)	**Chain of Custody Tape No.**
Kevin Cobb	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX by USEPA 602				Remarks
MW-21	12/8/95	0910	B95[illegible]	groundwater	2	X				[illegible]
RW-15	↓	1010	10411	↓	2	X				[illegible]
MW-20	↓	0945	10412	↓	2	X				[illegible]
MW-9	↓	0835	10413	↓	2	X				[illegible] Bladder
RW-18	↓	1040	10414	↓	2	X				[illegible] Bladder
Trip Blank			10415		1	✓				
										[illegible] Temp
										8.1
										([illegible])

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Kevin Cobb	12/8/95	1530	Eileen Purcell	12/8/95	1530
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
IML - FM			Fed Ex (Carrier)		
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**
Fed Ex (Carrier)			[illegible]	[illegible]	[illegible]

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19802

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'95 JUL 17 AM 8 52

July 11, 1995

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
2040 South Pacheco
Santa Fe, New Mexico 87505

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on May 22, 1995, are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Joe Warr
Dave Roderick
John Goodrich

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				5/22/95	12/21/94	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.006	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.002	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.005	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.400	0.190	0.268
IRON	mg/l	0.050	1.000	1.000	0.096	46.268
MANGANESE	mg/l	0.020	0.200	7.200	4.940	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	4850.000	4024.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1730.000	1630.000	1070.500
SULFATE	mg/l	1.000	600.000	899.000	1740.000	815.500
PHENOLS	mg/l	0.005	0.005	0.000	0.000	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	3.000	4.600	5.725
AMMONIA	mg/l	0.010		4.800	1.500	
TOTAL KELDAHL NITROGEN	mg/l	0.100		10.000	0.600	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.00	7.00	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.78	5515.78	5515.78
DEPTH TO WATER	ft	0.01		15.64	17.35	16.19
ELEVATION AT T.O.W.	ft	0.01		5500.14	5498.43	5499.59

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				5/22/95	12/21/94	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.027	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.000	0.002	0.015
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.000
LEAD	mg/l	0.005	0.050	0.000	0.000	0.015
BORON	mg/l	0.010	0.750	0.500	0.410	0.480
IRON	mg/l	0.050	1.000	0.000	0.071	0.061
MANGANESE	mg/l	0.020	0.200	0.100	0.142	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	7720.000	7390.000	4746.000
CHLORIDE	mg/l	1.000	250.000	3180.000	3170.000	1402.000
SULFATE	mg/l	1.000	600.000	943.000	1020.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.000	0.000	0.008
CYANIDE	mg/l	0.010	0.200	0.000	5.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	19.300	24.000	24.000
AMMONIA	mg/l	0.020		0.200	0.170	
TOTAL KELDAHL NITROGEN	mg/l	0.020		1.200	5.600	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.00	6.80	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.13	5545.13	5545.13
DEPTH TO WATER	ft	0.01		43.98	43.62	41.85
ELEVATION AT T.O.W.	ft	0.01		5501.15	5501.51	5503.28

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	06/22/95
Sample ID:	MW-1	Date Sampled:	05/22/95
Laboratory ID:	W00569	Time Sampled:	1400
Sample Matrix:	Water	Date Received:	05/22/95
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Chloride	1,730	mg/L
Sulfate	899	mg/L
Total Dissolved Solids	4,850	mg/L
Ammonia	4.8	mg/L
Nitrate as Nitrogen	3.0	mg/L
Nitrite as Nitrogen	<0.1	mg/L
Nitrate + Nitrite as N	3.0	mg/L
TKN	10	mg/L
Cyanide	<0.01	mg/L
Phenols	<0.01	mg/L

Trace Metals (Dissolved)

Parameter	Analytical Result	Units
Arsenic	<0.005	mg/L
Barium	<0.5	mg/L
Boron	0.4	mg/L
Cadmium	0.002	mg/L
Chromium	<0.02	mg/L
Iron	1.0	mg/L
Lead	<0.005	mg/L
Manganese	7.2	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 18th ed., 1992.

Reported by M. Klute

Reviewed by mh

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield NM	Report Date:	06/06/95
Sample ID:	MW-1	Date Sampled:	05/22/95
Lab ID:	W00569	Date Received:	05/22/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	06/05/95

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	110.1	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:

Anna Schaurer
Analyst

mk
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	06/22/95
Sample ID:	MW-5	Date Sampled:	05/22/95
Laboratory ID:	W00568	Time Sampled:	1330
Sample Matrix:	Water	Date Received:	05/22/95
Condition:	Cool/Intact		

Parameter	Analytical Result	Units
Chloride	3,180	mg/L
Sulfate	943	mg/L
Total Dissolved Solids	7,720	mg/L
Ammonia	0.20	mg/L
Nitrate as Nitrogen	19.3	mg/L
Nitrite as Nitrogen	<0.1	mg/L
Nitrate + Nitrite as N	19.3	mg/L
TKN	1.2	mg/L
Cyanide	<0.01	mg/L
Phenols	<0.01	mg/L

Trace Metals (Dissolved)

Arsenic	<0.005	mg/L
Barium	<0.5	mg/L
Boron	0.5	mg/L
Cadmium	<0.005	mg/L
Chromium	<0.02	mg/L
Iron	<0.05	mg/L
Lead	<0.005	mg/L
Manganese	0.10	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 18th ed., 1992.

Reported by M. Klute

Reviewed by mh

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield NM	Report Date:	06/06/95
Sample ID:	MW-5	Date Sampled:	05/22/95
Lab ID:	W00568	Date Received:	05/22/95
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	05/31/95

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	116.2	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 Schaerer
Analyst

MK
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Assurance / Quality Control

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Matrix Spike Analysis

Lab ID:	G00568		Report Date:	06/08/95
Sample Matrix:	Water		Date Analyzed:	05/31/95
Condition:	Cool/Intact			

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	37.06	0.11	50	73.9%	70-130
Toluene	45.90	0.31	50	91.2%	70-130
Ethylbenzene	47.06	0.00	50	94.1%	70-130
m,p-Xylenes	47.72	0.53	50	47.2%	70-130
o-Xylene	45.37	0.15	50	90.4%	70-130

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

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	111.8%	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:

Anna Schaerer
Analyst

MK
Review

Inter·Mountain Laboratories, Inc

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

Dissolved Metals

Client:	**Bloomfield Refining Co.**	Date Reported:	06/22/95
Project:	Bloomfield NM	Date Sampled:	05/22/95
Laboratory ID:	W00568-W00569	Date Received:	05/22/95
Sample Matrix:	Water		

Known Analysis

Parameter	Found Result	Known Result	Units	Percent Recovery
Arsenic	0.010	0.010	mg/L	100%
Barium	1.09	1.00	mg/L	109%
Boron	1.04	1.00	mg/L	104%
Cadmium	0.004	0.004	mg/L	100%
Chromium	1.01	1.00	mg/L	101%
Iron	1.04	1.00	mg/L	104%
Lead	0.040	0.040	mg/L	100%
Manganese	1.04	1.00	mg/L	104%

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 18th ed., 1992.

Comments: Quality control run concurrently with the above sample lab numbers.

Reported by: M. Klute

Reviewed by: mh

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Spike Analysis

Dissolved Metals

Client:	**Bloomfield Refining Co.**	Date Reported:	06/22/95
Project:	Bloomfield NM	Date Sampled:	05/22/95
Laboratory ID:	W00568-W00569	Date Received:	05/22/95
Sample Matrix:	Water		

Spike Analysis

Parameter	Spiked Sample Result	Sample Result	Spike Added	Percent Recovery
Arsenic	0.048	0.00	0.100	**95%**
Barium	0.51	0.04	0.50	**96%**
Boron	0.82	0.37	0.50	**99%**
Cadmium	0.002	0.00	0.005	**95%**
Chromium	0.46	0.00	0.50	**93%**
Iron	1.42	1.03	0.50	**97%**
Lead	0.021	0.003	0.050	**78%**
Manganese	6.99	7.21	0.50	**101%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983. "Standard Methods For The Examination Of Water And Waste Water", 18th ed., 1992.

Comments: Quality control run concurrently with the above sample lab numbers.

Reported by: M. Klute

Reviewed by: mh

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Duplicate Analysis

Lab ID:	W00570	Report Date:	06/06/95
Sample Matrix:	Water	Date Sampled:	05/22/95
Condition:	Cool/Intact	Date Received:	05/22/95
		Date Extracted:	NA
		Date Analyzed:	06/05/95

Target Analyte	Duplicate Concentration (ppb)	Original Concentration (ppb)	% Difference
Benzene	ND	ND	NA
Toluene	4.3	4.5	4.5
Ethylbenzene	0.2	0.2	0.0
m,p-Xylenes	0.8	0.8	0.0
o-Xylene	0.9	0.8	11.8

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

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	111.3%	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:

Anna Schaurer
Analyst

MK
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix: Water
Lab ID: Method Blank

Report Date: 06/06/95
Date Analyzed: 05/31/95

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	111.6	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 Schaerer
Analyst

MK
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis
BTEX

Client:	**Bloomfield Refining Co.**	Date Reported:	06/06/95
Project:	Bloomfield NM	Date Analyzed:	06/05/95
Sample Matrix:	Water		

Known Analysis

Parameter	Found Concentration (ppb)	Known Concentration (ppb)	Percent Recovery
Benzene	9.1	10.0	**91%**
Toluene	8.3	10.0	**83%**
Ethylbenzene	9.2	10.0	**92%**
m+p-Xylene	9.6	10.0	**96%**
o-Xylene	7.5	10.0	**75%**

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Bromofluorobenzene	113.7	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 Schaerer

Reviewed by MK

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: BLOOMFIELD REFINING CO

Project Location: BLOOMFIELD NM

Sampler: (Signature) Clint Harvey

Chain of Custody Tape No.

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TDS, Cl, SO4, NO2	As, Ba, Cd, Cr, Pb, B, Fe, Mn	NO3, NH4, TKN	CN-	PHENOLS	BTEX	Remarks
MW-5	5/22/95	1:30P		WATER	8	1	1	1	1	2	2	~0 BTEX
MW-1	5/22/95	2:00P		WATER	8	1	1	1	1	2	2	~0 BTEX
~~[illegible]~~ NOWP-E DISC.	5/22/95	2:30P		WATER	2						2	~0 BTEX
												MW-5 & MW-1 SAME AS ID# W02315 & W02316

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Clint Harvey	5/22/95	4:00P	[signature]	5/22/95	16:03
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1701 Phillips Circle, Gillette, Wyoming 82718, Telephone (307) 682-8945
- ☒ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
- ☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

28246

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERV... ON DIVISION
RECEIVED

'95 MAR 22 PM 8 52

March 2, 1995

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our February 1995 waste water effluent report. If you have any questions, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1995	4,379,200
February 1995	4,702,600

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED
'95 FEB 13 AM 8 52

February 1, 1995

RECEIVED
FEB 21 1995
Environmental Bureau
Oil Conservation Division

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our January 1995 waste water effluent report. If you have any question, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/ah

Enclosure

cc: Joe Warr
Dave Roderick

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged
to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1995	4,379,200

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'95 JAN 12 AM 8 52

January 3, 1995

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our December 1994 waste water effluent report. If you have any question, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/ah

Enclosure

cc: Joe Warr
Dave Roderick

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

Bloomfield Refining Company

A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'95 JAN 19 AM 8 52

January 16, 1995

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on December 21, 1994, are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley

Chris Hawley
Environmental Manager

CH/ah

Enclosure

cc: John Goodrich
Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/21/94	8/3/94	1984/1985
ARSENIC	mg/l	0.005	0.100	0.006	0.006	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.005	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.190	0.480	0.268
IRON	mg/l	0.050	1.000	0.096	0.050	46.268
MANGANESE	mg/l	0.020	0.200	4.940	2.430	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	4024.000	3856.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1630.000	1510.000	1070.500
SULFATE	mg/l	1.000	600.000	1740.000	559.000	815.500
PHENOLS	mg/l	0.005	0.005	0.000	0.000	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	4.600	1.500	5.725
AMMONIA	mg/l	0.010		1.500	2.600	
TOTAL KELDAHL NITROGEN	mg/l	0.100		0.600	2.800	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.00	7.21	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.78	5515.78	5515.78
DEPTH TO WATER	ft	0.01		17.35	14.57	16.19
ELEVATION AT T.O.W.	ft	0.01		5498.43	5501.21	5499.59

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/21/94	8/03/94	1984/1985
ARSENIC	mg/l	0.005	0.100	0.027	0.007	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.002	0.004	0.015
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.000
LEAD	mg/l	0.005	0.050	0.000	0.160	0.015
BORON	mg/l	0.010	0.750	0.410	0.550	0.480
IRON	mg/l	0.050	1.000	0.071	0.060	0.061
MANGANESE	mg/l	0.020	0.200	0.142	0.240	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	7390.000	8878.000	4746.000
CHLORIDE	mg/l	1.000	250.000	3170.000	2490.000	1402.000
SULFATE	mg/l	1.000	600.000	1020.000	966.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.000	0.000	0.008
CYANIDE	mg/l	0.010	0.200	5.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	24.000	18.700	24.000
AMMONIA	mg/l	0.020		0.170	0.000	
TOTAL KELDAHL NITROGEN	mg/l	0.020		5.600	2.800	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	6.80	7.16	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.13	5545.13	5545.13
DEPTH TO WATER	ft	0.01		43.62	42.80	41.85
ELEVATION AT T.O.W.	ft	0.01		5501.51	5502.33	5503.28

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	01/11/95
Sample ID:	MW-1	Date Sampled:	12/21/94
Laboratory ID:	W02316	Time Sampled:	1000
Sample Matrix:	Water	Date Received:	12/21/94
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Chloride	1,630	mg/L	45.92	meq/L
Sulfate	1,740	mg/L	36.20	meq/L
Total Dissolved Solids	4024	mg/L		
Ammonia	1.5	mg/L		
Nitrate + Nitrite as N	4.6	mg/L		
TKN	0.6	mg/L		
Cyanide	<0.01	mg/L		
Phenols	<0.05	mg/L		

Trace Metals (Dissolved)

Arsenic	0.006	mg/L
Barium	<0.5	mg/L
Boron	0.19	mg/L
Cadmium	<0.002	mg/L
Chromium	<0.02	mg/L
Iron	0.096	mg/L
Lead	<0.005	mg/L
Manganese	4.94	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by I Garman

Reviewed by

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/30/94
Sample ID:	MW - 1	Date Sampled:	12/21/94
Lab ID:	2316	Date Received:	12/21/94
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	12/28/94

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	97.0	86 -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:

Anna Schaerer
Analyst

[signature]
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	01/11/95
Sample ID:	MW-5	Date Sampled:	12/21/94
Laboratory ID:	W02315	Time Sampled:	0930
Sample Matrix:	Water	Date Received:	12/21/94
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Chloride	3,170	mg/L	89.56	meq/L
Sulfate	1,020	mg/L	21.20	meq/L
Total Dissolved Solids	7390	mg/L		
Ammonia	0.17	mg/L		
Nitrate + Nitrite as N	24.0	mg/L		
TKN	5.6	mg/L		
Cyanide	5	mg/L		
Phenols	<0.05	mg/L		

Trace Metals (Dissolved)

Arsenic	0.027	mg/L
Barium	<0.5	mg/L
Boron	0.41	mg/L
Cadmium	0.002	mg/L
Chromium	<0.02	mg/L
Iron	0.071	mg/L
Lead	<0.005	mg/L
Manganese	0.142	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by D Garman

Reviewed by dt

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/30/94
Sample ID:	MW -5	Date Sampled:	12/21/94
Lab ID:	2315	Date Received:	12/21/94
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	12/28/94

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	96.4	86 -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:

Anna Schaerer
Analyst

Darman
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Assurance / Quality Control

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

DISSOLVED METALS

Client:	**Bloomfield Refinery Co.**	Date Reported:	01/11/95
Project:	Bloomfield, NM	Date Received:	12/21/94
Lab ID:	2315-16		
Sample Matrix:	Water		

Known Analysis

Parameter	Found Concentration (mg/L)	Known Concentration (mg/L)	Percent Recovery
Arsenic	0.010	0.010	**100%**
Barium	4.47	5.00	**89%**
Boron	2.76	3.00	**92%**
Cadmium	0.004	0.004	**100%**
Chromium	0.041	0.040	**103%**
Iron	1.00	1.00	**100%**
Lead	0.040	0.040	**100%**
Manganese	1.00	1.00	**100%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by Darman

Reviewed by AH

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Spike Analysis

DISSOLVED METALS

Client:	**Bloomfield Refinery Co.**	Date Reported:	01/11/95
Project:	Bloomfield, NM	Date Received:	12/21/94
Lab ID:	2315-16		
Sample Matrix:	Water		

Spike Analysis

Parameter	Spiked Sample Result	Sample Result	Spike Added	Percent Recovery
Arsenic	0.025	0.001	0.050	**100%**
Barium	4.17	0.03	5.00	**83%**
Boron	0.57	0.06	0.51	**102%**
Cadmium	0.003	0.001	0.005	**107%**
Chromium	0.027	0.00	0.050	**106%**
Iron	2.43	0.01	5.00	**97%**
Lead	0.023	0.00	0.050	**91%**
Manganese	2.54	0.04	5.00	**101%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by Kauman

Reviewed by At

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: BLOOMFIELD REFINING CO

Project Location: BLOOMFIELD, NM

Sampler: (Signature) [signature]

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TDS, Cl, SO4, NO2	As, Ba, Cd, Cr, Pb, B, Fe, Mn	NO3, NH4+ TKN	CN-	PHENOLS	BTEX	TOTAL VO's	Remarks
MW-5	12/21/94	9:30		WATER	8	1	1	1	1	2	2		
MW-1	12/21/94	10:00		WATER	8	1	1	1	1	2	2		
NOWP-E DISCHARGE	12/21/94	10:30		WATER	2						2		
API DISCHARGE	12/21/94	11:00		WATER	2							2	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12/21/94	3:52P	[signature]	12/21	3:52
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

20812

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged
to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500
July 1994	2,842,900
August 1994	2,910,400
September 1994	3,061,800
October 1994	2,720,200
November 1994	4,056,900
December 1994	5,086,000
TOTAL 1994	39,307,400
TOTAL 1994 (ACRE-FT)	120.61

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

'94 DE 7 AM 8 52

December 2, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our November 1994 waste water effluent report. If you have any question, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/ah

Enclosure

cc: Joe Warr
Dave Roderick

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500
July 1994	2,842,900
August 1994	2,910,400
September 1994	3,061,800
October 1994	2,720,200
November 1994	4,056,900

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED
'94 NO 4 AM 8 52

November 2, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our October 1994 waste water effluent report. If you have any question, please call me.

Sincerely,

Chris Hawley
Chris Hawley
Environmental Manager

CH/ah

Enclosure

cc: Joe Warr
Dave Roderick

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500
July 1994	2,842,900
August 1994	2,910,400
September 1994	3,061,800
October 1994	2,720,200

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'94 SE 14 AM 8 50

September 9, 1994

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on August 3, 1994, are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: John Goodrich
Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				8/3/94	12/13/93	1984/1985
ARSENIC	mg/l	0.005	0.100	0.006	0.000	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.005	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.480	0.470	0.268
IRON	mg/l	0.050	1.000	0.050	0.000	46.268
MANGANESE	mg/l	0.020	0.200	2.430	3.700	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	3856.000	4380.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1510.000	1840.000	1070.500
SULFATE	mg/l	1.000	600.000	559.000	420.000	815.500
PHENOLS	mg/l	0.005	0.005	0.000	0.000	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	1.500	6.440	5.725
AMMONIA	mg/l	0.010		2.600	0.000	
TOTAL KELDAHL NITROGEN	mg/l	0.100		2.800	3.170	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.21	7.00	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.78	5515.78	5515.78
DEPTH TO WATER	ft	0.01		14.57	17.26	16.19
ELEVATION AT T.O.W.	ft	0.01		5501.21	5498.52	5499.59

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				8/03/94	12/13/93	1984/1985
ARSENIC	mg/l	0.005	0.100	0.007	0.000	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.004	0.000	0.015
CHROMIUM	mg/l	0.020	0.050	0.000	0.020	0.000
LEAD	mg/l	0.005	0.050	0.160	0.000	0.015
BORON	mg/l	0.010	0.750	0.550	0.580	0.480
IRON	mg/l	0.050	1.000	0.060	0.500	0.061
MANGANESE	mg/l	0.020	0.200	0.240	0.460	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	8878.000	7390.000	4746.000
CHLORIDE	mg/l	1.000	250.000	2490.000	3190.000	1402.000
SULFATE	mg/l	1.000	600.000	966.000	1050.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.000	0.000	0.008
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	18.700	7.470	24.000
AMMONIA	mg/l	0.020		0.000	0.080	
TOTAL KELDAHL NITROGEN	mg/l	0.020		2.800	3.520	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.16	6.80	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.13	5545.13	5545.13
DEPTH TO WATER	ft	0.01		42.80	42.05	41.85
ELEVATION AT T.O.W.	ft	0.01		5502.33	5503.08	5503.28

BLOOMFIELD REFINING COMPANY - GROUNDWATER WELL DATA AND ELEVATIONS (8/2/94)

WELL NO.	DATE INSTALL	ELEV. T.O.P. (FT)	STICKUP (FT)	ELEV. GRADE (FT)	DEPTH OF CASING FR T.O.P. (FT)	FROM T.O.P. TO LIQ. (FT)	HC THKNESS (FT)	ELEV. TOP OF LIQUID (FT)	ELEV. TOP OF WATER (FT)	ELEV. TOP OF SCREEN (FT)	ELEV. BTM. OF SCREEN (FT)	ELEV. TOP OF GRAVEL (FT)	ELEV. TOP OF NACIMTO (FT)
MW-1	02/08/84	5515.78	1.7	5514.08	24.65	14.57	0.00	5501.21	5501.21	5511.13	5491.13	5509.08	5492.08
MW-3	02/09/84	5535.88	1.0	5534.88	39.35	33.90	0.00	5501.98	5501.98	5516.53	5496.53	5507.88	5494.88
MW-4	02/09/84	5524.46	1.4	5523.06	32.50	24.89	0.01	5499.57	5499.56	5511.96	5491.96	5508.06	5491.06
MW-5	02/06/84	5545.13	1.0	5544.13	51.61	42.80	0.00	5502.33	5502.33	5513.52	5493.52	5509.13	5497.13
MW-6	02/07/84	5551.20	1.6	5549.60	49.63	49.63	0.00	5501.57	5501.57	5521.57	5501.57	5508.60	5500.60
MW-7	02/25/86	5524.25	1.1	5523.15	62.11	25.37	0.00	5498.88	5498.88	5474.14	5464.14	5506.15	5491.15
MW-8	02/28/86	5531.17	1.0	5530.17	34.94	29.35	0.00	5501.82	5501.82	5518.23	5498.23	5510.17	5496.17
MW-9	03/03/86	5519.77	1.7	5518.07	33.99	19.90	0.01	5499.87	5499.86	5507.78	5487.78	5503.07	5489.77
RW-1	08/31/88	5526.01	1.4	5524.61	40.98	26.76	0.00	5499.25	5499.25	5507.21	5491.61	5506.61	5492.01
P-1	08/30/88	5524.49	0.8	5523.69	42.45	25.44	0.00	5499.05	5499.05	5503.19	5487.19	5503.69	5487.19
RW-2	08/29/88	5523.61	0.5	5523.11	38.03	24.14	0.01	5499.47	5499.46	5506.58	5490.88	5508.11	5491.11
P-2	08/29/88	5523.86	0.8	5523.06	38.33	24.45	0.01	5499.41	5499.40	5506.13	5490.83	5510.06	5491.56
RW-3	03/04/86	5516.96	1.4	5515.56	33.93	18.27	0.00	5498.69	5498.69	5505.03	5485.03	5505.56	5492.56
P-3	09/01/88	5507.31	0.8	5506.51	22.80	9.00	0.00	5498.31	5498.31	5500.36	5489.91	5506.51	5492.51
MW-11	07/31/87	5506.89	3.6	5503.29	24.73	9.87	0.00	5497.02	5497.02	5497.16	5487.16	5503.29	5493.29
MW-12	08/01/87	5498.42	2.5	5495.92	14.22	9.65	0.00	5488.77	5488.77	5494.20	5484.20	5495.92	5485.92
MW-13	09/03/88	5538.54	3.3	5535.24	53.00	38.69	0.00	5499.85	5499.85	5506.51	5490.74	5508.24	5490.24
RW-14	08/06/90	5534.13	1.9	5532.23	43.00	32.71	0.01	5501.42	5501.41	5511.13	5493.13	5508.23	5493.73
RW-15	08/07/90	5533.44	1.7	5531.74	43.40	32.38	0.01	5501.06	5501.05	5510.04	5492.04	5512.74	5496.74
RW-16	08/07/90	5532.09	1.8	5530.29	43.10	31.56	0.01	5500.53	5500.52	5508.99	5490.99	5511.29	5492.79
RW-17	08/07/90	5530.46	1.6	5528.86	41.55	30.36	0.01	5500.10	5500.09	5508.91	5490.91	5503.86	5493.56
RW-18	08/08/90	5526.08	2.6	5523.48	39.95	26.01	0.01	5500.07	5500.06	5506.13	5488.13	5504.48	5494.48
RW-19	08/08/90	5527.27	1.5	5525.77	36.70	27.38	0.01	5499.89	5499.88	5510.57	5492.57	5505.77	5492.77
MW-20	09/13/91	5516.46	1.8	5514.66	27.18	16.50	0.00	5499.96	5499.96	5506.28	5491.28	5504.16	5490.66
MW-21	09/16/91	5518.62	1.6	5517.02	30.93	18.35	0.00	5500.27	5500.27	5504.69	5489.69	5505.02	5492.52
MW-22	07/19/93	5521.05	3.0	5518.05	35.73	21.22	0.01	5499.83	5499.82	5503.32	5487.32	5503.05	5491.05
MW-23	07/19/93	5517.74	2.0	5515.74	35.39	18.23	0.01	5499.51	5499.50	5500.35	5484.35	5508.74	5486.74
MW-24	09/15/93	5508.23	3.0	5505.23	14.85	14.85	0.00	5493.38	5493.38	5493.38	5493.38	5503.23	5492.88
MW-25	05/11/94	5530.45	3.1	5527.35	41.24	30.95	0.00	5499.50	5499.50	5505.21	5491.21	5502.85	5492.35
MW-26	05/12/94	5514.54	2.1	5512.44	25.25	15.94	0.00	5498.60	5498.60	5505.29	5491.29	5504.44	5492.44
MW-27	05/18/94	5515.26	2.8	5512.46	24.49	17.51	0.01	5497.75	5497.74	5507.77	5492.77	5505.46	5494.46
MW-28	05/13/94	5524.52	2.0	5522.52	37.15	24.85	0.02	5499.67	5499.65	5504.37	5489.37	5505.52	5490.52
MW-29	05/12/94	5521.55	3.0	5518.55	28.74	20.32	0.00	5501.23	5501.23	5508.81	5494.81	5506.55	5495.55
MW-30	05/13/94	5533.42	2.0	5531.42	40.16	31.60	0.00	5501.82	5501.82	5510.26	5495.26	5509.42	5496.42
MW-31	05/12/94	5532.17	1.6	5530.57	39.22	32.34	0.00	5499.83	5499.83	5508.95	5494.95	5504.57	5496.57

Inter·Mountain
Laboratories, Inc.

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

September 6, 1994

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

Dear Mr. Hawley:

Enclosed are the analytical results for the water samples received at Inter-Mountain Labs-Farmington, New Mexico on August 3, 1994. The project was identified as "Bloomfield, NM". Analyses for TDS, Chlorides, Sulfates, Nutrients, Cyanides, Phenols and Dissolved Metals were performed as specified on the accompanying Chain of Custody form.

Tests were conducted in accordance with 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis," as amended.

If you have any questions or comments about the analyses, please feel free to contact me at your convenience.

Sincerely,

Austin Wallace

Austin Wallace
Water Lab Supervisor
IML-Farmington

xc/file

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	09/06/94
Sample ID:	MW-1	Date Sampled:	08/03/94
Laboratory ID:	W01154	Time Sampled:	0915
Sample Matrix:	Water	Date Received:	08/03/94
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Chloride	1,510	mg/L	42.72	meq/L
Sulfate	559	mg/L	11.65	meq/L
Total Dissolved Solids	3856	mg/L		
Ammonia	2.6	mg/L		
Nitrate	1.5	mg/L		
Nitrite	<0.04	mg/L		
TKN	2.8	mg/L		
Cyanide	<0.01	mg/L		
Phenols	<0.05	mg/L		

Trace Metals (Dissolved)

Arsenic	0.006	mg/L
Barium	<0.5	mg/L
Boron	0.48	mg/L
Cadmium	<0.002	mg/L
Chromium	<0.02	mg/L
Iron	0.05	mg/L
Lead	<0.005	mg/L
Manganese	2.43	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by Austin Cool

Reviewed by AH

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refinery Co.**		
Project:	Bloomfield, NM	Date Reported:	09/06/94
Sample ID:	MW-5	Date Sampled:	08/03/94
Laboratory ID:	W01155	Time Sampled:	0830
Sample Matrix:	Water	Date Received:	08/03/94
Condition:	Cool/Intact		

Parameter	Analytical Result	Units		Units
Chloride	2,490	mg/L	70.38	meq/L
Sulfate	966	mg/L	20.11	meq/L
Total Dissolved Solids	8878	mg/L		
Ammonia	<0.05	mg/L		
Nitrate	18.7	mg/L		
Nitrite	<0.04	mg/L		
TKN	2.8	mg/L		
Cyanide	<0.01	mg/L		
Phenols	<0.05	mg/L		

Trace Metals (Dissolved)

Arsenic	0.007	mg/L
Barium	<0.5	mg/L
Boron	0.55	mg/L
Cadmium	0.004	mg/L
Chromium	<0.02	mg/L
Iron	0.06	mg/L
Lead	0.16	mg/L
Manganese	0.24	mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by Asti Cez

Reviewed by AH

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Known Analysis

DISSOLVED METALS

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

Date Reported: 09/06/94
Date Analyzed: 08/8-19/94
Date Received: 08/03/94

Known Analysis

Parameter	Found Concentration (mg/L)	Known Concentration (mg/L)	Percent Recovery
Arsenic	0.022	0.020	**110%**
Barium	1.00	1.00	**100%**
Boron	0.99	1.00	**99%**
Cadmium	0.004	0.004	**100%**
Chromium	0.038	0.040	**95%**
Iron	1.09	1.00	**109%**
Lead	0.98	1.00	**98%**
Manganese	1.02	1.00	**102%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reported by Austin Coe

Reviewed by Melissa Kieto

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: BLOOMFIELD REFINING COMPANY

Project Location: BLOOMFIELD, NM

Sampler: (Signature) [signature]

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TDS, Cl, SO4, NO2	As, Ba, Cd, Cr, Pb, B, Fe, Mn	NO3, NH4, TKN	CN⁻	PHENOLS	Remarks
MW-1	8/3/94	9:15a	W01154	WATER	5	1	1	1		2	FILE COPY
MW-5	8/3/94	8:30a	W01155	WATER	5	1	1	1		2	
											Note * Cyanides were pulled out of the run + CN⁻ analysis needed for both samples 8/3/94 BS

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	8/3/94	4:04p	[signature] S Garcia	8-03-94	1625
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
- ☑ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
- ☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

19605

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'94 SEP 5 AM 8 50

September 1, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our August 1994 waste water effluent report. If you have any questions, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick
Joe Warr

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500
July 1994	2,842,900
August 1994	2,910,400

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERV... ON DIVISION
RECEIVED
'94 AU 4 AM 8 50

August 1, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our July 1994 waste water effluent report. If you have any questions, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500
July 1994	2,842,900

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED
'94 JUL 12 AM 8 50

July 5, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our June 1994 waste water effluent report. If you have any questions, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900
June 1994	3,158,500

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600
March 1994	2,607,000
April 1994	3,283,200
May 1994	3,268,900

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1993	3,611,500
February 1993	2,498,600
March 1993	2,620,400
April 1993	3,364,700
May 1993	3,618,500
June 1993	3,093,500
July 1993	3,427,700
August 1993	4,025,000
September 1993	3,483,100
October 1993	3,193,800
November 1993	3,298,200
December 1993	3,513,800
Total 1993	39,748,800

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSER... DIVISION
RECEIVED
'94 MAR 7 AM 8 39

March 4, 1994

Mr. Roger Anderson
Environmental Bureau
New Mexico OCD
P. O. Box 2088
Santa Fe, New Mexico 87504-2088

RE: Monthly Water Effluent Report

Dear Mr. Anderson:

Please find attached our February 1994 waste water effluent report. If you have any questions, please call me.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY

Monthly Report of Water Discharged to the Solar Evaporation Ponds

Month	Water Discharged (Gallons)
January 1994	3,708,000
February 1994	2,603,600

Bloomfield Refining
Company
A Gary Energy Corporation Subsidiary

OIL CONSER... DIVISION
REC... VED
'94 JAN 12 AM 7 21

January 10, 1994

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on December 13, 1993 are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley

Chris Hawley
Environmental Manager

CH/jm

Enclosures

cc: John Goodrich
Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/13/93	5/14/93	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.000	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.005	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.470	0.350	0.268
IRON	mg/l	0.050	1.000	0.000	0.000	46.268
MANGANESE	mg/l	0.020	0.200	3.700	3.710	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	4380.000	4440.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1840.000	1740.000	1070.500
SULFATE	mg/l	1.000	600.000	420.000	563.000	815.500
PHENOLS	mg/l	0.005	0.005	0.000	0.000	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	6.440	6.910	5.725
AMMONIA	mg/l	0.010		0.000	2.040	
TOTAL KELDAHL NITROGEN	mg/l	0.100		3.170		
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.00	6.80	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.77	5515.77	5515.77
DEPTH TO WATER	ft	0.01		17.26	16.48	16.19
ELEVATION AT T.O.W.	ft	0.01		5498.51	5499.29	5499.58

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/13/93	5/14/93	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.008	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.015
CHROMIUM	mg/l	0.020	0.050	0.020	0.000	0.000
LEAD	mg/l	0.005	0.050	0.000	0.000	0.015
BORON	mg/l	0.010	0.750	0.580	0.480	0.480
IRON	mg/l	0.050	1.000	0.500	0.000	0.061
MANGANESE	mg/l	0.020	0.200	0.460	0.320	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	7390.000	7600.000	4746.000
CHLORIDE	mg/l	1.000	250.000	3190.000	3100.000	1402.000
SULFATE	mg/l	1.000	600.000	1050.000	1120.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.000	0.000	0.008
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	7.470	21.120	24.000
AMMONIA	mg/l	0.020		0.080	4.060	
TOTAL KELDAHL NITROGEN	mg/l	0.020		3.520		
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	6.80	6.70	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.10	5545.10	5545.10
DEPTH TO WATER	ft	0.01		42.05	43.08	41.85
ELEVATION AT T.O.W.	ft	0.01		5503.05	5502.02	5503.25

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Dissolved Metals

Client:	**BLOOMFIELD REFINING COMPANY**	Date Reported:	01/04/94
Project:	BLOOMFIELD, NM	Date Sampled:	12/13/93
Sample ID:	MW-1	Date Received:	12/13/93
Laboratory ID:	4339		
Sample Matrix:	Water		
Condition:	Cool/Intact		

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Analysis Date
Arsenic	**ND**	0.005	12/16/93
Barium	**ND**	0.5	12/15/93
Boron	**0.47**	0.01	12/22/93
Cadmium	**ND**	0.002	12/15/93
Chromium	**ND**	0.02	12/16/93
Iron	**ND**	0.05	12/15/93
Lead	**ND**	0.005	12/15/93
Manganese	**3.70**	0.02	12/16/93

ND - Not detected at the stated detection limit

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Gloria Bartlett
Reported By:

Reviewed By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client:	**BLOOMFIELD REFINING COMPANY**	Date Reported:	01/04/94
Project:	BLOOMFIELD, NM	Date Sampled:	12/13/93
Sample ID:	**MW-1**	Date Received:	12/13/93
Laboratory ID:	4339		
Sample Matrix:	Water		
Condition:	Cool/Intact		

Parameter	Analytical Result	Units	Date of Analysis
Chloride	**1840**	mg/L	12/17/93
Ammonia	**ND**	mg/L	12/27/93
Nitrate Nitrogen	**6.44**	mg/L	12/23/93
Nitrite Nitrogen	**ND**	mg/L	12/16/93
Sulfate	**420**	mg/L	12/15/93
Total Dissolved Solids	**4380**	mg/L	12/15/93
Total Kjedahl Nitrogen	**3.17**	mg/L	01/03/94
Total Cyanide	**ND**	mg/L	12/28/93
Phenol	**ND**	mg/L	12/21/93

ND-Analyte not detected

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Comments:

Gloria Bartlett
Reported By:

[signature]
Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

PURGEABLE AROMATICS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/20/93
Sample ID:	MW - 1	Date Sampled:	12/13/93
Lab ID:	4339	Date Received:	12/13/93
Sample Matrix:	Water	Date Analyzed:	12/20/93
Preservative:	Cool, HCl		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	100	88 -110%
Bromofluorobenzene	95	86 -115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Dissolved Metals

Client:	**BLOOMFIELD REFINING COMPANY**	Date Reported:	01/04/94
Project:	BLOOMFIELD, NM	Date Sampled:	12/13/93
Sample ID:	MW-5	Date Received:	12/13/93
Laboratory ID:	4340		
Sample Matrix:	Water		
Condition:	Cool/Intact		

Parameter	Concentration (mg/L)	Detection Limit (mg/L)	Analysis Date
Arsenic	**ND**	0.005	12/16/93
Barium	**ND**	0.5	12/15/93
Boron	**0.58**	0.01	12/22/93
Cadmium	**ND**	0.002	12/15/93
Chromium	**0.02**	0.02	12/16/93
Iron	**0.50**	0.05	12/15/93
Lead	**ND**	0.005	12/15/93
Manganese	**0.46**	0.02	12/16/93

ND - Not detected at the stated detection limit

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Gloria Bartlett
Reported By:

D. Ba
Reviewed By:

2506 W. Main Street
Farmington, New Mexico 87401

WATER ANALYSIS

Client: **BLOOMFIELD REFINING COMPANY**
Project: BLOOMFIELD, NM
Sample ID: **MW-5**
Laboratory ID: 4340
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 01/05/94
Date Sampled: 12/13/93
Date Received: 12/13/93

Parameter	Analytical Result	Units	Date of Analysis
Chloride	**3190**	mg/L	12/17/93
Ammonia	**0.08**	mg/L	12/27/93
Nitrate Nitrogen	**7.47**	mg/L	12/23/93
Nitrite Nitrogen	**ND**	mg/L	12/16/93
Sulfate	**1050**	mg/L	12/15/93
Total Dissolved Solids	**7390**	mg/L	12/15/93
Total Kjedahl Nitrogen	**3.52**	mg/L	01/03/94
Total Cyanide	**ND**	mg/L	12/28/93
Phenol	**ND**	mg/L	12/21/93

ND-Analyte not detected

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Comments:

Alaia Bartlett
Reported By:

D Bh
Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Dissolved Metals

Client: **BLOOMFIELD REFINING COMPANY**
Project: BLOOMFIELD, NM
Laboratory ID: 4339-4340
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 01/04/94
Date Sampled: 12/13/93
Date Received: 12/13/93

Known Analysis

Parameter	Found Concentration (mg/L)	Known Concentration (mg/L)	Percent Recovery (mg/L)
Arsenic	0.009	0.010	90%
Barium	0.9	1.0	90%
Boron	1.01	1.00	101%
Cadmium	0.004	0.004	100%
Chromium	0.89	1.00	89%
Iron	0.94	1.00	94%
Lead	0.037	0.040	93%
Manganese	1.91	2.00	96%

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Comments: Quality control run concurrently with the above sample lab numbers.

Gloria Bartlett
Reported By:

Dennis [illegible]
Reviewed By:

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Dissolved Metals

Client: **BLOOMFIELD REFINING COMPANY**
Project: BLOOMFIELD, NM
Laboratory ID: 4339-4340
Sample Matrix: Water
Condition: Cool/Intact

Date Reported: 01/04/94
Date Sampled: 12/13/93
Date Received: 12/13/93

Spike Analysis

Parameter	Spike Found (mg/L)	Sample Concentration (mg/L)	Spike Added (mg/L)	Percent Recovery
Arsenic	0.021	0.000	0.050	**84%**
Barium	5.7	1.2	10.0	**102%**
Boron	0.53	0.09	0.50	**106%**
Cadmium	0.009	0.004	0.010	**103%**
Chromium	2.23	0.02	5.00	**89%**
Iron	2.16	0.02	5.00	**86%**
Lead	0.008	0.001	0.020	**89%**
Manganese	4.72	4.10	5.00	**107%**

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Comments: Quality control run concurrently with the above sample lab numbers.

Gloria Bartlett
Reported By:

Reviewed By:

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

PURGEABLE AROMATICS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/20/93
Sample ID:	MW - 5	Date Sampled:	12/13/93
Lab ID:	4340	Date Received:	12/13/93
Sample Matrix:	Water	Date Analyzed:	12/20/93
Preservative:	Cool, HCl		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Toluene-d8	100	88 -110%
	Bromofluorobenzene	97	86 -115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Vonnie Smith

Review

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: BLOOMFIELD REFINING COMPANY

Project Location: BLOOMFIELD, NM

Sampler: (Signature) [signature]

Chain of Custody Tape No.

FILE COPY

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	TDS, Cl, SO_4, NO_2	Ar, Ba, Cd, Cr, Pb, B, Fe, Mn	NO_3, NH_4, TKN	CN -	PHENOLS	BTEX	Remarks EST. BTEX
MW-1	12/13/93	1000A	4339	WATER	7	1	1	1	1	1	2	0
MW-5	12/13/93	1100A	4340	WATER	7	1	1	1	1	1	2	0
MW-21	12/13/93	1130 A	4341	WATER	2	0	0	0	0	0	2	1 PPM
MW-20	12/13/93	1200A	4342	WATER	2	0	0	0	0	0	2	1 PPM
SEEP MW	12/13/93	1300	4343	WATER	2	0	0	0	0	0	2	1 PPM
SEEP	12/13/93	1330	4344	WATER	2	0	0	0	0	0	2	1 PPM
NOWP-E DISCHARGE	12/13/93	1400	4345	WATER	2	0	0	0	0	0	2	0

5 ml

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12/13/93	1555	[signature]	12/13	15:55
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

16491

- ☐ 1633 Terra Avenue, Sheridan, Wyoming 82801, Telephone (307) 672-8945
- ☐ 1714 Phillips Circle, Gillette, Wyoming 82716, Telephone (307) 682-8945
- ☐ 2506 West Main Street, Farmington, NM 87401, Telephone (505) 326-4737
- ☐ 1160 Research Dr., Bozeman, Montana 59715, Telephone (406) 586-8450
- ☐ 11183 SH 30, College Station, TX 77845, Telephone (409) 776-8945
- ☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSERV ON DIVISION
RECEIVED

'93 JUN 28 AM 10 00

June 22, 1993

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on May 14, 1993, are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: John Goodrich
Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				5/14/93	12/11/92	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.000	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.020	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.350	0.550	0.268
IRON	mg/l	0.050	1.000	0.000	0.140	46.268
MANGANESE	mg/l	0.020	0.200	3.710	3.290	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	4440.000	4920.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1740.000	1760.000	1070.500
SULFATE	mg/l	1.000	600.000	563.000	747.000	815.500
PHENOLS	mg/l	0.005	0.005	0.000	0.010	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	6.910	20.200	5.725
AMMONIA	mg/l	0.010		2.040	1.100	
TOTAL KELDAHL NITROGEN	mg/l	0.100			2.350	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	6.80	7.20	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.77	5515.77	5515.77
DEPTH TO WATER	ft	0.01		16.48	17.46	16.19
ELEVATION AT T.O.W.	ft	0.01		5499.29	5498.31	5499.58

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				5/14/93	12/11/92	1984/1985
ARSENIC	mg/l	0.005	0.100	0.008	0.010	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.015
CHROMIUM	mg/l	0.020	0.050	0.000	0.020	0.000
LEAD	mg/l	0.020	0.050	0.000	0.000	0.015
BORON	mg/l	0.010	0.750	0.480	0.760	0.480
IRON	mg/l	0.050	1.000	0.000	3.720	0.061
MANGANESE	mg/l	0.020	0.200	0.320	0.600	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	7600.000	6960.000	4746.000
CHLORIDE	mg/l	1.000	250.000	3100.000	2820.000	1402.000
SULFATE	mg/l	1.000	600.000	1120.000	754.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.000	0.040	0.008
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	21.120	6.570	24.000
AMMONIA	mg/l	0.100		4.060	3.480	
TOTAL KELDAHL NITROGEN	mg/l	0.100			4.730	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	6.70	7.00	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.10	5545.10	5545.10
DEPTH TO WATER	ft	0.01		43.08	42.55	41.85
ELEVATION AT T.O.W.	ft	0.01		5502.02	5502.55	5503.25

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

PURGEABLE AROMATICS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	05/25/93
Sample ID:	MW - 1	Date Sampled:	05/14/93
Lab ID:	2595	Date Received:	05/14/93
Sample Matrix:	Water	Date Analyzed:	05/24/93
Preservative:	Cool, HCl		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Toluene-d8	101	88 -110%
	Bromofluorobenzene	90	86 -115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

PURGEABLE AROMATICS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	05/25/93
Sample ID:	MW- 5	Date Sampled:	05/14/93
Lab ID:	2596	Date Received:	05/14/93
Sample Matrix:	Water	Date Analyzed:	05/25/93
Preservative:	Cool, HCl		
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.20
Toluene	ND	0.20
Ethylbenzene	ND	0.20
m,p-Xylenes	ND	0.40
o-Xylene	ND	0.20

ND - Analyte not detected at the stated detection limit.

Quality Control:	Surrogate	Percent Recovery	Acceptance Limits
	Toluene-d8	100	88 -110%
	Bromofluorobenzene	94	86 -115%

Reference: Method 602.2, Purgeable Aromatics; Federal Register, Vol. 49, No. 209, Oct. 1984.

Comments:

Analyst

Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

16 June, 1993

Mr. Chris Hawley
Bloomfield Refining Co.
PO Box 159
Bloomfield, NM 87413

Dear Mr. Hawley:

Enclosed are the analytical results for the water samples received at Inter-Mountain Labs, Farmington, NM on May 14, 1993.

Tests were conducted in accordance with 40 CFR 136, "Guidelines Establishing Test Procedures for Analysis", as amended.

If you have any questions or comments concerning the analyses, please contact me at your convenience.

Sincerely,

Jeff Thomas
Water Quality, Farmington

cc:file

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refining Company**		
Sample ID:	MW-1	Date Reported:	06/16/93
Laboratory ID:	2595	Date Sampled:	05/14/93
Sample Matrix:	Water	Time Sampled:	0900
Condition:	Cool/Intact	Date Received:	05/14/93

Parameter	Analytical Result	Units	Units
Lab Conductivity @ 25° C	6,980	umhos/cm	
Total Dissolved Solids @ 180°C	4,440	mg/L	
Boron	0.35	mg/L	
Ammonia	2.04	mg/L	
Total Cyanide	<0.01	mg/L	
Phenols	<0.01	mg/L	
Chloride	1,740	mg/L	
Nitrate Nitrogen	6.90	mg/L	
Nitrite Nitrogen	0.01	mg/L	
Sulfate	563	mg/L	

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reviewed by

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refining Company**		
Sample ID:	MW-1	Date Reported:	06/16/93
Laboratory ID:	2595	Date Sampled:	05/14/93
Sample Matrix:	Water	Time Sampled:	0900
Condition:	Cool/Intact	Date Received:	05/14/93

Parameter	Dissolved Analytical Result	Total Analytical Result	Units
Trace Metals			
Arsenic	<0.005		mg/L
Barium	<0.5		mg/L
Cadmium	<0.002		mg/L
Chromium	<0.02		mg/L
Iron	<0.05		mg/L
Lead	<0.02		mg/L
Manganese	3.71		mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reviewed by ____________

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Bloomfield Refining Company**		
Sample ID:	MW-5	Date Reported:	06/16/93
Laboratory ID:	2596	Date Sampled:	05/14/93
Sample Matrix:	Water	Time Sampled:	1000
Condition:	Cool/Intact	Date Received:	05/14/93

Parameter	Analytical Result	Units	Units
Lab Conductivity @ 25° C	11,200	umhos/cm	
Total Dissolved Solids @ 180°C	7,600	mg/L	
Boron	0.48	mg/L	
Ammonia	4.06	mg/L	
Total Cyanide	<0.01	mg/L	
Phenols	<0.01	mg/L	
Chloride	3,100	mg/L	
Nitrate Nitrogen	21.3	mg/L	
Nitrite Nitrogen	0.09	mg/L	
Sulfate	1,120	mg/L	

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reviewed by ________

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	Bloomfield Refining Company		
Sample ID:	MW-5	Date Reported:	06/16/93
Laboratory ID:	2596	Date Sampled:	05/14/93
Sample Matrix:	Water	Time Sampled:	1000
Condition:	Cool/Intact	Date Received:	05/14/93

Parameter	Dissolved Analytical Result	Total Analytical Result	Units
Trace Metals			
Arsenic	0.008		mg/L
Barium	<0.5		mg/L
Cadmium	<0.002		mg/L
Chromium	<0.02		mg/L
Iron	<0.05		mg/L
Lead	<0.02		mg/L
Manganese	0.32		mg/L

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes", 1983.
"Standard Methods For The Examination Of Water And Waste Water", 17th ed., 1989.

Reviewed by ___________

Bloomfield Refining Company

A Gary Energy Corporation Subsidiary

OIL CONSERVATION DIVISION
RECEIVED

'93 JAN 6 AM 9 16

January 4, 1993

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P. O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results for monitoring wells MW-1 and MW-5, obtained on December 11, 1992, are enclosed.

Please call me if there are any questions.

Sincerely,

Chris Hawley
Environmental Manager

CH/jm

Enclosure

cc: John Goodrich
    Dave Roderick
    Joe Warr

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/11/92	6/09/92	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.000	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.000	0.018
LEAD	mg/l	0.020	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.550	0.390	0.268
IRON	mg/l	0.050	1.000	0.140	0.000	46.268
MANGANESE	mg/l	0.020	0.200	3.290	0.270	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	4920.000	3730.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1760.000	1220.000	1070.500
SULFATE	mg/l	1.000	600.000	747.000	882.000	815.500
PHENOLS	mg/l	0.005	0.005	0.010	0.040	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	20.200	11.600	5.725
AMMONIA	mg/l	0.010		1.100	0.010	
TOTAL KELDAHL NITROGEN	mg/l	0.100		2.350	4.650	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	1.400	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.20	7.30	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.77	5515.77	5515.77
DEPTH TO WATER	ft	0.01		17.46	15.92	16.19
ELEVATION AT T.O.W.	ft	0.01		5498.31	5499.85	5499.58

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				12/11/92	6/09/92	1984/1985
ARSENIC	mg/l	0.005	0.100	0.010	0.000	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.015
CHROMIUM	mg/l	0.020	0.050	0.020	0.000	0.000
LEAD	mg/l	0.020	0.050	0.000	0.110	0.015
BORON	mg/l	0.010	0.750	0.760	0.630	0.480
IRON	mg/l	0.050	1.000	3.720	0.000	0.061
MANGANESE	mg/l	0.020	0.200	0.600	0.520	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	6960.000	7634.000	4746.000
CHLORIDE	mg/l	1.000	250.000	2820.000	3070.000	1402.000
SULFATE	mg/l	1.000	600.000	754.000	1190.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.040	0.020	0.008
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	6.570	9.110	24.000
AMMONIA	mg/l	0.100		3.480	1.040	
TOTAL KELDAHL NITROGEN	mg/l	0.100		4.730	4.250	
BENZENE	ug/l	0.200	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.200	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.200	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	0.400	620.000	0.000	1.200	0.000
pH	s.u.	0.01	6 to 9	7.00	7.00	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.10	5545.10	5545.10
DEPTH TO WATER	ft	0.01		42.55	43.18	41.85
ELEVATION AT T.O.W.	ft	0.01		5502.55	5501.92	5503.25

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Bloomfield Refinery

Case Narrative

On December 11, 1992, two water samples were submitted to Inter-Mountain Laboratories - Farmington for analysis. The samples were received cool and intact and were designated "MW-1"and "MW-5". Analysis for Benzene-Toluene-Ethylbenzene-Xylenes (BTEX) was performed on the water samples as per the accompanying chain of custody form.

BTEX analysis 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. BTEX analytes were not detected in either of the samples at levels above the stated detection limits, as indicated on the report sheets.

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 analysis of the samples reported herein are found in Methods for Analysis of Water and Waste Water, EPA-600/4-79-020, USEPA, 1983 and Test Methods for Evaluating Solid Waste, SW-846, USEPA, September, 1986.

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,

Denise Boh

Dr. Denise A. Bohemier,
Organic Lab Supervisor

BRC1460

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/15/92
Sample ID:	MW-1	Date Sampled:	12/11/92
Lab ID:	1460	Date Received:	12/11/92
Sample Matrix:	Water	Date Extracted:	NA
Preservative:	Cool, HCl	Date Analyzed:	12/15/92
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	ND	0.4
o-Xylene	ND	0.4

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	98	88 -110%
Bromofluorobenzene	94	86 -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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Bloomfield Refining Company	DATE REPORTED:	12/23/92
ID:	MW-1		
SITE:	Bloomfield, NM	DATE RECEIVED:	12/11/92
LAB NO:	F1460	DATE COLLECTED:	12/11/92

Total Dissolved Solids (180C), mg/L.	4920
Nitrate, mg/L......................	20.2
Total Kjeldahl Nitrogen, mg/L.......	2.35
Ammonia, mg/L......................	1.10
Total Cyanide, mg/L.................	<0.01
Phenols, mg/L......................	0.01

	mg/L	meq/L
Chloride..................	1760	49.6
Sulfate...................	747	15.6

Trace Metals by AA (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Arsenic (As)...............	ND	<0.005
Barium (Ba)................	ND	<0.5
Cadmium (Cd)...............	ND	<0.002
Chromium (Cr)..............	ND	<0.02
Iron (Fe)..................	0.14	<0.05
Manganese (Mn).............	3.29	<0.02
Lead (Pb)..................	ND	<0.02

Trace Metals by ICAP (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Boron (B)..................	0.55	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso

Wanda Orso
Water Lab Supervisor

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Bloomfield Refining Co.

Project ID:	Bloomfield, NM	Report Date:	12/15/92
Sample ID:	MW-5	Date Sampled:	12/11/92
Lab ID:	1461	Date Received:	12/11/92
Sample Matrix:	Water	Date Extracted:	NA
Preservative:	Cool, HCl	Date Analyzed:	12/15/92
Condition:	Intact		

Target Analyte	Concentration (ug/L)	Detection Limit (ug/L)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	ND	0.4
o-Xylene	ND	0.4

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	99	88 -110%
Bromofluorobenzene	94	86 -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

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Bloomfield Refining Company	DATE REPORTED:	12/23/92
ID:	MW-5		
SITE:	Bloomfield, NM	DATE RECEIVED:	12/11/92
LAB NO:	F1461	DATE COLLECTED:	12/11/92

Total Dissolved Solids (180C), mg/L.	6960
Nitrate, mg/L	6.57
Total Kjeldahl Nitrogen, mg/L	4.73
Ammonia, mg/L	3.48
Total Cyanide, mg/L	<0.01
Phenols, mg/L	0.04

	mg/L	meq/L
Chloride	2820	79.5
Sulfate	754	15.7

Trace Metals by AA (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Arsenic (As)	0.010	<0.005
Barium (Ba)	ND	<0.5
Cadmium (Cd)	ND	<0.002
Chromium (Cr)	0.02	<0.02
Iron (Fe)	3.72	<0.05
Manganese (Mn)	0.60	<0.02
Lead (Pb)	ND	<0.02

Trace Metals by ICAP (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Boron (B)	0.76	<0.01

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORT

Method Blank Analysis

Sample Matrix: Water
Lab ID: MB33953

Report Date: 12/15/92
Date Extracted: NA
Date Analyzed: 12/15/92

Target Analyte	Concentration (ug/L)	Detection Limit (ug/kg)
Benzene	ND	0.2
Toluene	ND	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	ND	0.4
o-Xylene	ND	0.4

ND - Analyte not detected at the stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	97	88-110%
Bromofluorobenzene	93	86-115%

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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Matrix Spike Analysis

Lab ID:	MB33953Spk	Report Date:	12/15/92
Sample Matrix:	Water	Date Sampled:	NA
Preservative:	NA	Date Received:	NA
Condition:	NA	Date Extracted:	NA
		Date Analyzed:	12/15/92

Target Analyte	Spike Added (ug/kg)	Original Conc. (ug/kg)	Spiked Sample Conc. (ug/kg)	% Recovery	Acceptance Limits (%)
Benzene	10	ND	10.7	107%	39-150
Toluene	10	ND	10.0	100%	32-160
Ethylbenzene	10	ND	10.0	100%	46-148
m,p-Xylenes	20	ND	20.2	101%	NE
o-Xylene	20	ND	20.0	100%	NE

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.
NE - Spike acceptance range not established by the EPA.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	101	81-117%
Bromofluorobenzene	98	74-121%

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

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

VOLATILE AROMATIC HYDROCARBONS

Duplicate Analysis

Lab ID:	1459	Report Date:	12/15/92
Sample Matrix:	Water	Date Sampled:	12/11/92
Preservative:	Cool, HCl	Date Received:	12/11/92
Condition:	Intact	Date Extracted:	NA
		Date Analyzed:	12/15/92

Target Analyte	Original Conc. (ug/L)	Duplicate Conc. (ug/L)	Acceptance Range (ug/L)
Benzene	22	22	16 - 28
Toluene	13	13	9 - 17
Ethylbenzene	ND	ND	NA
m,p-Xylenes	26	26	NE
o-Xylene	22	22	NE

ND - Analyte not detected at the stated detection limit.
NA - Not applicable or not calculated.
NE - Duplicate acceptance range not established by the EPA.

Quality Control	Surrogate	Percent Recovery	Acceptance Limits
	Toluene-d8	127	88 -110%
	Bromofluorobenzene	98	86 -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: High toluene-d8 recovery is due to matrix interference at the d8 retention time.

Analyst

Review

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name: BLOOMFIELD REFINING CO

Project Location: BLOOMFIELD NM

Sampler: (Signature) [signature]

Chain of Custody Tape No.

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX	PHENOL	METALS, DISSOLVED As, Ba, Cd, Cr, Pb, B, Fe, Mn	NUTRIENTS NITRATE, NH3, TKN	Cl, SO4, TDS	CN	Remarks
NOWP-E DISCHARGE	12-11-92	10:00A	1459	WATER	2	2						
~~[illegible]~~	~~[illegible]~~	~~10:30A~~		~~WATER~~	~~2~~	~~2~~			~~DNO~~			
MW-1	12-11-92	11:00A	1460	WATER	8	2	2	1	1	1	1	
MW-5	12-11-92	11:30A	1461	WATER	8	2	2	1	1	1	1	

FILE COPY

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	12-11-92	1628	[signature]	12/11/92	1627
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Relinquished by: (Signature)	Date	Time	Received by laboratory: (Signature)	Date	Time

Inter-Mountain Laboratories, Inc.

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☐ 3304 Longmire Drive, College Station, TX 77845, Telephone (409) 774-4999

11262

Bloomfield Refining Company
A Gary Energy Corporation Subsidiary

OIL CONSER... N DIVISION
RE... ED
'92 JU ... AM 9 09

July 14, 1992

Mr. Roger Anderson
State of New Mexico
Oil Conservation Division
P.O. Box 2088
Santa Fe, New Mexico 87501

RE: Discharge Plan GRW-1

Dear Mr. Anderson:

Analytical results, applicable to our discharge plan for Wells #1 and #5, that were obtained on June 9, 1992, are enclosed.

Please call me if there are any questions.

Sincerely yours,

Chris Hawley
Environmental Manager

CH/rr

Enclosure

cc: John Goodrich
Dave Roderick
Joe Warr

P.O. Box 159 • Bloomfield, New Mexico 87413 • 505/632-8013

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-1

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				6/09/92	11/07/91	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.000	0.016
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.250
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.010
CHROMIUM	mg/l	0.020	0.050	0.000	0.020	0.018
LEAD	mg/l	0.020	0.050	0.000	0.000	0.086
BORON	mg/l	0.010	0.750	0.390	0.350	0.268
IRON	mg/l	0.050	1.000	0.000	0.000	46.268
MANGANESE	mg/l	0.020	0.200	0.270	2.790	0.943
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	3730.000	3540.000	3516.000
CHLORIDE	mg/l	1.000	250.000	1220.000	1190.000	1070.500
SULFATE	mg/l	1.000	600.000	882.000	684.000	815.500
PHENOLS	mg/l	0.005	0.005	0.040	0.000	0.055
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.000
NITRATE, NITRITE AS N	mg/l	0.020	10.000	11.600	20.600	5.725
AMMONIA	mg/l	0.010		0.010	0.070	
TOTAL KELDAHL NITROGEN	mg/l	0.100		4.650	1.630	
BENZENE	ug/l	0.500	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.500	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.500	750.000	1.400	0.000	0.000
XYLENES (TOTAL)	ug/l	1.000	620.000	0.000	0.000	0.000
pH	s.u.	0.01	6 to 9	7.30	7.50	7.31
ELEVATION AT T.O.P.	ft	0.01		5515.77	5515.77	5515.77
DEPTH TO WATER	ft	0.01		15.92	17.35	16.19
ELEVATION AT T.O.W.	ft	0.01		5499.85	5498.42	5499.58

BLOOMFIELD REFINING COMPANY
MONITORING UNDER DISCHARGE PLAN GRW-1-A

MW-5

PARAMETER	UNIT	NOM DET LIM	NMWQ STANDARD	CURRENT RESULT *	PREVIOUS RESULT	BASELINE RESULTS
DATE OF SAMPLE				6/09/92	11/07/91	1984/1985
ARSENIC	mg/l	0.005	0.100	0.000	0.000	0.004
BARIUM	mg/l	0.500	1.000	0.000	0.000	0.000
CADMIUM	mg/l	0.002	0.010	0.000	0.000	0.015
CHROMIUM	mg/l	0.020	0.050	0.000	0.030	0.000
LEAD	mg/l	0.020	0.050	0.110	0.000	0.015
BORON	mg/l	0.010	0.750	0.630	0.480	0.480
IRON	mg/l	0.050	1.000	0.000	0.000	0.061
MANGANESE	mg/l	0.020	0.200	0.520	0.120	0.128
TOTAL DISSOLVED SOLIDS	mg/l	1.000	1000.000	7634.000	5390.000	4746.000
CHLORIDE	mg/l	1.000	250.000	3070.000	1770.000	1402.000
SULFATE	mg/l	1.000	600.000	1190.000	1370.000	1299.000
PHENOLS	mg/l	0.001	0.005	0.020	0.002	0.008
CYANIDE	mg/l	0.010	0.200	0.000	0.000	0.013
NITRATE, NITRITE AS N	mg/l	0.020	10.000	9.110	24.100	24.000
AMMONIA	mg/l	0.100		1.040	0.110	
TOTAL KELDAHL NITROGEN	mg/l	0.100		4.250	0.750	
BENZENE	ug/l	0.500	10.000	0.000	0.000	0.000
TOLUENE	ug/l	0.500	750.000	0.000	0.000	0.000
ETHYL BENZENE	ug/l	0.500	750.000	0.000	0.000	0.000
XYLENES (TOTAL)	ug/l	1.000	620.000	1.200	0.000	0.000
pH	s.u.	0.01	6 to 9	7.00	7.50	7.41
ELEVATION AT T.O.P.	ft	0.01		5545.10	5545.10	5545.10
DEPTH TO WATER	ft	0.01		43.18	43.35	41.85
ELEVATION AT T.O.W.	ft	0.01		5501.92	5501.75	5503.25

* NOTE : SAMPLE BAILED WITHOUT PURGING.

iml
Inter·Mountain
Laboratories, Inc.

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

BTEX
Volatile Aromatic Hydrocarbons

Bloomfield Refining Company

Project Name:		Report Date:	6/17/92
Sample ID:	MW-1	Date Sampled:	6/9/92
Sample Number:	8944	Date Received:	6/9/92
Sample Matrix:	Water	Date Analyzed:	6/17/92
Preservative:	Cool, HCl		
Condition:	Intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	1.4	0.5
m,p-xylene	ND	1.0
o-xylene	ND	1.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	98%	88-110%
4-Bromofluorobenzene	105%	86-115%

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

Comments:

Analyst

Review

Inter·Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Bloomfield Refinery	DATE REPORTED:	07/09/92
ID:	MW-1		
SITE:	1000	DATE RECEIVED:	06/09/92
LAB NO:	F8944	DATE COLLECTED:	06/09/92

Lab pH (s.u.)	7.45
Lab Conductivity, umhos/cm @ 25C	6250
Lab Resistivity, ohm-m	1.6
Total Dissolved Solids (180C), mg/L.	3730
Fluoride, mg/L	0.80
Nitrate, mg/L	11.6
Nitrite, mg/L	<0.02
Total Kjeldahl Nitrogen, mg/L	4.65
Ammonia, mg/L	0.01
Total Cyanide, mg/L	<0.01
Phenols, mg/L	0.04

	mg/L	meq/L
Chloride	1220	34.4
Sulfate	882	18.4
Sodium	900	39.1

Trace Metals by AA (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Arsenic (As)	ND	<0.005
Cadmium (Cd)	ND	<0.002
Lead (Pb)	ND	<0.02

Trace Metals by ICAP (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Boron (B)	0.39	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	ND	<0.05
Manganese (Mn)	0.27	<0.02

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso

Wanda Orso
Water Lab Supervisor

Inter·Mountain
Laboratories, Inc.

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

BTEX
Volatile Aromatic Hydrocarbons

Bloomfield Refining Company

Sample ID:	MW-5	Report Date:	6/18/92
Sample Number:	8945	Date Sampled:	6/9/92
Sample Matrix:	Water	Date Received:	6/9/92
Preservative:	Cool, HCl	Date Analyzed:	6/18/92
Condition:	Intact		

Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	ND	0.5
Toluene	ND	0.5
Ethylbenzene	ND	0.5
m,p-xylene	ND	1.0
o-xylene	1.2	1.0

ND - Analyte not detected at stated detection limit.

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Toluene-d8	97%	88-110%
4-Bromofluorobenzene	103%	86-115%

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

Comments:

Dennis Bohn
Analyst

Linda Spencer
Review

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

CLIENT:	Bloomfield Refinery	DATE REPORTED:	07/09/92
ID:	MW-5		
SITE:	1100	DATE RECEIVED:	06/09/92
LAB NO:	F8945	DATE COLLECTED:	06/09/92

Lab pH (s.u.)	7.30
Lab Conductivity, umhos/cm @ 25C	11100
Lab Resistivity, ohm-m	0.904
Total Dissolved Solids (180C), mg/L	7634
Fluoride, mg/L	0.25
Nitrate, mg/L	9.11
Nitrite, mg/L	<0.02
Total Kjeldahl Nitrogen, mg/L	4.25
Ammonia, mg/L	1.04
Total Cyanide, mg/L	<0.01
Phenols, mg/L	0.02

	mg/L	meq/L
Chloride	3070	86.6
Sulfate	1190	24.8
Sodium	1280	55.5

Trace Metals by AA (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Arsenic (As)	ND	<0.005
Cadmium (Cd)	ND	<0.002
Lead (Pb)	0.11	<0.02

Trace Metals by ICAP (Dissolved Concentration), mg/L

	Analytical Result:	Detection Limit:
Boron (B)	0.63	<0.01
Barium (Ba)	ND	<0.5
Chromium (Cr)	ND	<0.02
Iron (Fe)	ND	<0.05
Manganese (Mn)	0.52	<0.02

ND - Analyte "not detected" at the stated detection limit.

Wanda Orso
Water Lab Supervisor

Inter-Mountain Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location
BLOOMFIELD REFINING CO.	BLOOMFIELD /NM
Sampler: (Signature)	**Chain of Custody Tape No.**
[signature]	

ANALYSES / PARAMETERS

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	BTEX	CN	CHLORIDE, SO_4, Na, FLUORIDE, TDS	NITRATE, TKN, NH_3	As, Ba, Cd, Cr, Pb, B, Fe, Mn	PHENOLS	Remarks
MW-1	6-9-92	10:00A		WATER	8	2	1	1	1	1	2	
MW-5	6-9-92	11:00A		WATER	8	2	1	1	1	1	2	

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
[signature]	6-9-92	1555	[signature]	1555	060992
Relinquished by: (Signature)	**Date**	**Time**	**Received by: (Signature)**	**Date**	**Time**
Relinquished by: (Signature)	**Date**	**Time**	**Received by laboratory: (Signature)**	**Date**	**Time**

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