GW - 1

MONITORING REPORTS

DATE: 1997

GIANT
REFINING CO.

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

AUG 19 1997

August 14, 1997

Mr. Greg Lyssy (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. Lyssy:

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.

Corrective Measures Study (CMS)

1. GRC continues to proceed with the groundwater model for this facility.

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

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

cc: John Stokes, Refinery Manager
Roger Anderson, NMOCD
Benito Garcia, NMED

July Report

GIANT
REFINING CO.

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

August 1, 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.

Analysis of the river water is attached. The river is now flowing at ~600 cfs and no hydrocarbon has been observed in the culvert used for recovery.

Sincerely:

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

July 21, 1997

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

RE: Paragon Workorder: 97-06-296
Client Project Name: Not Submitted
Client Project Number: Not Submitted

Dear Mr. Shelton:

Five water samples were received from Giant Refining Company on June 30, 1997. The samples were scheduled for Total Recoverable Metals, pH, Specific Conductance, GC/MS Volatiles, Aromatic Volatile Organics and Inorganics 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

VB/jjc
Enclosure: Report

Paragon Analytics, Inc.

TOTAL RECOVERABLE METALS CASE NARRATIVE

Giant Refining Company

Order Number - 9706296

1. This report consists of 1 water sample.
2. The sample was received intact on 06/30/97. The temperature of the sample upon receipt was 22° Celsius.
3. The sample had been correctly preserved for the requested analyses.
4. The sample was prepared for analysis based on SW-846, 3rd Edition procedures.

   For analysis by Trace ICP, the sample was digested following method 3005A.

   For analysis by Cold Vapor AA (CVAA), the sample was digested following method 7470.

   For analysis by Graphite Furnace AA (GFAA), the sample was digested following method 3020A. Final acid strength in all digestates is ~ 6% v/v. 1 mL H_2O_2 is added so that all analytes can be analyzed from the same digestate.
5. The sample was analyzed following SW846 protocols by Trace ICP (Method 6010A), CVAA (Method 7470) and GFAA (Method 7421A).
6. All standards and solutions are NIST traceable and were used within their recommended shelf life.
7. The sample was prepared and analyzed within the established hold times.
8. 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.

9. 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 each 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. This indicates a valid calibration and stable instrument conditions.
- The interference check samples, and high standard readbacks associated with Method 6010A analyses were within acceptance criteria.

10. Samples from other Order Numbers were used as the QC sample for this Order Number.
    - 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 the Trace ICP batch. All acceptance criteria were met.
    - A recovery test was analyzed on the first sample in each Order Number, for each analyte determined by GFAA. In the initial analysis for arsenic, the acceptance criteria were not met. To overcome the matrix interferences indicated by the recovery tests, all client samples were diluted for these analytes and the recovery test was repeated until acceptable results were obtained. Detection limits have been corrected for the required dilutions.

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

Darryl Patrick
Senior Inorganic Chemist

7/21/97
Date

SW
Reviewer's Initials

7/21/97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: RB 9706296

Sample ID

Reagent Blank

Date Collected: N/A
Prep Date: 07/01,07,08/97
Date Analyzed: 07/01,10,16,18/97

Analyte	Concentration mg/L	Reporting Limit mg/L
Arsenic	ND	0.005
Barium	ND	0.1
Cadmium	ND	0.005
Calcium	ND	1
Chromium	ND	0.01
Lead	ND	0.003
Magnesium	ND	1
Mercury	ND	0.0002
Potassium	ND	1
Selenium	ND	0.005
Silver	ND	0.01
Sodium	ND	1

ND = Not detected at or above the reporting limit.

TOTAL RECOVERABLE METALS

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9706296-1

Sample Matrix: Water

Sample ID

Qtr. Inj. Well

Date Collected: 06/27/97
Prep Date: 07/01,07,08/97
Date Analyzed: 07/01,10,16,18/97

Analyte	Concentration mg/L	Reporting Limit mg/L
Arsenic ^	0.05	0.01
Barium	0.1	0.1
Cadmium	ND	0.005
Calcium	150	1
Chromium	0.01	0.01
Lead	ND	0.003
Magnesium	35	1
Mercury	0.0010	0.0002
Potassium	49	1
Selenium	0.013	0.005
Silver	ND	0.01
Sodium *	1700	100

ND = Not detected at or above the reporting limit.
* Detection limit raised. Dilution required due to analyte concentration.
^ Detection limit raised. Sample diluted to reduce matrix interferences.

DP

TOTAL RECOVERABLE METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9706284-1

Sample ID: **In House**

Sample Matrix: Water

Prep Date: 07/08/97
Date Analyzed: 07/10/97

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Barium	2.0	< 0.1	2.0	100	
Cadmium	0.050	< 0.005	0.049	98	
Calcium	40	14	55	103	
Chromium	0.20	< 0.01	0.19	95	
Lead	0.500	0.005	0.480	95	
Magnesium	40	2	42	100	
Potassium	40	< 1	37	93	
Selenium	2.00	< 0.005	2.12	106	
Silver	0.20	< 0.01	0.20	100	
Sodium	40	2	41	98	

DP

TOTAL RECOVERABLE METALS
MATRIX SPIKE DUPLICATE

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9706284-1

Sample ID
In House

Sample Matrix: Water

Prep Date: 07/08/97
Date Analyzed: 07/10/97

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Barium	2.0	100	0	
Cadmium	0.049	98	0	
Calcium	55	103	0	
Chromium	0.19	95	0	
Lead	0.475	94	1	
Magnesium	41	98	2	
Potassium	37	93	0	
Selenium	2.12	106	0	
Silver	0.20	100	0	
Sodium	41	98	0	

DP

TOTAL RECOVERABLE METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9706291-1

Sample ID: **In House**

Sample Matrix: Water

Prep Date: 07/01/97
Date Analyzed: 07/01/97

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Mercury	0.0020	< 0.0002	0.0020	100	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Mercury	0.0020	100	0	

DP

TOTAL RECOVERABLE METALS
MATRIX SPIKE

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Lab Sample ID: 9706266-4

Sample ID: **In House**

Sample Matrix: Water

Prep Date: 07/07/97
Date Analyzed: 07/16/97

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Arsenic	0.05	0.011	0.053	84	

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Arsenic	0.055	88	4	

DP

Paragon Analytics, Inc.

pH Analysis Case Narrative

Giant Refining Company

Order Number - 9706296

1. This report consists of 1 water sample.
2. The sample was received at a temperature of 22 ^{0} C. on June 30, 1997.
3. The sample was prepared for analysis based on SW-846, 3rd Edition procedures. Specifically, the water sample was analyzed following method 9040.
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:

Krista Mobley — 7-14-97
Krista Mobley — Date
Inorganic Technician

SW — 7/14/97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

pH

Method 9040

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 06/30/97
Sample Matrix: Water

Client Sample ID	Lab Sample ID	pH
Qtr. Inj. Well	9706296-1	1.8

Paragon Analytics, Inc.

SPECIFIC CONDUCTANCE CASE NARRATIVE

Giant Refining Company

Order Number - 9706296

1. This report consists of 1 water sample.
2. The sample was received at a temperature of 22^0 C. on June 30, 1997.
3. The sample was prepared for analysis based on SW-846, 3rd Edition method 9050.
4. All standards and solutions are NIST traceable and 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:

Krista Mobley — 7-14-97
Krista Mobley — Date
Inorganic Technician

SW — 7/14/97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

SPECIFIC CONDUCTANCE

Method 9050

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 06/30/97
Sample Matrix: Water

Client Sample ID	Lab Sample ID	Specific Conductance µmho/cm
Qtr. Inj. Well	9706296-1	16800

Paragon Analytics, Inc.

GC/MS Volatiles Case Narrative

Giant Refining Company

Order Number - 9706296

1. This report consists of 1 water sample received by Paragon on June 30, 1997.

2. This sample was prepared and analyzed according to SW-846, 3rd Edition procedures. Specifically, the water sample was prepared by purging 5 mls using purge and trap procedures based on Method 5030.

3. The sample was analyzed using GC/MS with a RTX-624 capillary column according to protocols based on SW-846 Method 8240. 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. The sample was analyzed within the established holding times.

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

6. Matrix spikes and matrix spike duplicates were not performed due to high concentrations of non-target analytes. A blank spike and blank spike duplicate were performed instead.

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 the sample was analyzed at a higher dilution. The reporting limits have been adjusted accordingly.

11. 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.

Phil Tallarico
GC/MS Analyst

7-10-97
Date

Reviewer's Initials

7-10-97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

VOLATILE ORGANICS

Method 8240

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: VBLK01 07-01-97
Sample Matrix: Water
Sample Volume: 5 mL

Sample ID: **VBLK01 07-01-97**

Date Collected: N/A
Date Analyzed: 07-01-97
Dilution Factor: 1

Analyte	Conc. (mg/L)	Reporting Limit (mg/L)
Dichlorodifluoromethane	ND	0.01
Chloromethane	ND	0.01
Vinyl chloride	ND	0.01
Bromomethane	ND	0.01
Chloroethane	ND	0.01
Trichlorofluoromethane	ND	0.005
1,1-Dichloroethene	ND	0.005
Methylene chloride	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,1-Dichloroethane	ND	0.005
Chloroform	ND	0.005
1,1,1-Trichloroethane	ND	0.005
Carbon tetrachloride	ND	0.005
1,2-Dichloroethane	ND	0.005
Benzene	ND	0.005
Trichloroethene	ND	0.005
1,2-Dichloropropane	ND	0.005
Bromodichloromethane	ND	0.005
2-Chloroethyl vinyl ether	ND	0.01
cis-1,3-Dichloropropene	ND	0.005
Toluene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Chlorobenzene	ND	0.005
Ethylbenzene	ND	0.005
Bromoform	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
1,3-Dichlorobenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005
1,2-Dichlorobenzene	ND	0.005

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	92	85-115
Toluene-d8	103	88-110
Bromofluorobenzene	95	85-115

ND = Not Detected

VOLATILE ORGANICS

Method 8240

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: 9706296-1
Sample Matrix: Water
Sample Volume: 1.0 mL

Sample ID: **Qtr. Inj. Well**

Date Collected: 06-27-97
Date Analyzed: 07-01-97
Dilution Factor: 5

Analyte	Conc. (mg/L)	Reporting Limit (mg/L)
Dichlorodifluoromethane	ND	0.05
Chloromethane	ND	0.05
Vinyl chloride	ND	0.05
Bromomethane	ND	0.05
Chloroethane	ND	0.05
Trichlorofluoromethane	ND	0.025
1,1-Dichloroethene	ND	0.025
Methylene chloride	0.01 J	0.025
trans-1,2-Dichloroethene	ND	0.025
1,1-Dichloroethane	ND	0.025
Chloroform	ND	0.025
1,1,1-Trichloroethane	ND	0.025
Carbon tetrachloride	ND	0.025
1,2-Dichloroethane	ND	0.025
Benzene	ND	0.025
Trichloroethene	ND	0.025
1,2-Dichloropropane	ND	0.025
Bromodichloromethane	ND	0.025
2-Chloroethyl vinyl ether	ND	0.05
cis-1,3-Dichloropropene	ND	0.025
Toluene	ND	0.025
trans-1,3-Dichloropropene	ND	0.025
1,1,2-Trichloroethane	ND	0.025
Tetrachloroethene	ND	0.025
Chlorobenzene	ND	0.025
Ethylbenzene	ND	0.025
Bromoform	ND	0.025
1,1,2,2-Tetrachloroethane	ND	0.025
1,3-Dichlorobenzene	ND	0.025
1,4-Dichlorobenzene	ND	0.025
1,2-Dichlorobenzene	ND	0.025

SURROGATE RECOVERIES

Analyte	% Recovery	% Rec Limits
Dibromofluoromethane	90	85-115
Toluene-d8	105	88-110
Bromofluorobenzene	99	85-115

ND = Not Detected

VOLATILE BLANK SPIKE RECOVERY

Method 8240

Sample ID

Blank Spike

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Lab Sample ID: BS1, BS2 07-01-97
Sample Matrix: Water
Sample Volume: 5 mL

Date Collected: N/A
Date Analyzed: 07-01-97
Dilution Factor: 1

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	BS1 Concentration (mg/L)	BS1 % Rec	QC Limit Recovery
1,1-Dichloroethene	0.0200	N/A	0.0188	94	73-127
Benzene	0.0200	N/A	0.0189	95	84-119
Trichloroethene	0.0200	N/A	0.0201	101	85-121
Toluene	0.0200	N/A	0.0205	102	83-123
Chlorobenzene	0.0200	N/A	0.0202	101	85-119

Analyte	Spike Added (mg/L)	BS2 Concentration (mg/L)	BS2 % Recovery	% RPD	QC Limits RPD Rec
1,1-Dichloroethene	0.0200	0.0184	92	2	20 | 73-127
Benzene	0.0200	0.0192	96	2	17 | 84-119
Trichloroethene	0.0200	0.0204	102	1	18 | 85-121
Toluene	0.0200	0.0206	103	1	20 | 83-123
Chlorobenzene	0.0200	0.0210	105	4	17 | 85-119

SURROGATE RECOVERIES BS1/BS2

Analyte	%Rec (BS1)	%Rec (BS2)	% Rec Limits
Dibromofluoromethane	97	96	86 - 118
Toluene-d8	103	105	88 - 110
Bromofluorobenzene	98	95	86 - 115

N/A = Not Applicable

Paragon Analytics, Inc.

Aromatic Volatile Organics
Case Narrative

Giant Refining Company

Order Number - 9706296

1. This report consists of 3 water samples received by Paragon on 06/30/97.

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-VRX 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.

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 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. 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.

Roland P. Bruggeman — 7-3-97
Roland P. Bruggeman — Date
Organics Manager

MB — 7-3-97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

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 07/01/97

Date Collected: N/A
Date Extracted: 7/01/97
Date Analyzed: 7/01/97

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	97	85 - 115

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

AROMATIC VOLATILE ORGANICS

Method 8020

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

Lab Sample ID: 9706296-4

Sample Matrix: Water

Sample ID

River-B (6/19)

Date Collected: 6/19/97
Date Extracted: 7/01/97
Date Analyzed: 7/01/97

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	99	85 - 115

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

AROMATIC VOLATILE ORGANICS

Method 8020

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

Lab Sample ID: 9706296-3

Sample Matrix: Water

Sample ID

River-B (6/27)

Date Collected: 6/27/97
Date Extracted: 7/01/97
Date Analyzed: 7/01/97

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	100	85 - 115

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

AROMATIC VOLATILE ORGANICS

Method 8020

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

Lab Sample ID: 9706296-5

Sample Matrix: Water

Sample ID

NOWP-E

Date Collected: 6/27/97
Date Extracted: 7/01/97
Date Analyzed: 7/01/97

Sample Volume: 5 mL
Dilution Factor: 1

Analyte	Conc (ug/L)	Reporting Limit (ug/L)
Benzene	ND	0.50
Toluene	0.84	0.50
Ethylbenzene	1.5	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	85 - 115

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

AROMATIC VOLATILE ORGANICS BLANK SPIKE

Method 8020

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

Lab Sample ID: WBS1 07/01/97

Sample Matrix: Water

Sample ID: **Blank Spike**

Date Extracted: 7/01/97
Date Analyzed: 7/01/97

Sample Volume: 5 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Benzene	40.0	39.2	98	85 - 115
Toluene	40.0	38.6	97	85 - 115
Ethylbenzene	40.0	38.9	97	85 - 115
M,P-Xylene	80.0	76.6	96	85 - 115
O-Xylene	40.0	37.8	94	85 - 115
Total Xylenes	120	114	95	85 - 115

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	40.0	100	2	20
Toluene	40.0	39.8	99	3	20
Ethylbenzene	40.0	40.1	100	3	20
M,P-Xylene	80.0	80.0	100	4	20
O-Xylene	40.0	39.8	100	5	20
Total Xylenes	120	120	100	5	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits	
2,3,4-Trifluorotoluene	98	99	85 - 115	

D = Detected

AROMATIC VOLATILE ORGANICS MATRIX SPIKE

Method 8020

Sample ID

In House

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

Lab Sample ID: 9706283-1MS

Sample Matrix: Water

Date Collected: 6/24/97
Date Extracted: 7/01/97
Date Analyzed: 7/01/97

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	ND	39.8	100	85 - 115
Toluene	40.0	ND	39.8	100	85 - 115
Ethylbenzene	40.0	ND	39.6	99	85 - 115
M,P-Xylene	80.0	ND	74.6	93	85 - 115
O-Xylene	40.0	ND	39.9	100	85 - 115
Total Xylenes	120	ND	114	95	85 - 115

Analyte	Spike Added (ug/L)	MSD Concentration (ug/L)	MSD Percent Recovery	RPD	QC Limits RPD
Benzene	40.0	40.1	100	1	20
Toluene	40.0	40.9	102	3	20
Ethylbenzene	40.0	40.5	101	2	20
M,P-Xylene	80.0	75.2	94	1	20
O-Xylene	40.0	40.8	102	2	20
Total Xylenes	120	116	97	1	20

SURROGATE RECOVERY MS/MSD

Analyte	% Recovery MS	% Recovery MSD	% Rec Limits
2,3,4-Trifluorotoluene	98	99	85 - 115

ND = Not Detected

Paragon Analytics, Inc.

INORGANICS CASE NARRATIVE

Giant Refining Company

Order Number - 9706296

1. This report consists of data for one water sample analyzed for total alkalinity, bicarbonate, carbonate, chloride, sulfate and total dissolved solids
2. The sample was received cool and intact on 06/30/97.
3. The sample had been correctly preserved for the requested analyses.
4. The sample was analyzed using procedures based on the following methods from the USEPA or *Standard Methods for the Examination of Water and Wastewater*, 17th Ed.:

Analyte	Method
Total Alkalinity	4500-CO_2
Bicarbonate	4500-CO_2
Carbonate	4500-CO_2
Chloride	300.0
Sulfate	300.0
Total Dissolved Solids	160.1
Total Suspended Solids	160.2

5. All standards and reagents were used within their recommended shelf life.
6. The sample was prepared and analyzed within the established hold times.
7. 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.

8. General quality control procedures.

- The method blank results were below the reporting limits for the requested analytes. This indicates that no contaminants were introduced to the samples during analysis.
- The MS and MSD results for chloride and sulfate were within acceptance limits.
- The matrix duplicate result for total alkalinity and total dissolved solids were within acceptance limits.
- The LCS results were within acceptance limits for all analyses.

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

BS	7-15-97
Reporter's Initials	Date
B.P.	7-15-97
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
9706296-1	Qtr. Inj. Well	Water	06/27/97
9706296-2	Inj. Well Filter B	Water	06/27/97
9706296-3	River-B (6/27)	Water	06/27/97
9706296-4	River-B (6/19)	Water	06/19/97
9706296-5	NOWP-E	Water	06/27/97
9706296-6	Inj. Well Filter A	Water	06/27/97

TOTAL ALKALINITY

Method 4500-CO2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/96
Date Analyzed: 07/05/97
Sample Matrix: Water

Client ID	Lab Sample ID	Total Alkalinity as CaCO3 Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	5
Qtr. Inj. Well	9706296-1	290	10

ND = Not Detected

BICARBONATE ALKALINITY

Method 4500-CO2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 07/05/97
Sample Matrix: Water

Client ID	Lab Sample ID	Bicarbonate Alkalinity as CaCO3 Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	5
Qtr. Inj. Well	9706296-1	290	10

ND = Not Detected

CARBONATE ALKALINITY

Method 4500-CO2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 07/05/97
Sample Matrix: Water

Client ID	Lab Sample ID	Carbonate Alkalinity as CaCO3 Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	5
Qtr. Inj. Well	9706296-1	ND	10

ND = Not Detected

Alkalinity Calculations and Quality Control Results

Date analyzed: 07/05/97

ID	aliq titrated (mL)	titrant normality N	vol to pH 8.3 (mL)	vol to pH 4.5 (mL)	HCO3	CO3	OH	Total	DL (mg/L)
					mg/L as CaCO3				
R Blank	100	0.0203	0	0.47	4.8	0	0	4.8	5
LCS	100	0.0203	8.6	9.19	0	12	81	93.4	5
9707021-3	50	0.0203	0	4.68	95	0	0	95	10
9707021-4	25	0.0203	0	2.13	87	0	0	87	20
9707021-4 dup	25	0.0203	0	2.29	93	0	0	93	20
9707021-7	50	0.0203	0	3.25	66	0	0	66	10
9707021-8	50	0.0203	0	3.29	67	0	0	67	10
9707021-11	50	0.0203	0	2.71	55	0	0	55	10
9707021-12	50	0.0203	0	3.38	69	0	0	69	10
9707021-15	50	0.0203	0	3.20	65	0	0	65	10
9707021-16	50	0.0203	0	3.21	65	0	0	65	10
9706296-1	50	0.0203	0	14.12	287	0	0	287	10

Standardization of titrant

Conc Na2CO3 std	Na2CO3 aliq	HCl vol	HCl conc
0.0470	5.00	11.44	0.02054
0.0470	5.00	11.59	0.02028
0.0470	5.00	11.65	0.02017
		mean =	0.02033

Alkalinity Quality Control Results

Date analyzed: 07/05/97

LCS SUMMARY

ID	expected alk conc (mg/L)	alk conc found (mg/L)	recovery %	recovery acceptance limit
LCS	100.0	93.4	93	85-115%

DUPLICATE SUMMARY

ID	sample alk conc (mg/L)	duplic alk conc (mg/L)	RPD %	accept. limits
9707021-4	86.6	93.1	7.2	0-15%

SULFATE

Method 300.0

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 07/03/97
Sample Matrix: Water

Client ID	Lab Sample ID	Sulfate Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	1
Qtr. Inj. Well	9706296-1	920	100

ND = Not Detected

SULFATE MATRIX SPIKE

Method 300.0

Sample ID

In House

Lab Name: Paragon Analytics, Inc.
Paragon Sample ID: 9706284-1
Date Analyzed: 07/03/97
Sample Matrix: Water

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	MS/MSD Acceptance Limit
Sulfate	200	14	214	100	85-115%

Analyte	Spike Added (mg/L)	MSD Concentration (mg/L)	MSD Percent Recovery	RPD %	RPD Acceptance Limit
Sulfate	200	209	98	2.4	0-15 %

CHLORIDE

Method 300.0

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Analyzed: 07/03/97
Sample Matrix: Water

Client ID	Lab Sample ID	Chloride Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	0.2
Qtr. Inj. Well	9706296-1	2600	200

ND = Not Detected

CHLORIDE MATRIX SPIKE

Method 300.0

Sample ID

Qtr. Inj. Well

Lab Name: Paragon Analytics, Inc.
Paragon Sample ID: 9706296-1
Date Analyzed: 07/03/97
Sample Matrix: Water

Analyte	Spike Added (mg/L)	Sample Concentration (mg/L)	MS Concentration (mg/L)	MS Percent Recovery	MS/MSD Acceptance Limit
Chloride	5000	2610	7397	96	85-115%

Analyte	Spike Added (mg/L)	MSD Concentration (mg/L)	MSD Percent Recovery	RPD %	RPD Acceptance Limit
Chloride	5000	7341	95	1	0-20 %

TOTAL DISSOLVED SOLIDS

Method 160.1

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Prepared: 06/30/97
Sample Matrix: Water

Client ID	Lab Sample ID	Total Dissolved Solids Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	20
Qtr. Inj. Well	9706296-1	5600	20

ND = Not Detected

TDS Calculations and Quality Control Results

Preparation Date: 06/30/97

ID	sample vol (mL)	empty beaker tare (g)	A beaker + residue gross (g)	A net (mg)	B beaker + residue gross (g)	B net (mg)	gross A vs gross B RPD %	calculated TDS conc (mg/L)	TDS DL (mg/L)
Method Blank	100	75.6868	75.6869	0.1	75.6871	0.3	0.000	3	20
Blank Spike	100	70.5093	70.5503	41.0	70.5503	41.0	0.000	410	20
Blank Spike Dup	100	82.4286	82.4694	40.8	82.4692	40.6	0.000	406	20
9706266-1	100	66.0866	66.1185	31.9	66.1176	31.0	0.001	310	20
9706266-2	100	72.9548	72.9699	15.1	72.9689	14.1	0.001	141	20
9706266-3	100	82.4503	82.5316	81.3	82.5307	80.4	0.001	804	20
9706266-4	100	82.4509	82.5331	82.2	82.5326	81.7	0.001	817	20
9706266-4 dup	100	81.5046	81.5891	84.5	81.5882	83.6	0.001	836	20
9706284-1	100	71.8488	71.8567	7.9	71.8557	6.9	0.001	69	20
9706284-2	100	72.7148	72.7248	10.0	72.7241	9.3	0.001	93	20
9706284-3	100	81.4354	81.4454	10.0	81.4452	9.8	0.000	98	20
9706284-4	100	73.3420	73.3595	17.5	73.3591	17.1	0.001	171	20
9706284-5	100	73.4870	73.4993	12.3	73.4986	11.6	0.001	116	20
9706296-1	100	70.7297	71.2865	556.8	71.2854	555.7	0.002	5557	20
9706296-2	100	71.9371	72.5348	597.7	72.5338	596.7	0.001	5967	20

BLANK SUMMARY

ID	blank conc (mg/L)	accept. limit (mg/L)
Method Blank	3	< 20

BLANK SPIKE SUMMARY

ID	spike added mg	spike added conc (mg/L)	spiked sample conc (mg/L)	recovery %	accept. limits
Blank Spike	40.0	400	410	102	85-115%

DUPLICATE SUMMARY

ID	sample conc (mg/L)	duplic conc (mg/L)	RPD %	accept. limits
9706266-4	817	836	2.3	0-15%

TOTAL SUSPENDED SOLIDS

Method 160.2

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining Company
Client Project ID: Not Submitted
Client Project No. Not Submitted
Lab Workorder Number: 9706296

Date Collected: 06/27/97
Date Prepared: 06/30/97
07/03/97
Sample Matrix: Water

Client ID	Lab Sample ID	Total Suspended Solids Conc (mg/L)	Detection Limit (mg/L)
	Method Blank	ND	20
Qtr. Inj. Well Filter B	9706296-2	66	20
Qtr. Inj. Well Filter A	9706296-6	55	20

ND = Not Detected

TSS Calculations and Quality Control Results

Preparation Date: 06/30/97

ID	sample vol (mL)	filter tare (g)	A filter + residue gross (g)	A net (mg)	calc conc (mg/L)	B filter + residue gross (g)	B net (mg)	B calc conc (mg/L)	DL (mg/L)
Method Blank	1000	1.7223	1.7214	-0.9	-0.9	1.7216	-0.7	-0.7	1
Blank Spike	100	1.7213	1.8554	134.1	1341	1.8562	134.9	1349.0	10
Blank Spike dup	100	1.6731	1.8109	137.8	1378	1.8116	138.5	1385.0	10
9706283-1	1000	1.7288	1.7283	-0.5	-0	1.7284	-0.4	-0.4	1
9706287-1	500	1.7291	1.7287	-0.4	-1	1.7288	-0.3	-0.6	2
9706296-2	200	1.6841	1.6970	12.9	65	1.6974	13.3	66.5	5
9706296-2 dup	200	1.7241	1.7368	12.7	63	1.7373	13.2	66.0	5

BLANK SUMMARY

ID	blank conc (mg/L)	accept. limit (mg/L)
Method Blank	-0.7	< 1

BLANK SPIKE SUMMARY

ID	spike dry wt mg	spike added conc (mg/L)	spiked sample conc (mg/L)	recovery %	recovery accept. limit	RPD %	RPD accept. limit
Blank Spike	138.5	1385	1341	96.8	85-115 %		
Blank Spike dup	141.6	1416	1378	97.3	85-115 %	0.5	0-15 %

DUPLICATE SUMMARY

ID	sample conc (mg/L)	duplic conc (mg/L)	RPD %	accept. limits
9706296-2	65	63	1.0	0-15%

ND = Not Detected
NA = Not Applicable

TSS Calculations and Quality Control Results

Preparation Date: 07/03/97

ID	sample vol (mL)	filter tare (g)	A filter + residue gross (g)	A net (mg)	calc conc (mg/L)	B filter + residue gross (g)	B net (mg)	B calc conc (mg/L)	DL (mg/L)
Method Blank	1000	1.7207	1.7199	-0.8	-0.8	1.7201	-0.6	-1	1
Blank Spike	100	1.7246	1.8518	127.2	1272	1.8524	127.8	1278	10
Blank Spike dup	100	1.6741	1.7933	119.2	1192	1.7937	119.6	1196	10
9706296-6	100	1.6835	1.6887	5.2	52	1.6890	5.5	55	10
9706296-6 dup	100	1.7236	1.7287	5.1	51	1.7289	5.3	53	10
9707021-3	50	1.7282	1.7276	-0.6	-12	1.7279	-0.3	-6	20
9707021-4	50	1.7118	1.7111	-0.7	-14	1.7114	-0.4	-8	20
9707021-7	50	1.7323	1.7352	2.9	58	1.7354	3.1	62	20
9707021-8	50	1.6679	1.6673	-0.6	-12	1.6675	-0.4	-8	20
9707021-11	50	1.6766	1.6760	-0.6	-12	1.6764	-0.2	-4	20
9707021-12	50	1.7052	1.7047	-0.5	-10	1.7048	-0.4	-8	20
9707021-15	50	1.7093	1.7088	-0.5	-10	1.7091	-0.2	-4	20
9707021-16	50	1.6917	1.6911	-0.6	-12	1.6914	-0.3	-6	20

BLANK SUMMARY

ID	blank conc (mg/L)	accept. limit (mg/L)
Method Blank	-0.6	< 1

BLANK SPIKE SUMMARY

ID	spike dry wt mg	spike added conc (mg/L)	spiked sample conc (mg/L)	recovery %	recovery accept. limit	RPD %	RPD accept. limit
Blank Spike	132.4	1324	1272	96.1	85-115 %		
Blank Spike dup	123.6	1236	1192	96.4	85-115 %	0.4	0-15 %

DUPLICATE SUMMARY

ID	sample conc (mg/L)	duplic conc (mg/L)	RPD %	accept. limits
9706296-6	52	51	1.0	0-15%

ND = Not Detected
NA = Not Applicable

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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 6/27/97 Page ____ of ____

*ACCESSION NUMBER (LAB ID) 97-06-296

REPORT TO: LYNN SHELTON
COMPANY: GIANT REFINING CO. - BLOOMFIELD
ADDRESS: 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
QTR. INJ. WELL	6/27	1030	H2O	01
INJ WELL FILTER	6/27	1045	H2O	02
INJ well filter AB	"	"		-06
RIVER-B	6/27	1130	H2O	03
RIVER-B	6/19	1005	H2O	04
NOWP-E	6/27	1115	H2O	05

Oil & Grease 9070/9071/413.2 | 418.1 - TRPH | 8015 Mod. - Gasoline | 8015 Mod. - Diesel | 8015m/8020 - Gasoline/BETX | 8020 - BETX only (Homiva HCl) | 8240/8260 - GC/MS SVOC'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 (HNO3) | Total Metals *(specify in comments) ILP | TCLP: *(specify parameters in comments) | Gross Alpha / Beta (2x500ml) | ~~Gross Gamma~~ PARTICLE SIZE | ~~GammaSpec~~ TSS (2x500ml P) | Isotopic Plutonium | Isotopic Uranium | Total Uranium (KPA) | Radium 226 / 228 | Tritium (H3) | Strontium 89 / 90 | 8315 - Formaldehyde | % Moisture | VOCs - SEE ATTACHED LIST | | GENERAL CHEMISTRY (2x ILP) | Number of Containers

SAMPLE ID	Oil & Grease	418.1	8015 Mod. Gas	8015 Mod. Die	8015m/8020	8020 BETX	8240/8260	8270	8080 Pest	8080 PCB	8310/610	8150	8141/614	TOX	Total Metals	TCLP	Gross Alpha	Particle Size	TSS	Isotopic Pu	Isotopic U	Total U (KPA)	Ra 226/228	Tritium	Sr 89/90	8315	% Moisture	VOCs		General Chem	# Containers
QTR. INJ. WELL															X												X3			X2	6
INJ WELL FILTER																	X		X2												4
INJ well filter AB																			X												
RIVER-B						X3																									3
RIVER-B						X3																									2
NOWP-E						X3																									3

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 4:00 Time	Sign. Time	Sign. Time
Print LYNN SHELTON 6/27/97 Date	Print Date	Print Date
Company GIANT REF.	Company	Company

RECEIVED BY: 1	RECEIVED BY: 2	RECEIVED BY: 3
Sign. 1000 Time	Sign. Time	Sign. Time
Print V. BAILEY 6/30/97 Date	Print Date	Print Date
Company PAI	Company	Company

COMMENTS:
VIA UPS

* DO NOT WRITE IN SHADED AREAS

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

Paragon Analytics, Inc. - Fort Collins, Colorado

CONDITION OF SAMPLE UPON RECEIPT

CLIENT: Grant Ref. SHIPPING CONTAINER #: cooler

WORKORDER NO. 97-06-296 INITIALS: RB DATE: 6/30/97

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 _____	(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):
10) ice melted - only water left.

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: 22°C

FRM 201FC6 (24/1/97)

GIANT
REFINING CO.

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

June 25, 1997

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

Re: Groundwater Sampling Giant Refining Company GW001

Dear Mr. Anderson:

Giant Refining Company - Bloomfield submits the analytical results from the May, 1997 sampling event of monitoring wells MW-1 and MW-5 as required by this facility's discharge plan.

A copy of the analytical for the RCRA wells is included for your information.

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

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

RECEIVED
JUN 27 1997
Environmental Bureau
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	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/23/97	11/20/96	5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	ND	ND	0.016
Barium	mg/l	0.02	1	0.02	ND	0.01	ND	ND	0.25
Cadmium	mg/l	0.001	0.01	ND	ND	0.007	0.003	0.002	0.01
Chromium	mg/l	0.02	0.05	ND	ND	ND	ND	ND	0.018
Lead	mg/l	0.005	0.05	ND	ND	ND	ND	ND	0.086
Boron	mg/l	0.1	0.75	0.2	ND	0.34	0.71	0.40	0.268
Iron	mg/l	0.03	1	ND	2.1	0.2	0.19	1.00	46.268
Manganese	mg/l	0.02	0.2	0.665	0.505	0.17	9.22	7.20	0.943
Total Dissolved Solids	mg/l	10	1000	1590	882	2390	4400	4850	3516
Chloride	mg/l	5	250	260	152	728	1300	1730	1070.5
Sulfate	mg/l	10	600	511	246	531	960	899	815.5
Phenols	mg/l	0.05	0.005	ND	ND	ND	ND	ND	0.055
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND	ND	ND
Nitrate, Nitrite as N	mg/l	0.05	10	17.3	?	7.6	15.00	3.00	5.725
Ammonia	mg/l	0.07		0.6	1	0.6	3.9	4.8	
Total Kjeldahl Nitrogen	mg/l	0.5		1.8	1.8	7.6	10	10	
Benzene	ug/l	0.5	10	ND	ND	ND	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	0.3	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	0.4	ND	ND	ND
pH	s.u.	0.01		7.62	7.6	7.3	7.16	7.00	7.31
Elevation at T.O.P.	ft	0.01		5515.78	5515.78	5515.78	5515.78	5515.78	5515.78
Depth to Water	ft	0.01		16.7	17.74	10.7	17.65	15.64	16.19
Elevation at T.O.W.	ft	0.01		5499.08	5498.04	5505.08	5498.13	5500.14	5499.59

GIANT REFINING COMPANY - BLOOMFIELD
GROUNDWATER MONITORING - GW-1A

Well #MW-5

PARAMETER	UNIT	PQL	NMWQ STANDARD	CURRENT RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	PREVIOUS RESULT	BASELINE RESULT
Date of Sample				5/23/97	11/20/96	5/31/96	12/7/95	5/22/95	1984/1985
Arsenic	mg/l	0.01	0.1	ND	ND	ND	ND	ND	0.004
Barium	mg/l	0.02	1	0.02	0.03	0.03	ND	ND	ND
Cadmium	mg/l	0.001	0.01	ND	ND	ND	ND	ND	0.015
Chromium	mg/l	0.02	0.05	ND	0.04	ND	ND	ND	ND
Lead	mg/l	0.005	0.05	ND	ND	0.72	ND	ND	0.015
Boron	mg/l	0.1	0.75	0.5	0.6	0.54	0.81	0.50	0.48
Iron	mg/l	0.03	1	0.2	6.2	0.72	0.08	ND	0.061
Manganese	mg/l	0.02	0.2	0.155	0.187	0.58	0.24	0.10	0.128
Total Dissolved Solids	mg/l	10	1000	6250	5660	6350	7500	7720	4746
Chloride	mg/l	5	250	2690	2810	2260	2600	3180	1402
Sulfate	mg/l	10	600	879	912	918	780	943	1299
Phenols	mg/l	0.05	0.005	ND	ND	ND	0.37	ND	0.008
Cyanide	mg/l	0.01	0.2	ND	ND	ND	ND	ND	0.013
Nitrate, Nitrite as N	mg/l	0.05	10	13.5	?	14.5	16.00	19.30	24
Ammonia	mg/l	0.07		0.4	ND	0.6	ND	0.2	
Total Kjeldahl Nitrogen	mg/l	0.5		3.4	1	3.5	5	1.2	
Benzene	ug/l	0.5	10	ND	ND	ND	ND	ND	ND
Toluene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND
Ethylbenzene	ug/l	0.5	750	ND	ND	ND	ND	ND	ND
Xylenes (total)	ug/l	0.5	620	ND	ND	ND	ND	ND	ND
pH	s.u.	0.01		7.07	7.1	7	7.16	7.00	7.41
Elevation at T.O.P.	ft	0.01		5545.13	5545.13	5545.13	5545.13	5545.13	5545.13
Depth to Water	ft	0.01		46.42	45.56	4.5*	44.45	43.98	41.85
Elevation at T.O.W.	ft	0.01		5498.71	5499.57	5540.63*	5500.68	5501.28	5503.28

GIANT REFINING COMPANY - BLOOMFIELD						
GROUNDWATER MONITORING - RCRA PART B PERMIT						
		UP GRADIENT		DOWN GRADIENT		
PARAMETER	UNIT	MW-21	RW-15	MW-20	MW-9	RW-18
Date of Sample		5/22/97	5/22/97	5/22/97	5/22/97	5/22/97
HYDROCARBON INDICATORS						
Benzene	mg/l	0.45	22	0.11	19	3.3
Ethylbenzene	mg/l	0.034	3.2	0.038	0.77	0.7
Toluene	mg/l	ND	21	0.018	0.51	ND
Xylenes (total)	mg/l	110	18.7	ND	7.48	1.1
pH	s.u.	6.89	7.01	7.07	6.89	7.19
pH	s.u.	6.86	7.00	7.08	6.87	7.18
pH	s.u.	6.86	7.09	7.07	6.87	7.21
pH	s.u.	6.86	7.08	7.07	6.87	7.21
Specific Conductance	us/cm	4430	4130	2740	3330	2200
Specific Conductance	us/cm	4420	4110	2720	3350	2180
Specific Conductance	us/cm	4430	4130	2710	3460	2160
Specific Conductance	us/cm	4430	4130	2670	3350	2160
Total Organic Carbon	mg/l	31.7	51.9	60.6	92.5	53.1
Total Organic Halogen	mg/l	0.0376	0.0243	0.0176	0.0153	0.493
GROUNDWATER LEVELS						
Elevation - TOP	feet	5518.62	5533.44	5516.46	5519.77	5526.08
Depth to Water	feet	20.1	NM	17.99	21.19	NM
Elevation - GW	feet	5498.52	NM	5498.47	5498.58	NM
HC Thickness	feet	0	0	0		
Elevation - Liquid	feet					
Total Depth from TOP	feet	30.44	NM	27.12	34.94	NM
NM - Not Measured						

ASSAIGAI
ANALYTICAL
LABORATORIES, INC.
7300 Jefferson, N.E. • Albuquerque, New Mexico 87109 • (505) 345-8964 • FAX (505) 345-7259
3332 Wedgewood, E-5 • El Paso, Texas 79925 • (915) 593-6000 • FAX (915) 593-7820

Report Generated:
June 17, 1997 16:00

CERTIFICATE OF ANALYSIS
RESULTS BY SAMPLE

SENT TO: GIANT REFINING-BLOOMFIELD
PO BOX 159
BLOOMFIELD, NM 87413

ATTN: LYNN SHELTON

WORKORDER # : 9705219
WORK ID : MONITOR WELLS
CLIENT CODE : GIAN02
DATE RECEIVED : 05/23/97

Lab ID: 9705219-01A
Sample ID: MONITOR WELL 21
Collected: 05/22/97 12:25:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	450	ug/L	1.0	10	06/03/97	WBTXME139
Toluene	ND	ug/L	1.0	10	06/03/97	WBTXME139
Ethylbenzene	34	ug/L	1.0	10	06/03/97	WBTXME139
P-&m-xylene	110	ug/L	2.0	10	06/03/97	WBTXME139
O-xylene	ND	ug/L	1.0	10	06/03/97	WBTXME139

Lab ID: 9705219-01B
Sample ID: MONITOR WELL 21
Collected: 05/22/97 12:25:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOC/EPA 415.1						
Total Organic Carbon	ATTACHED	mg/L	1.0			

Lab ID: 9705219-01C
Sample ID: MONITOR WELL 21
Collected: 05/22/97 12:25:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOX/SW846 9020B						
Total Organic Halogens	ATTACHED	mg/L	1.0			

Lab ID: 9705219-02A
Sample ID: RW-15
Collected: 05/22/97 14:10:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	22000	ug/L	1.0	250	06/03/97	WBTXME140
Toluene	21000	ug/L	1.0	250	06/03/97	WBTXME140

Lab ID: 9705219-02A
Sample ID: RW-15
Collected: 05/22/97 14:10:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Ethylbenzene	3200	ug/L	1.0	250	06/03/97	WBTXME140
P-&m-xylene	14000	ug/L	2.0	250	06/03/97	WBTXME140
O-xylene	4700	ug/L	1.0	250	06/03/97	WBTXME140

Lab ID: 9705219-02B
Sample ID: RW-15
Collected: 05/22/97 14:10:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOC/EPA 415.1						
Total Organic Carbon	ATTACHED	mg/L	1.0			

Lab ID: 9705219-02C
Sample ID: RW-15
Collected: 05/22/97 14:10:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOX/SW846 9020B						
Total Organic Halogens	ATTACHED	mg/L	1.0			

Lab ID: 9705219-03A
Sample ID: RW-18
Collected: 05/22/97 15:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	3300	ug/L	1.0	50	06/04/97	WBTXME140
Toluene	ND	ug/L	1.0	50	06/04/97	WBTXME140
Ethylbenzene	700	ug/L	1.0	50	06/04/97	WBTXME140
P-&m-xylene	1100	ug/L	2.0	50	06/04/97	WBTXME140
O-xylene	ND	ug/L	1.0	50	06/04/97	WBTXME140

Lab ID: 9705219-03B
Sample ID: RW-18
Collected: 05/22/97 15:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOC/EPA 415.1						
Total Organic Carbon	ATTACHED	mg/L	1.0			

Lab ID: 9705219-03C
Sample ID: RW-18
Collected: 05/22/97 15:15:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOX/SW846 9020B						
Total Organic Halogens	ATTACHED	mg/L	1.0			

Lab ID: 9705219-04A
Sample ID: MONITOR WELL 20
Collected: 05/22/97 15:35:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	110	ug/L	1.0	10	06/03/97	WBTXME140
Toluene	18	ug/L	1.0	10	06/03/97	WBTXME140
Ethylbenzene	38	ug/L	1.0	10	06/03/97	WBTXME140
P-&m-xylene	ND	ug/L	2.0	10	06/03/97	WBTXME140
O-xylene	ND	ug/L	1.0	10	06/03/97	WBTXME140

Lab ID: 9705219-04B
Sample ID: MONITOR WELL 20
Collected: 05/22/97 15:35:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOC/EPA 415.1						
Total Organic Carbon	ATTACHED	mg/L	1.0			

Lab ID: 9705219-04C
Sample ID: MONITOR WELL 20
Collected: 05/22/97 15:35:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOX/SW846 9020B						
Total Organic Halogens	ATTACHED	mg/L	1.0			

Lab ID: 9705219-05A
Sample ID: MONITOR WELL FB-09
Collected: 05/22/97 16:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	19000	ug/L	1.0	250	06/04/97	WBTXME140
Toluene	480	ug/L	1.0	250	06/04/97	WBTXME140
Ethylbenzene	1100	ug/L	1.0	250	06/04/97	WBTXME140
P-&m-xylene	7000	ug/L	2.0	250	06/04/97	WBTXME140
O-xylene	470	ug/L	1.0	250	06/04/97	WBTXME140

Lab ID: 9705219-06A
Sample ID: MONITOR WELL 09
Collected: 05/22/97 16:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	19000	ug/L	1.0	250	06/04/97	WBTXME140
Toluene	510	ug/L	1.0	250	06/04/97	WBTXME140
Ethylbenzene	770	ug/L	1.0	250	06/04/97	WBTXME140
P-&m-xylene	7000	ug/L	2.0	250	06/04/97	WBTXME140
O-xylene	480	ug/L	1.0	250	06/04/97	WBTXME140

Lab ID: 9705219-06B
Sample ID: MONITOR WELL 09
Collected: 05/22/97 16:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOC/EPA 415.1						
Total Organic Carbon	ATTACHED	mg/L	1.0			

Lab ID: 9705219-06C
Sample ID: MONITOR WELL 09
Collected: 05/22/97 16:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TOX/SW846 9020B						
Total Organic Halogens	ATTACHED	mg/L	1.0			

Lab ID: 9705219-06D
Sample ID: MONITOR WELL 09
Collected: 05/22/97 16:30:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
AMMONIA as (N)/SM4500 NH3C						
Ammonia	1.0	mg/L	0.20	1.0	06/02/97	W97235
NITRATE/NITRITE/EPA 300						
Nitrate/Nitrite as N	0.2	mg/L	0.20	1.0	05/28/97	W97227
TKN/SM4500-N & NH3 B&C						
Total Kjeldahl Nitrogen	1.6	mg/L	0.20	1.0	06/02/97	W97233

Lab ID: 9705219-07A
Sample ID: MONITOR WELL FB 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
Toluene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
Ethylbenzene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
P-&m-xylene	ND	ug/L	2.0	1.0	06/02/97	WBTXME139

Lab ID: 9705219-07A
Sample ID: MONITOR WELL FB 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
O-xylene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139

Lab ID: 9705219-08A
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
Toluene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
Ethylbenzene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139
P-&m-xylene	ND	ug/L	2.0	1.0	06/02/97	WBTXME139
O-xylene	ND	ug/L	1.0	1.0	06/02/97	WBTXME139

Lab ID: 9705219-08B
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
(GFAA)DIG WATER/SW846 3005	05/28/97	N/A				
ARSENIC (GFAA)/EPA 206.2						
Arsenic, As	ND	mg/L	0.0050	1.0	05/28/97	M9738
Boron by EPA 200.7						
Boron, B	0.5	mg/L	0.30	1.0	05/29/97	M97383
Boron DIG EPA 4.1.3	05/28/97	N/A				
CADMIUM (GFAA)/EPA 213.2						
Cadmium, Cd	ND	mg/L	0.0010	1.0	06/03/97	M97379
FILTRATION FEE	05/22/97	N/A				
LEAD (GFAA)/EPA 239.2						
Lead, Pb	ND	mg/L	0.0020	1.0	06/03/97	M97379
NPDES DIGESTION 4.1.3	05/28/97	N/A				
NPDES METALS-ICP/EPA 200.7						
Silver, Ag	NT	mg/L	0.020			M97383
Aluminum, Al	NT	mg/L	0.50			M97383
Arsenic, As	NT	mg/L	0.060			M97383
Barium, Ba	0.02	mg/L	0.010	1.0	05/29/97	M97383
Beryllium, Be	NT	mg/L	0.0040			M97383
Calcium, Ca	NT	mg/L	0.40			M97383
Cadmium, Cd	NT	mg/L	0.0080			M97383
Cobalt, Co	NT	mg/L	0.010			M97383
Chromium, Cr	ND	mg/L	0.040	1.0	05/29/97	M97383
Copper, Cu	NT	mg/L	0.040			M97383
Iron, Fe	0.2	mg/L	0.20	1.0	05/29/97	M97383
Potassium, K	NT	mg/L	0.40			M97383
Magnesium, Mg	NT	mg/L	0.20			M97383
Manganese, Mn	0.155	mg/L	0.010	1.0	05/29/97	M97383
Sodium, Na	NT	mg/L	0.40			M97383
Nickel, Ni	NT	mg/L	0.040			M97383
Lead, Pb	NT	mg/L	0.060			M97383
Antimony, Sb	NT	mg/L	0.050			M97383
Selenium, Se	NT	mg/L	0.050			M97383
Thallium, Tl	NT	mg/L	0.30			M97383
Vanadium, V	NT	mg/L	0.0080			M97383

Lab ID: 9705219-08B
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
NPDES METALS-ICP/EPA 200.7						
Zinc, Zn	NT	mg/L	0.10			M97383

Lab ID: 9705219-08C
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CHLORIDE/EPA 300						
Chloride	2690	mg/L	0.50	100	05/28/97	W97227
SULFATE/EPA 300						
Sulfate	879	mg/L	0.50	50	05/28/97	W97227
TDS/EPA 160.1						
Total Dissolved Solids	6250	mg/L	10	1.0	05/29/97	WTDS393

Lab ID: 9705219-08D
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
AMMONIA as (N)/SM4500 NH3C						
Ammonia	0.4	mg/L	0.20	1.0	06/02/97	W97235
NITRATE/NITRITE/EPA 300						
Nitrate/Nitrite as N	13.5	mg/L	0.20	1.0	05/28/97	W97227
TKN/SM4500-N & NH3 B&C						
Total Kjeldahl Nitrogen	3.4	mg/L	0.20	1.0	06/02/97	W97233

Lab ID: 9705219-08E
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
PHENOL, TOTAL/EPA 420.1						
Phenol	ND	mg/L	0.050	1.0	06/04/97	W97237

Lab ID: 9705219-08F
Sample ID: MONITOR WELL 05
Collected: 05/23/97 10:37:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CYANIDE, TOTAL/EPA 335.2						
Cyanide, Total	ND	mg/L	0.020	1.0	06/05/97	W97242

Lab ID: 9705219-09A
Sample ID: MONITOR WELL FB 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
Toluene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
Ethylbenzene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
P-&m-xylene	ND	ug/L	2.0	1.0	06/04/97	WBTXME140
O-xylene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140

Lab ID: 9705219-10A
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
Toluene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
Ethylbenzene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140
P-&m-xylene	ND	ug/L	2.0	1.0	06/04/97	WBTXME140
O-xylene	ND	ug/L	1.0	1.0	06/04/97	WBTXME140

Lab ID: 9705219-10B
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
(GFAA)DIG WATER/SW846 3005	05/28/97	N/A				
ARSENIC (GFAA)/EPA 206.2						
Arsenic, As	ND	mg/L	0.0050	1.0	05/28/97	M97378
Boron by EPA 200.7						
Boron, B	0.2	mg/L	0.30	1.0	05/29/97	M97383
Boron DIG EPA 4.1.3	05/28/97	N/A				
CADMIUM (GFAA)/EPA 213.2						
Cadmium, Cd	ND	mg/L	0.0010	1.0	06/03/97	M97379
FILTRATION FEE	05/23/97	N/A				
LEAD (GFAA)/EPA 239.2						
Lead, Pb	ND	mg/L	0.0020	1.0	06/03/97	M97379
NPDES DIGESTION 4.1.3	05/28/97	N/A				
NPDES METALS-ICP/EPA 200.7						
Silver, Ag	NT	mg/L	0.020			M97383
Aluminum, Al	NT	mg/L	0.50			M97383
Arsenic, As	NT	mg/L	0.060			M97383
Barium, Ba	0.02	mg/L	0.010	1.0	05/29/97	M97383
Beryllium, Be	NT	mg/L	0.0040			M97383
Calcium, Ca	NT	mg/L	0.40			M97383
Cadmium, Cd	NT	mg/L	0.0080			M97383
Cobalt, Co	NT	mg/L	0.010			M97383
Chromium, Cr	ND	mg/L	0.040	1.0	05/29/97	M97383
Copper, Cu	NT	mg/L	0.040			M97383
Iron, Fe	ND	mg/L	0.20	1.0	05/29/97	M97383
Potassium, K	NT	mg/L	0.40			M97383
Magnesium, Mg	NT	mg/L	0.20			M97383
Manganese, Mn	0.665	mg/L	0.010	1.0	05/29/97	M97383
Sodium, Na	NT	mg/L	0.40			M97383
Nickel, Ni	NT	mg/L	0.040			M97383
Lead, Pb	NT	mg/L	0.060			M97383

Lab ID: 9705219-10B
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
NPDES METALS-ICP/EPA 200.7						
Antimony, Sb	NT	mg/L	0.050			M97383
Selenium, Se	NT	mg/L	0.050			M97383
Thallium, Tl	NT	mg/L	0.30			M97383
Vanadium, V	NT	mg/L	0.0080			M97383
Zinc, Zn	NT	mg/L	0.10			M97383

Lab ID: 9705219-10C
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CHLORIDE/EPA 300						
Chloride	260	mg/L	0.50	50	05/28/97	W97227
SULFATE/EPA 300						
Sulfate	511	mg/L	0.50	50	05/28/97	W97227
TDS/EPA 160.1						
Total Dissolved Solids	1590	mg/L	10	1.0	05/29/97	WTDS393

Lab ID: 9705219-10D
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
PHENOL, TOTAL/EPA 420.1						
Phenol	ND	mg/L	0.050	1.0	06/04/97	W97237

Lab ID: 9705219-10E
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
CYANIDE, TOTAL/EPA 335.2						
Cyanide, Total	ND	mg/L	0.020	1.0	06/05/97	W97242

Lab ID: 9705219-10F
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
AMMONIA as (N)/SM4500 NH3C						
Ammonia	0.6	mg/L	0.20	1.0	06/02/97	W97235
NITRATE/NITRITE/EPA 300						
Nitrate/Nitrite as N	17.3	mg/L	0.20	2.0	05/29/97	W97231
TKN/SM4500-N & NH3 B&C						

Lab ID: 9705219-10F
Sample ID: MONITOR WELL 01
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
TKN/SM4500-N & NH3 B&C						
Total Kjeldahl Nitrogen	1.8	mg/L	0.20	1.0	06/02/97	W97233

Lab ID: 9705219-11A
Sample ID: TRIP BLANK
Collected: 05/23/97 12:00:00
Matrix: WATER

TEST / METHOD	RESULT	UNITS	LIMIT	D_F	DATE ANAL	BATCH_ID
BTEX/EPA 8020						
Benzene	ND	ug/L	1.0	1.0	06/05/97	WBTXME141
Toluene	ND	ug/L	1.0	1.0	06/05/97	WBTXME141
Ethylbenzene	ND	ug/L	1.0	1.0	06/05/97	WBTXME141
P-&m-xylene	ND	ug/L	2.0	1.0	06/05/97	WBTXME141
O-xylene	ND	ug/L	1.0	1.0	06/05/97	WBTXME141
SAMPLING TIME	N/A	N/A				

for William P. Biava
President

WORKORDER COMMENTS

DATE : 06/17/97
WORKORDER:

DEFINITIONS/DATA QUALIFIERS

The following are definitions, abbreviations, and data qualifiers which may have been utilized in your report:

ND	= Analyte "not detected" in analysis at the sample specific detection limit.
D_F	= Sample "dilution factor"
NT	= Analyte "not tested" per client request.
B	= Analyte was also detected in laboratory method QC blank.
E	= Analyte concentration (result) is an estimated value or exceeds analysis calibration range.
LIMIT	= The minimum amount of the analyte that AAL can detect utilizing the specified analysis.

Please Note: Multiply the "Limit" value (AAL's Detection Limit) by Dilution Factor (D_F) to obtain the sample specific Detection Limit.

REPORT COMMENTS

GP Work Order # 9705226

SAMPLE ANALYSIS REPORT

Prepared For:

ASSAIGAI ANALYTICAL LABS
7300 JEFFERSON NE
ALBUQUERQUE, NM 87109

ASSAIGAI

Prepared By:

GP Environmental Services, Inc.
202 Perry Parkway
Gaithersburg, MD 20877

June 17, 1997

for Marty Sadoughi, Laboratory Director

Project: ASSAIGAI

GP ENVIRONMENTAL SERVICES
ANALYTICAL RESULTS

Project: ASSAIGAI

ASSAIGAI ANALYTICAL LABS
7300 JEFFERSON NE
ALBUQUERQUE, NM 87109
Atten: Mr. DANIEL J MOORE

GP ENVIRONMENTAL SERVICES
202 Perry Parkway
Gaithersburg, MD 20877

Atten: Client Services
Phone: (301) 926-6802

Certified by:_____

SAMPLE IDENTIFICATION

GP ID	Client ID
9705226-01A	9705219-1B
9705226-01B	
9705226-02A	9705219-1C
9705226-03A	9705219-2B
9705226-03B	
9705226-04A	9705219-2C
9705226-05A	9705219-3B
9705226-05B	
9705226-06A	9705219-3C
9705226-07A	9705219-4B
9705226-07B	
9705226-08A	9705219-4C
9705226-09A	9705219-6B
9705226-09B	
9705226-10A	9705219-6C
9705226-11A	9705223-1C
9705226-12A	9705224-1B

Project: ASSAIGAI

GP ENVIRONMENTAL SERVICES
WET CHEMISTRY ANALYSIS RESULTS

GP ID: 9705226-01
Client ID: 9705219-1B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	31.7	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-02
Client ID: 9705219-1C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	37.6	10.0	ug/L	1		06/16/97 APL

GP ID: 9705226-03
Client ID: 9705219-2B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	51.9	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-04
Client ID: 9705219-2C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	24.3	10.0	ug/L	1		06/16/97 APL

GP ID: 9705226-05
Client ID: 9705219-3B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	53.1	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-06
Client ID: 9705219-3C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	493	100	ug/L	10		06/16/97 APL

Project: ASSAIGAI

GP ENVIRONMENTAL SERVICES
WET CHEMISTRY ANALYSIS RESULTS

GP ID: 9705226-07 Matrix: WATER
Client ID: 9705219-4B Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	60.6	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-08 Matrix: WATER
Client ID: 9705219-4C Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	17.6	10.0	ug/L	1		06/17/97 APL

GP ID: 9705226-09 Matrix: WATER
Client ID: 9705219-6B Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	92.5	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-10 Matrix: WATER
Client ID: 9705219-6C Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	15.3	10.0	ug/L	1		06/17/97 APL

GP ID: 9705226-11 Matrix: WATER
Client ID: 9705223-1C Collected: 05/21/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	9.79	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-12 Matrix: WATER
Client ID: 9705224-1B Collected: 05/21/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	16.0	1.00	mg/L	1		06/16/97 APL

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES, INC.

ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

Lab job no.: 3211 Date 22 MAY 97

Page 1 of 3

Client GIANT REFINING

Address P.O. BOX 159

City / State / Zip BLOOMFIELD N.M. 87413

Project Name / Number MONITOR WELLS

Contract / Purchase Order / Quote

Project Manager / Contact LYNN SHELTON

Telephone No. (505) 632-8013

Fax No. 632-3911

Samplers: (Signature) Scott Pratt / Lynn J. Shelton

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8020	TOC	TOX	Remarks
1A	MONITOR WELL-21	5/22/97	12:25	W	40 ml. VIAL	4°C	HCL	2	X			
1B	MONITOR WELL-21		12:25		40 ml. VIAL		H_2SO_4	2		X		
1C	MONITOR WELL-21		12:25		1 LT. A.G.		N/A	1			X	
2A	RW-15		14:10		40 ml. VIAL		HCL	2	X			
2B	RW-15		14:10		40 ml. VIAL		H_2SO_4	2		X		
2C	RW-15		14:10		1 LT. A.G.		N/A	1			X	
3A	RW-18		15:15		40 ml. VIAL		HCL	2	X			
3B	RW-18		15:15		40 ml. VIAL		H_2SO_4	2		X		
3C	RW-18		15:15		1 LT. A.G.		N/A	1			X	
4A	MONITOR WELL-20		15:35		40 ml. VIAL		HCL	2	X			
4B	MONITOR WELL-20	↓	15:35	↓	40 ml. VIAL	↓	H_2SO_4	2		X		
4C	MONITOR WELL 20	5/22/97	15:35	W	1 LT. A.G.	4°C	N/A	1			X	

Relinquished by:
Signature Scott Pratt
Printed SCOTT PRATT
Company AAL / SDCS
Reason

Date 23 MAY 97
Time 21:00

Received by:
Signature
Printed K. Temple Brannen
Company AAL
Reason

Relinquished by:
Signature
Printed
Company
Reason

Date
Time

Received by:
Signature
Printed
Company
Reason

Method of Shipment:
Shipment No.
Special Instructions:

Comments:
Chgs: 434 miles / 16 Hours @ 1 Tech

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

COURIER

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES, INC.

ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

Lab job no.: [illegible] Date 23 May 97

Page 2 of 3

Client: GIANT REFINERY
Address: P.O. BOX 159
City / State / Zip: Bloomfield, N.M. 87413
Project Name / Number: Monitor Wells
Contract / Purchase Order / Quote:

Project Manager / Contact: LYNN SHELTON
Telephone No.: (505) 632-8013
Fax No.: 632-3911
Samplers: (Signature) Scott Pratt; [signature]

AAL Fraction Number	Field Sample Number/Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8020	TOC	TOX	TKN/NH3, NO2/NO3	Dissolved Mtls*	TDS/Chloride/Sulfate	Phenols	Cyanide		Remarks
5A	Monitor Well FB-09	5/22/97	16:30	W	40 ml. Vial	4°C	HCL	2	X									Field Blank
6A	Monitor Well-09	↓	↓	↓	40 ml. Vial	4°C	HCL	2	X									
6B	Monitor Well-09	↓	↓	↓	40 ml. Vial	↓	H_2SO_4	2		X								
6C	Monitor Well-09	5/22/97	16:30	↓	1 LT. A.G.	↓	N/A	1			X							
6D	Monitor Well-09	5/22/97	16:30	↓	1 LT. P.	↓	H_2SO_4	1				X						
7A	Monitor Well FB-05	5/23/97	10:37	↓	40 ml. Vial	↓	HCL	2	X									
8A	Monitor Well-05	↓	↓	↓	40 ml. Vial	↓	HCL	2	X									
8B	↓	↓	↓	↓	1 LT. P.	↓	HNO_3	1					X					
8C	↓	↓	↓	↓	1 LT. P.	↓	N/A	1						X				
8D	↓	↓	↓	↓	1 LT. P.	↓	H_2SO_4	1				X						
8E	↓	↓	↓	↓	1 LT. P.	↓	H_2SO_4	1							X			
8F	Monitor Well-05	5/23/97	10:37	W	1 LT. P.	4°C	NAOH	1								X		

Relinquished by:	Date / Time	Received by:	Relinquished by:	Date / Time	Received by:
Signature: Scott Pratt	Date: 5/28/97	Signature: [signature]	Signature:	Date:	Signature:
Printed: SCOTT PRATT	Time: 9:00	Printed: [illegible]	Printed:	Time:	Printed:
Company: AAL / SDCS		Company: AAL	Company:		Company:
Reason:		Reason:	Reason:		Reason:

Method of Shipment:
Shipment No.:
Special Instructions:

Comments: *DISSOLVED MTLS. TO INCLUDE: AS, BA, CD, CR, PB, B, FE + MN. MTLS. WERE FILTERED + PRESERVED IN THE FIELD

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

COURIER

Chain of Custody Record

ASSAIGAI ANALYTICAL LABORATORIES, INC.

ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

Lab job no.: 711 Date 23 MAY 97

Page 3 of 3

Client GIANT REFINERY
Address P.O. BOX 159
City / State / Zip BLOOMFIELD, N.M. 87413
Project Name / Number MONITOR WELLS
Contract / Purchase Order / Quote

Project Manager / Contact LYNN SHELTON
Telephone No. (505) 632-8013
Fax No. 632-3911
Samplers: (Signature)

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	8020	Dissolved MTLS *	TDS, Chloride, Sulfate	Phenols	Cyanide	TKN, Alk, 3, Alk, Alk 2	Remarks
9A	MONITOR WELL FB-01	5/23/97	12:00	W	40 ml. VIAL	4°C	HCL	2	X						FIELD BLANK
10A	MONITOR WELL-01				40 ml. VIAL		HCL	2	X						
10B					1 LT. P.		HNO_3	1		X					
10C					1 LT. P.		N/A				X				
10D					1 LT. P.		H_2SO_4	1				X			
10E					1 LT. P.		NAOH	1					X		
10F	MONITOR WELL-01				1 LT. P.		H_2SO_4	1						X	
11A	TRIP BLANK	5/23/97	12:00	W	40 ml. VIAL		HCL	2	X						

23 SP MAY 97

Relinquished by:
Signature
Printed SCOTT PYATT
Company AAL / SDCS
Reason
Date 5/26/97
Time 9:00

Received by:
Signature
Printed
Company AAL
Reason

Relinquished by:
Signature
Printed
Company
Reason
Date
Time

Received by:
Signature
Printed
Company
Reason

Method of Shipment:
Shipment No.
Special Instructions:

Comments: * DISSOLVED MTLS TO INCLUDE: AS, BA, CD, CR, PB, B, FE + MN
MTLS. WERE FILTERED + PRESERVED IN THE FIELD

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

COURIER

GP Work Order # 9705226

SAMPLE ANALYSIS REPORT

Prepared For:

ASSAIGAI ANALYTICAL LABS
7300 JEFFERSON NE
ALBUQUERQUE, NM 87109

ASSAIGAI

Prepared By:

GP Environmental Services, Inc.
202 Perry Parkway
Gaithersburg, MD 20877

June 17, 1997

for Marty Sadoughi, Laboratory Director

GP ENVIRONMENTAL SERVICES
ANALYTICAL RESULTS

Project: ASSAIGAI

ASSAIGAI ANALYTICAL LABS
7300 JEFFERSON NE
ALBUQUERQUE, NM 87109
Atten: Mr. DANIEL J MOORE

GP ENVIRONMENTAL SERVICES
202 Perry Parkway
Gaithersburg, MD 20877

Atten: Client Services
Phone: (301) 926-6802

Certified by:_____

SAMPLE IDENTIFICATION

GP ID	Client ID
9705226-01A	9705219-1B
9705226-01B	
9705226-02A	9705219-1C
9705226-03A	9705219-2B
9705226-03B	
9705226-04A	9705219-2C
9705226-05A	9705219-3B
9705226-05B	
9705226-06A	9705219-3C
9705226-07A	9705219-4B
9705226-07B	
9705226-08A	9705219-4C
9705226-09A	9705219-6B
9705226-09B	
9705226-10A	9705219-6C
9705226-11A	9705223-1C
9705226-12A	9705224-1B

GP ID: 9705226-01
Client ID: 9705219-1B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	31.7	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-02
Client ID: 9705219-1C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	37.6	10.0	ug/L	1		06/16/97 APL

GP ID: 9705226-03
Client ID: 9705219-2B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	51.9	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-04
Client ID: 9705219-2C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	24.3	10.0	ug/L	1		06/16/97 APL

GP ID: 9705226-05
Client ID: 9705219-3B
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	53.1	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-06
Client ID: 9705219-3C
Matrix: WATER
Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	493	100	ug/L	10		06/16/97 APL

GP ENVIRONMENTAL SERVICES
WET CHEMISTRY ANALYSIS RESULTS

GP ID: 9705226-07 Matrix: WATER
Client ID: 9705219-4B Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	60.6	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-08 Matrix: WATER
Client ID: 9705219-4C Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	17.6	10.0	ug/L	1		06/17/97 APL

GP ID: 9705226-09 Matrix: WATER
Client ID: 9705219-6B Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	92.5	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-10 Matrix: WATER
Client ID: 9705219-6C Collected: 05/22/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Halides	SW846 9020	15.3	10.0	ug/L	1		06/17/97 APL

GP ID: 9705226-11 Matrix: WATER
Client ID: 9705223-1C Collected: 05/21/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	9.79	1.00	mg/L	1		06/16/97 APL

GP ID: 9705226-12 Matrix: WATER
Client ID: 9705224-1B Collected: 05/21/97

Parameter	Method	Result	Det.Lim.	Units	Dil.	Prepared	Analyzed By
Total Organic Carbon	MCAWW 415.1	16.0	1.00	mg/L	1		06/16/97 APL

GP ENVIRONMENTAL SERVICES

Possible notes and definitions for this report:

BQL = Below Quantitation Limit

J = Value is less than the reporting limits but greater than zero

P = Indicates that there is greater than 25% difference for detected pesticide/ Aroclor results between the two GC columns

B = Indicates that the compound was found in the associated blank

E = Indicates that the concentration exceeded the calibration range of the instrument

U = Indicates that the compound was analyzed for but not detected, number indicates the detection limit

D = Indicates that the compound was found in a analysis at a secondary dilution factor

***** = Value obtained from a 1:5 dilution

+ = Value obtained from a 1:10 dilution

= Value obtained from a 1:20 dilution

= = Value obtained from a 1:25 dilution

^ = Value obtained from a 1:50 dilution

~ = Value obtained from a 1:100 dilution

! = Value obtained from a 1:250 dilution

@ = Value obtained from a 1:125 dilution (Medium Level)

$ = Value obtained from a 1:500 dilution

& = Value obtained from a 1:1000 dilution

N = Flashpoint not observed; heated to specified limit

R = Flammable at room temperature

TNTC = Too numerous to count

B.P. = Detection limit taken from boiling point

F.F. = Sample gave off flammable fumes

WET CHEMISTRY
QC

GP Environmental Services

GP ENVIRONMENTAL SERVICES

WET CHEMISTRY NARRATIVE

CLIENT: Assaigai
GP Work Order: 97-05-226
DATE: June 18, 1997

The following data package comprises twelve water samples received at GP Environmental Services on May 28, 1997. Seven samples were analyzed for total organic carbon. Five samples were analyzed for total organic halides.

Duplicate and matrix spike analyses were performed on sample 9705219-1B for TOC and on sample 9705219-1C for TOX.

6-18-97
APJ 6-19-97

RUN SUMMARY SHEET
Total Organic Carbon

DATA FILE: TOC61697
INSTRUMENT FILE: INSTRUMENT: DOHRMAN ANALYZED: 06/16/1997

Seq	Lab ID	Client ID	Rep1	Rep2	Raw Conc.	Result	MDL	Units	%Recovery	%RPD	%RSD
1	0 mg/L C	STANDARD 1	0.287		-1.680	-1.680	1.00	mg/L			
2	1.0 mg/L C	STANDARD 2	2.205		0.650	0.650	1.00	mg/L			
3	5.0 mg/L C	STANDARD 3	5.283		4.38	4.38	1.00	mg/L			
4	10.0 mg/L C	STANDARD 4	9.910		9.99	9.99	1.00	mg/L			
5	25.0 mg/L C	STANDARD 5	24.09		27.2	27.2	1.00	mg/L			
6	50.0 mg/L C	STANDARD 6	44.77		52.3	52.3	1.00	mg/L			
7	100 mg/L C	STANDARD 7	82.63		98.2	98.2	1.00	mg/L			
8	ERA 9966	ICV	55.98		65.9	65.9	1.00	mg/L	101		
9	BLANK	ICB	0.324		-1.630	-1.630	1.00	mg/L			
10	9705226-01A	9705219-1B	27.80		31.7	31.7	1.00	mg/L			
11	9705226-01AD	9705219-1BD	27.81		31.7	31.7	1.00	mg/L		0.038	
12	9705226-01AS	9705219-1BS	34.34		39.6	39.6	1.00	mg/L	79.3		
13	9705226-03A	9705219-2B	44.47		51.9	51.9	1.00	mg/L			
14	9705226-05A	9705219-3B	45.43		53.1	53.1	1.00	mg/L			
15	9705226-07A	9705219-4B	51.63		60.6	60.6	1.00	mg/L			
16	9705226-09A	9705219-6B	77.92		92.5	92.5	1.00	mg/L			
17	9705226-11A	9705223-1C	9.745		9.79	9.79	1.00	mg/L			
18	9705226-12A	9705224-1B	14.88		16.0	16.0	1.00	mg/L			
19	9706113-02A	MC0504-4	9.535		9.54	9.54	1.00	mg/L			
20	ERA 9966	CCV1	57.15		67.3	67.3	1.00	mg/L	103		
21	BLANK	CCB1	0.356		-1.590	-1.590	1.00	mg/L			

APL 6-16-97
Analyst / Date

6/17/97
Lab Supervisor / Date

RUN SUMMARY SHEET
Total Organic Halides

DATA FILE: TOX61697
INSTRUMENT FILE: INSTRUMENT: DOHRMAN ANALYZED: 06/16/1997

Seq	Lab ID	Client ID	Rep1	Rep2	Raw Conc.	Result	MDL	Units	%Recovery	%RPD	%RSD
1	BLANK 1	BLANK 1	0.00		0.000	0.000	10.0	ug/L			
2	BLANK 2	BLANK 2	0.000		0.000	0.000	10.0	ug/L			
3	BLANK 3	BLANK 3	0.000		0.000	0.000	10.0	ug/L			
4	100 ug/L Cl-	ADSORP. EFF STD	92.3	100	96.2	96.2	10.0	ug/L	96.2		5.66
5	Methanol Blan	METHANOL BLANK	0.00	0.00	0.000	0.000	10.0	ug/L			
6	500 ng Cl-	ICV	0.549		0.549	0.549	10.0	ug/L	110		
7	Blank	ICB	0.00		0.000	0.000	10.0	ug/L			
8	9705226-02A	9705219-1C	37.2	37.9	37.6	37.6	10.0	ug/L			1.32
9	9705226-02AD	9705219-1CD	41.8	38.5	40.2	40.2	10.0	ug/L		6.69	5.81
10	500 ng Cl-	CCV1	0.478		0.478	0.478	10.0	ug/L	95.7		
11	BLANK	CCB1	0.00		0.000	0.000	10.0	ug/L			
12	9705226-02AS	9705219-1CS	98.2	91.1	94.6	94.7	10.0	ug/L	114		5.30
13	9705226-04A	9705219-2C	22.9	25.7	24.3	24.3	10.0	ug/L			8.15
14	500 ng Cl-	CCV2	0.506		0.506	0.506	10.0	ug/L	101		
15	BLANK	CCB2	0.000		0.000	0.000	10.0	ug/L			
16	9705226-06A	9705219-3C	48.8	49.7	49.3	493	100	ug/L			1.29
17	500 ng Cl-	CCV3	0.530		0.530	0.530	10.0	ug/L	106		
18	BLANK	CCB3	0.000		0.000	0.000	10.0	ug/L			

Abigail P. Limit APL 6-16-97
Analyst / Date

6/17/97
Lab Supervisor / Date

RUN SUMMARY SHEET
Total Organic Halides

DATA FILE: TOX61797
INSTRUMENT FILE: INSTRUMENT: DOHRMAN ANALYZED: 06/17/1997

Seq	Lab ID	Client ID	Rep1	Rep2	Raw Conc.	Result	MDL	Units	%Recovery	%RPD	%RSD
1	BLANK 1	BLANK 1	0.00		0.000	0.000	10.0	ug/L			
2	BLANK 2	BLANK 2	0.00		0.000	0.000	10.0	ug/L			
3	BLANK 3	BLANK 3	0.00		0.000	0.000	10.0	ug/L			
4	100 ug/L Cl-	ADSORP. EFF STD	91.4	99.2	95.3	95.3	10.0	ug/L	95.3		5.79
5	Methanol Blan	METHANOL BLANK	0.00	0.00	0.000	0.000	10.0	ug/L			
6	500 ng Cl-	ICV	0.528	0.520	0.524	0.524	10.0	ug/L	105		1.08
7	Blank	ICB	0.00		0.000	0.000	10.0	ug/L			
8	9705226-08A	9705219-4C	16.6	18.5	17.6	17.6	10.0	ug/L			7.66
9	9705226-10A	9705219-6C	15.1	15.4	15.3	15.3	10.0	ug/L			1.39
10	500 ng Cl-	CCV1	0.512		0.512	0.512	10.0	ug/L	102		
11	BLANK	CCB1	0.00		0.000	0.000	10.0	ug/L			

6-17-97 Abigail P Lucid APL 6-17 97
Analyst / Date

6/17/97
Lab Supervisor / Date

CHAIN OF CUSTODY(S)

GP Environmental Services

ASSAIGAI ANALYTICAL LABORATORIES, INC.

(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

Chain of Custody Record

Lab job no.: _____ Date _____

Page _____ of _____

Client Assaigai

Project Manager / Contact _____

Address _____

Telephone No. _____

City / State / Zip _____

Fax No. _____

Project Name / Number _____

Samplers: *(Signature)* _____

Contract / Purchase Order / Quote _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation Temp.	Preservation Chemical	No. of Containers	Analysis Required: TOC	Analysis Required: TOX	Remarks
	9705219-1B	5/22/97	12:35	W			H_2SO_4		X	X	
	9705219-1C		12:25				N/A			X	
	9705219-2B		14:10				H_2SO_4		X		
	9705219-2C		14:10				N/A			X	
	9705219-3B		15:15				H_2SO_4		X		
	9705219-3C		15:15				N/A			X	
	9705219-4B		15:35				H_2SO_4		X		
	9705219-4C		15:35				N/A			X	
	9705219-6B		16:30				H_2SO_4		X		
	9705219-6C		16:30				N/A			X	

Relinquished by:	Date	Received by:	Relinquished by:	Date	Received by:
Signature [signature]	5/24/97	Signature _____	Signature _____	5/23/97	Signature [signature]
Printed Douglas Beamish	Time 2:00	Printed _____	Printed _____	Time 10:30 AM	Printed C Lyons
Company AAL		Company _____	Company _____		Company GPSI
Reason _____		Reason _____	Reason _____		Reason Analysis

Method of Shipment: _____

Shipment No. _____

Special Instructions: _____

Comments: _____

After analysis, samples are to be:

- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

LABORATORY

ASSAIGAI ANALYTICAL LABORATORIES, INC.

Chain of Custody Record

ALBUQUERQUE, NEW MEXICO 87109
(505) 345-8964

3332 WEDGEWOOD
EL PASO, TEXAS 79925
(915) 593-6000

Lab Job no.: _____ Date _____

Page _____ of _____

Client: Assaigai

Project Manager / Contact: _____

Address: _____

Telephone No.: _____

City / State / Zip: _____

Fax No.: _____

Project Name / Number: _____

Samplers: *(Signature)* _____

Contract / Purchase Order / Quote: _____

AAL FRACTION NUMBER	Field Sample Number / Location	Date	Time	Sample Type	Type / Size of Container	Preservation: Temp.	Preservation: Chemical	No. of Containers	Analysis Required: TOC	Remarks
	9705223-1C	5/21/97	10:45	W			H_2SO_4		X	
	9705224-1B	5/21/97	10:40	↓			H_2SO_4		X	

Relinquished by:
Signature: D. Temple
Printed: D. Temple Bleemish
Company: AAL
Reason: _____
Date: 5/27/97
Time: 2:00

Received by:
Signature: _____
Printed: _____
Company: _____
Reason: _____

Relinquished by:
Signature: _____
Printed: _____
Company: _____
Reason: _____
Date: 5/27/97
Time: 10:32Am

Received by:
Signature: C Lyons
Printed: C Lyons
Company: GPCS
Reason: Analysis

Method of Shipment: _____
Shipment No.: _____
Special Instructions: _____

Comments: _____

After analysis, samples are to be:
- ☐ Disposed of (additional fee)
- ☐ Stored (30 days max)
- ☐ Stored over 30 days (additional fee)
- ☐ Returned to customer

LABORATORY

SAMPLE RECEIPT CHECKLIST

W.O. No. 97-05-226

Client Name ASSAIGAI

Date Received 5/23/97

Time Received 10:07AM

Received By Lyons

Carrier Name UPS

Prepared (Logged In) By G 5/23/97 (Initials / Date)

Project ASSAIGAI

Site

VOA Holding Blank I.D. No.

	YES	NO
Airbill/Manifest Present? No.	X	
Shipping Container in Good Condition?	X	
Custody Seals Present on Shipping Container? Condition: Good ____ Broken ____		X
Chain-of-Custody Present?	X	
Chain-of-Custody Agrees with Sample Labels?	X	
Chain-of-Custody Signed?	X	
Packing Present in Shipping Container? Type of Packing BUBBLE WRAP	X	
Custody Seals on Sample Bottles? Condition: Good ____ Broken ____		X
Total Number of Sample Bottles 21		
Total Number of Samples 14		
Samples Intact?	X	
Sufficient Sample Volume for Indicated Test?	X	

	YES	NO
Trip Blanks Received? No. of Sets		N/A
VOA Vials Have Zero Headspace?	X	
Preservatives Added to Sample?	X	
pH Check Required? Performed By? Lyons	X	N/A
Ice Present in Shipping Container?	X	(ICE/BLUE)

Container#	Temperature
#1	4.0

Project Manager Contacted? Name: TYES Date Contacted: 5/23/97

Any NO response must be detailed in the comments section below. If items are not applicable to particular samples or contracts, they should be marked N/A.

COMMENTS: 4 VIALS W/HCl - (2-FOR MW-1 FIELD BLANK) AND (2-FOR MW-5 FIELD BLANK) FOR 8020 RUN BUT IS NOT ON C.O.C. Client contacted, left msg. JA

Checklist Completed by G

Date 5/23/97

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 4:20 PM	Date 5-20-97

Originating Party	Other Parties
Pat Sanchez - OCD	Lynn Shelton - Giant Refining GW-001 Facility.

Subject: Giant (SJRC) GW-001 - Bi-weekly reports from May 15, 1997 and May 2, 1997.

Discussion: (1) May 15, 1997 - Giant needs same way to rectify or correct the two samples - i.e. If they were indeed switched.

(2) May 2, 1997 - I believe OCD has authority over the "soil" since it tested non-hazardous per TCLP and RIC.

(3) Note: Mr. Shelton also indicated it would be more economically feasible for them to haul in clean soil than to test/show that the De-listed waste (see November 20, 1996 letter from OCD) would not cause 20 NMAC 6.2.3103 to be exceeded.

Conclusions or Agreements: (1) Mr. Shelton believes historical data on river sampling would show that the sample was in error - I agree. (2) I told Mr. Shelton that I needed to make sure that EPA/NMED agreed that the soil is non-hazardous. (3) Mr. Shelton indicated no other agency had a problem with their Delisted waste proposal.

Distribution: File, Denny Foust.

Signed: Patricia W. Sanchez

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

MEMORANDUM OF MEETING OR CONVERSATION

☒ Telephone ☐ Personal	Time 4:15 PM	Date 5-19-97

Originating Party	Other Parties
Pat Sanchez - OCD	Steve Pullen - NMED, HRMB

Subject: Giant (SJRC) GW-001 Facility: River Release area - and characterization of excavated soil from the release area.

Discussion

Talked about the May 2, 1997 Bi-weekly report from Giant - TCLP/RIC indicate soil to be non-hazardous. Mr. Shelton wants to "spread" soil. I told Mr. Pullen that OCD may require soil to pass WQCC 3103 criteria - in order to make certain that "spreading" would not cause WQCC standards to be exceeded - also let him know that I had tried to discuss w/ Greg Lyssy w/ EPA - had to leave him a voice mail.

Conclusions or Agreements

No real conclusion(s) reached - but it is my opinion that if the soil is non-hazardous, then OCD, not EPA or NMED, HRMB has authority regarding the use/disposal of the soil. I will follow up with Mr. Pullen and Mr. Lyssy.

Distribution {File, Denny Foust

Signed Patricia W. Sanchez

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: Tank 17 Hydrotest Giant Refining Company - Bloomfield
(GW-001)

Dear Mr. Anderson:

As required by our April 30, 1997 phone conversation, Giant Refining Company - Bloomfield submits the analytical data, including QA/QC data, for the fresh water makeup that was used to hydrotest Tank 17 at this facility. That water was emptied into the fresh water make-up lagoons as discussed in the April 30 phone conversation.

Giant also submits a copy of the tank bottom inspection for Tank 27 which you had requested.

If you need additional information, please do not hesitate to call me at (505) 632 8013.

Sincerely:

Lynn Shelton

See may 7, 1997 letter from Giant.

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc w/o enclosure: John Stokes, Refinery Manager

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

8 May 1997

Mr. Shelton:

Enclosed please find the reports for the sample received by our laboratory for analysis on April 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.
1160 Research Drive
Bozeman, Montana 59718

GENERAL PARAMETERS

Client: **GIANT REFINING COMPANY**
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL	Units
Cyanide, Total	05/05/97	ND	0.01	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",1983.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, November, 1992.

Analyst _____ **Reviewed** _____

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

GENERAL PARAMETERS

Client: GIANT REFINING COMPANY
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL	Units
Phenols	05/05/97	ND	0.05	mg/L

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: EPA - 600/4-79-020 Methods for Chemical Analysis of Water and Waste Water, Method 420.2 (Colorimetric, Automated 4-AAP with Distillation).

Analyst _____ Reviewed _____

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 504
HALOGENATED PESTICIDES

Client: **GIANT REFINING COMPANY**
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: 05/05/97
Date Analyzed: 05/06/97

Parameter	Result	PQL	Regulatory Level	Units
Ethylene dibromide (EDB)	ND	0.00005	0.00005	mg/L

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 504, 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Analyst _____ **Reviewed** _____

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINING COMPANY**
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/02/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: NA
Date Analyzed: 05/01/97

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	0.06	mg/L
1,1,2,2-Tetrachloroethane	ND	0.01	mg/L
1,1,2-Trichloroethane	ND	0.01	mg/L
1,1-Dichloroethane	ND	0.025	mg/L
1,1-Dichloroethene	ND	0.005	mg/L
1,2-Dichloroethane	ND	0.01	mg/L
Benzene	ND	0.01	mg/L
Carbon Tetrachloride	ND	0.01	mg/L
Chloroform	ND	0.1	mg/L
Ethylbenzene	ND	0.75	mg/L
Methylene chloride	ND	0.1	mg/L
Tetrachloroethene (PCE)	ND	0.02	mg/L
Toluene	ND	0.75	mg/L
Trichloroethene (TCE)	ND	0.1	mg/L
Vinyl Chloride	ND	0.005	mg/L
Xylenes (total)	ND	0.62	mg/l.

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	93	80 - 120
Bromofluorobenzene	105	86 - 115
Toluene-d8	97	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.

Analyst E.D. **Reviewed**

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

Client: **GIANT REFINING COMPANY**
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/07/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: 05/05/97
Date Analyzed: 05/06/97

Parameter	Result	PQL	Units
1-Methylnaphthalene	ND	10	ug/L
2-Methylnaphthalene	ND	10	ug/L
Benzo(a)pyrene	ND	10	ug/L
Naphthalene	ND	10	ug/L

QUALITY CONTROL - Surrogate Recovery	%		QC Limits
2,4,6-Tribromophenol	56		10 - 123
2-Fluorobiphenyl	42	#	43 - 116
2-Fluorophenol	56		21 - 110
Nitrobenzene-d5	45		35 - 114
Phenol-d6	67		10 - 110
Terphenyl-d14	47		33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)
- Surrogate Recovery not within control limits.

Reference: Method 8270B, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1994.

Analyst _____ **Reviewed** E.D

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 504
METHOD BLANK

Date Analyzed: **05/06/97**
Lab ID: MBW970125
Matrix: Water
Date Extracted 05/05/97

Parameter	Result	PQL	Units
Ethylene dibromide (EDB)	ND	.00005	mg/L

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst _____

Reviewed _____

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 504
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: **05/06/97**
Lab ID: BSW970125
Matrix: Water
Date Extracted: 05/05/97

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
Ethylene dibromide (EDB)	0.0002	0	0.00019	95	40 - 150

Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	BSD Result (mg/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
Ethylene dibromide (EDB)	0.0002	0.00022	110	10	50	40 - 150

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 2 outside QC limits.
RPD: 0 out of 1 outside QC limits.

Analyst _____ **Reviewed** _____

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 504
MATRIX SPIKE

Date Analyzed: **05/06/97**
Lab ID: 0597H02231 SK1 0397G00732
Matrix: Water
Date Extracted: 05/05/97

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	MS Recovery %	QC Limits Rec.
Ethylene dibromide (EDB)	0.0002	0	0.00024	120	40 -150

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 1 outside QC limits.

Analyst _____ **Reviewed** _____

Inter·Mountain laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
MATRIX SPIKE

Date Analyzed: **05/01/97**
Lab ID: 0597H02141 SK1
Matrix: Water

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	MS Recovery %	QC Limits Rec.
1,1-Dichloroethene	0.05	0	0.053	106	75 -145
Benzene	0.05	0	0.051	102	71 -120
Chlorobenzene	0.05	0	0.05	100	76 -127
Toluene	0.05	0	0.048	96	71 -127
Trichloroethene (TCE)	0.05	0	0.052	104	75 -130

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	103	86 -115
1,2-Dichloroethane-d4	94	80 -120
Toluene-d8	94	88 -110

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
BLANK SPIKE / BLANK SPIKE DUPLICATE SUMMARY

Date Analyzed: **05/01/97**
Lab ID: BSW97121
Matrix: Water

Original Sample Parameters

Parameter	Spike Added (mg/L)	Sample Result (mg/L)	Spike Result (mg/L)	BS Recovery %	QC Limits Rec.
1,1-Dichloroethene	0.05	0	0.05	100	75 - 145
Benzene	0.05	0	0.052	104	71 - 120
Chlorobenzene	0.05	0	0.052	104	76 - 127
Toluene	0.05	0	0.05	100	71 - 127
Trichloroethene (TCE)	0.05	0	0.05	100	75 - 130

Duplicate Sample Parameters

Parameter	Spike Added (mg/L)	BSD Result (mg/L)	BSD Recovery %	RPD %	QC Limits RPD	QC Limits Rec.
1,1-Dichloroethene	0.05	0.05	100	0	14	75 - 145
Benzene	0.05	0.052	104	0	14	71 - 120
Chlorobenzene	0.05	0.051	102	2	11	76 - 127
Toluene	0.05	0.049	98	2	13	71 - 127
Trichloroethene (TCE)	0.05	0.053	106	6	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 E.D.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8260
INSTRUMENT BLANK

Date Analyzed: **05/01/97**
Lab ID: IBW97121
Matrix: Water

Parameter	Result	PQL	Units
1,1,1-Trichloroethane	ND	0.06	mg/L
1,1,2,2-Tetrachloroethane	ND	0.01	mg/L
1,1,2-Trichloroethane	ND	0.01	mg/L
1,1-Dichloroethane	ND	0.025	mg/L
1,1-Dichloroethene	ND	0.005	mg/L
1,2-Dichloroethane	ND	0.01	mg/L
Benzene	ND	0.01	mg/L
Carbon Tetrachloride	ND	0.01	mg/L
Chloroform	ND	0.1	mg/L
Ethylbenzene	ND	0.75	mg/L
Methylene chloride	ND	0.1	mg/L
Tetrachloroethene (PCE)	ND	0.02	mg/L
Toluene	ND	0.75	mg/L
Trichloroethene (TCE)	ND	0.1	mg/L
Vinyl Chloride	ND	0.005	mg/L
Xylenes (total)	ND	0.62	mg/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
Bromofluorobenzene	106	86 - 115
1,2-Dichloroethane-d4	87	80 - 120
Toluene-d8	94	88 - 110

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst E.O.

Reviewed

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **05/06/97**
Lab ID: MBW97125
Matrix: Water
Date Extracted: 05/05/97

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	10	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	10	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	10	ug/L
4-Chlorophenyl-phenylether	ND	10	ug/L
4-Nitroaniline	ND	10	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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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **05/06/97**
Lab ID: MBW97125
Matrix: Water
Date Extracted: 05/05/97

Parameter	Result	PQL	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	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	50	ug/L
Hexachlorobenzene	ND	10	ug/L
Hexachlorobutadiene	ND	10	ug/L
Hexachlorocyclopentadiene	ND	10	ug/L
Hexachloroethane	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

Continued

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Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
METHOD BLANK

Date Analyzed: **05/06/97**
Lab ID: MBW97125
Matrix: Water
Date Extracted: 05/05/97

Parameter	Result	PQL	Units

Continued

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	55	10 - 123
2-Fluorobiphenyl	50	43 - 116
2-Fluorophenol	37	21 - 110
Nitrobenzene-d5	52	35 - 114
Phenol-d6	39	10 - 110
Terphenyl-d14	61	33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)

Analyst _____ Reviewed E.D.

Inter·Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59718

LAB QA/QC
EPA METHOD 8270
MATRIX SPIKE

Date Analyzed: 05/06/97
Lab ID: 0597H02260 SK1
Matrix: Water
Date Extracted: 05/05/97

Parameter	Spike Added (ug/L)	Sample Result (ug/L)	Spike Result (ug/L)	MS Recovery %	QC Limits Rec.
1,2,4-Trichlorobenzene	100	0	61	61	39 - 98
1,4-Dichlorobenzene	100	0	62	62	36 - 97
2,4-Dinitrotoluene	100	0	99	99 *	24 - 96
2-Chlorophenol	200	0	128	64	27 -123
4-Chloro-3-methylphenol	200	0	138	69	23 - 97
4-Nitrophenol	200	0	120	60	10 - 80
Acenaphthene	100	0	73	73	46 -118
N-Nitrosodi-n-propylamine	100	0	89	89	41 -116
Pentachlorophenol	200	0	174	87	9 -103
Phenol	200	0	94	47	12 - 89
Pyrene	100	0	79	79	26 -127

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
2,4,6-Tribromophenol	91	10 -123
2-Fluorobiphenyl	64	43 -116
2-Fluorophenol	59	21 -110
Nitrobenzene-d5	67	35 -114
Phenol-d6	56	10 -110
Terphenyl-d14	64	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 E.D.

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

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

Date Analyzed: 05/06/97
Lab ID: BSW97125
Matrix: Water
Date Extracted: 05/05/97

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	53	53	39 - 98
1,4-Dichlorobenzene	100	0	52	52	36 - 97
2,4-Dinitrotoluene	100	0	97	97 *	24 - 96
2-Chlorophenol	200	0	132	66	27 - 123
4-Chloro-3-methylphenol	200	0	140	70	23 - 97
4-Nitrophenol	200	0	112	56	10 - 80
Acenaphthene	100	0	75	75	46 - 118
N-Nitrosodi-n-propylamine	100	0	95	95	41 - 116
Pentachlorophenol	200	0	161	81	9 - 103
Phenol	200	0	94	47	12 - 89
Pyrene	100	0	76	76	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	59	59	11	28	39 - 98
1,4-Dichlorobenzene	100	57	57	9	28	36 - 97
2,4-Dinitrotoluene	100	100	100 *	3	38	24 - 96
2-Chlorophenol	200	130	65	2	40	27 - 123
4-Chloro-3-methylphenol	200	140	70	0	42	23 - 97
4-Nitrophenol	200	102	51	9	50	10 - 80
Acenaphthene	100	73	73	3	31	46 - 118
N-Nitrosodi-n-propylamine	100	91	91	4	38	41 - 116
Pentachlorophenol	200	164	82	2	50	9 - 103
Phenol	200	86	43	9	42	12 - 89
Pyrene	100	78	78	3	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: 2 out of 22 outside QC limits.
RPD: 0 out of 11 outside QC limits.

Analyst _____ **Reviewed** E.D

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Client:	**Giant Refining Company**		
Project:	Bloomfield		
Sample ID:	Tank 17 Water	Date Reported:	05/07/97
Laboratory ID:	0397G00732	Date Sampled:	04/29/97
Sample Matrix:	Water	Time Sampled:	4:55pm
Condition:	Cool/Intact	Date Received:	04/30/97

Parameter	Analytical Result	Units
Lab pH	8.03	s.u.
Chloride	7.29	mg/L
Fluoride	0.24	mg/L
Sulfate	69.3	mg/L
Total Dissolved Solids @ 180°C	226	umhos/cm
Nitrate	0.11	mg/L
Total Metals		
Aluminum	0.24	mg/L
Arsenic	<0.005	mg/L
Barium	0.11	mg/L
Boron	0.10	mg/L
Cadmium	0.001	mg/L
Chromium	<0.01	mg/L
Cobalt	<0.01	mg/L
Copper	<0.01	mg/L
Iron	6.23	mg/L
Lead	<0.05	mg/L
Manganese	0.19	mg/L
Mercury	<0.001	mg/L
Molybdenum	<0.01	mg/L
Nickel	<0.01	mg/L
Selenium	<0.005	mg/L
Silver	<0.01	mg/L
Zinc	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:

Reported by _____

Reviewed by JB

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance

Total Metals

Known Analysis

Client:	**Giant Refining Company**	Date Reported:	05/07/97
Project:	Bloomfield	Date Analyzed:	05/07/97
Sample Matrix:	Water	Date Received:	04/30/97

Known Analysis

Parameter	Found Result	Known Result	Percent Recovery	Units
Aluminum	1.05	1.00	**105%**	mg/L
Arsenic	0.011	0.010	**110%**	mg/L
Barium	1.05	1.00	**105%**	mg/L
Boron	0.51	0.50	**102%**	mg/L
Cadmium	0.004	0.004	**97%**	mg/L
Chromium	1.05	1.00	**105%**	mg/L
Cobalt	1.01	1.00	**101%**	mg/L
Copper	1.03	1.00	**103%**	mg/L
Iron	1.02	1.00	**102%**	mg/L
Lead	0.041	0.040	**102%**	mg/L
Manganese	1.04	1.00	**104%**	mg/L
Mercury	0.007	0.008	**91%**	mg/L
Molybdenum	1.02	1.00	**102%**	mg/L
Nickel	1.02	1.00	**102%**	mg/L
Selenium	0.009	0.010	**90%**	mg/L
Silver	0.53	0.50	**106%**	mg/L
Zinc	1.03	1.00	**103%**	mg/L

References: USEPA 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 _____ Reviewed by _____

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance
Total Metals
Spike Analysis

Client:	**Giant Refining Company**	Date Reported:	05/07/97
Project:	Bloomfield	Date Analyzed:	05/07/97
Sample Matrix:	Water	Date Received:	04/30/97

Spike Analysis

Parameter	Spike Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery
Aluminum	4.51	3.86	1.00	**104%**
Arsenic	0.024	<0.005	0.025	**96%**
Barium	1.15	0.109	1.00	**105%**
Boron	1.13	0.133	1.00	**101%**
Cadmium	0.002	<0.001	0.003	**95%**
Chromium	1.06	<0.01	1.00	**106%**
Cobalt	1.00	<0.01	1.00	**100%**
Copper	1.06	<0.01	1.00	**106%**
Iron	4.76	4.18	1.00	**100%**
Lead	0.030	0.003	0.025	**107%**
Manganese	1.11	0.088	1.00	**103%**
Mercury	0.024	<0.005	0.025	**97%**
Molybdenum	1.03	<0.01	1.00	**103%**
Nickel	1.02	<0.01	1.00	**102%**
Selenium	0.025	<0.005	0.025	**100%**
Silver	0.90	<0.01	1.00	**90%**
Zinc	1.100	0.134	1.000	**98%**

References: USEPA 600/4079-020, "Methods for Chemical Analysis of Water and Wastes", 1983. "Standard Methods For The Examination of Water And Waste Water", 19th ed., 1995. Water and

Comments:

Reported by _____ Reviewed by _____

Inter-Mountain Laboratories, Inc.

2506 W. Main Street
Farmington, New Mexico 87401

Quality Control / Quality Assurance
Total Metals
Blank Analysis

Client:	**Giant Refining Company**	Date Reported:	5/7/97
Project:	Bloomfield	Date Analyzed:	5/7/97
Sample Matrix:	Water	Date Received:	4/30/97

Method Blank Analysis

Parameter	Result	Detection Limit	Units
Aluminum	ND		mg/L
Arsenic	ND		mg/L
Barium	ND		mg/L
Boron	ND		mg/L
Cadmium	ND		mg/L
Chromium	ND		mg/L
Cobalt	ND		mg/L
Copper	ND		mg/L
Iron	ND		mg/L
lead	ND		mg/L
Manganese	ND		mg/L
Mercury	NA		mg/L
Molybdenum	ND		mg/L
Nickel	ND		mg/L
Selenium	ND		mg/L
Silver	ND		mg/L
Zinc	ND		mg/L

References: USEPA 600/4-79-020, "Methods for Chemcial Analysis of Water and Wastes", 1983. "Standard Methods For The Examination of Water and Waste Water", 19th 3d., 1995.

Comments:

Reported By _____ Reviewed By _____

imi
Inter- Mountain
Laboratories, Inc.

CHAIN OF CUSTODY RECORD

Client/Project Name	Project Location	ANALYSES / PARAMETERS
GIANT - BLOOMFIELD		
Sampler: (Signature) Lynn Sletta	**Chain of Custody Tape No.**	

Sample No./ Identification	Date	Time	Lab Number	Matrix	No. of Containers	WQCC GROUNDWATER STANDARDS	Remarks
							SEE ATTACHED LIST
TANK 17 WATER	4/29/97	1655		WATER	10		Cool & Intact
							RUSH!

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Lynn Sletta	4/30/97	0910	D. Williams	4/30/97	9:10
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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☒ 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

45835

range and the maximum allowable concentration in ground water for the contaminants specified unless the existing condition exceeds the standard or unless otherwise provided in Subsection 3-109.D. or Section 3-110. Regardless of whether there is one contaminant or more than one contaminant present in ground water, when an existing pH or concentration of any water contaminant exceeds the standard specified in Subsection A, B, or C, the existing pH or concentration shall be the allowable limit, provided that the discharge at such concentrations will not result in concentrations at any place of withdrawal for present or reasonably foreseeable future use in excess of the standards of this section.

These standards shall apply to the dissolved portion of the contaminants specified with a definition of dissolved being that given in the publication "Methods for Chemical Analysis of Water and Waste of the U.S. Environmental Protection Agency," with the exception that standards for mercury and the organic compounds shall apply to the total unfiltered concentrations of the contaminants.

A. Human Health Standards-Ground water shall meet the standards of Section A and B unless otherwise provided. If more than one water contaminant affecting human health is present,the toxic pollutant criteria of Section 1-101.UU. for the combination of contaminants, or the Human Health Standard of Section 3-103.A. for each contaminant shall apply, whichever is more stringent.

Arsenic (As)	0.1 mg/l
Barium (Ba)	1.0 mg/l
Cadmium (Cd)	0.01 mg/l
Chromium (Cr)	0.05 mg/l
Cyanide (CN)	0.2 mg/l
Fluoride (F)	1.6 mg/l
Lead (Pb)	0.05 mg/l
Total Mercury (Hg)	0.002 mg/l
Nitrate (NO_3 as N)	10.0 mg/l
Selenium (Se)	0.05 mg/l
Silver (Ag)	0.05 mg/l
~~Uranium (U)~~	5.0 mg/l
~~Radioactivity - Combined Radium 226 and Radium 228~~	30.0 pCi/l
Benzene	0.01 mg/l
~~Polychlorinated biphenyls (PCB's)~~	0.001 mg/l
Toluene	0.75 mg/l
Carbon Tetrachloride	0.01 mg/l
1,2-dichloroethane (EDC)	0.01 mg/l
1,1-dichloroethylene (1, 1-DCE)	0.005 mg/l
1,1,2, 2-tetrachloroethylene (PCE)	0.02 mg/l
1,1,2-trichloroethylene (TCE)	0.1 mg/l

ethylbenzene	0.75 mg/l
total xylenes	0.62 mg/l
methylene chloride	0.1 mg/l
chloroform	0.1 mg/l
1,1-dichloroethane	0.025 mg/l
ethylene dibromide (EDB)	0.0001 mg/l
1,1,1-trichloroethane	0.06 mg/l
1,1,2-trichloroethane	0.01 mg/l
1,1,2,2-tetrachloroethane	0.01 mg/l
vinyl chloride	0.001 mg/l
PAHs: total naphthalene plus monomethylnaphthalenes	0.03 mg/l
benzo-a-pyrene	0.0007 mg/l

B. Other Standards for Domestic Water Supply

Chloride (Cl)	250. mg/l
Copper (Cu)	1.0 mg/l
Iron (Fe)	1.0 mg/l
Manganese (Mn)	0.2 mg/l
Phenols	0.005 mg/l
Sulfate (SO_4)	600. mg/l
Total Dissolved Solids (TDS)	1000. mg/l
Zinc (Zn)	10.0 mg/l
pH	between 6 and 9

C. Standards for Irrigation Use - Ground water shall meet the standards of subsections A, B, and C unless otherwise provided.

Aluminum (Al)	5.0 mg/l
Boron (B)	0.75 mg/l
Cobalt (Co)	0.05 mg/l
Molybdenum (Mo)	1.0 mg/l
Nickel (Ni)	0.2 mg/l

EQUIPMENT INSPECTION

INSPECTION RECORD - TANKS

SIZE 42' X 40' TALL TANK NO. 27

DATE BUILT 1-1-67 LOCATION BLOOMFIELD - REFINERY

TANK DATA

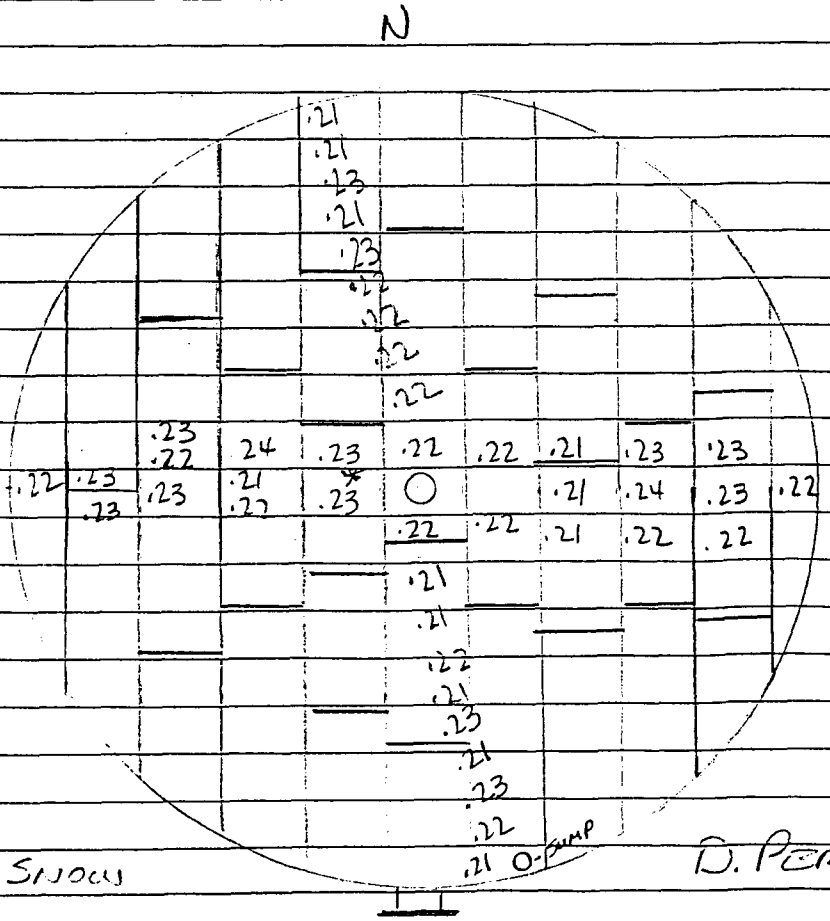
SHELL									ROOF	BOTTOM
TYPE CONST.	BOTH								TYPE	
COURSE NO.	1	2	3	4	5	6	7	8	CONE	
~~4-28-97~~ t	.23	.25							DATE INSTALLED	DATE INSTALLED
MINIMUM t										
BASIS FOR t_m									ORIG. t=	ORIG. t=

INSPECTION RECORD

DATE	SERVICE	INT.	EXT.	REMARKS
4-28-97	HEAVY BURNER FUEL	✓		THE TANK WAS OPENED FOR CLEANING AND INSPECTION BY REMOVING THE INTERNAL HEAT EXCHANGER. THIS TANK DOESN'T HAVE ANY OTHER MANWAYS OR LARGE NOZZLES. THE TANK WAS VERY DIFFICULT TO CLEAN. THE VESSEL WAS STILL VERY OILY AND WAS NOT INSPECTED 100% DUE TO THE HEAVY ACCUMULATIONS ON THE FLOOR, WALLS AND ROOF. THE WALL HAD CORROSION AT 2" UP FROM THE FLOOR TO SHELL WELD. THE AVERAGE PIT DEPTH WAS .060". THE REMAINING SHELL THAT WAS VISIBLE HAD A GENERAL ROUGHNESS AND MINOR METAL LOSS. THICKNESS MEASUREMENTS RANGED FROM .22" TO .27" ON THE BOTTOM COURSE AND .27" TO .28" ON THE SECOND COURSE. THE FLOOR PLATES HAD A GENERAL OVERALL CORROSION WITH PIT DEPTH FROM .050" TO .190" MAXIMUM. THE MOST SEVERE PITTING WAS LOCATED AT DEPRESSIONS NEAR THE SUMP. A MECHANICAL DAMAGED PLATE WAS LOCATED IN THE SECOND PLATE WEST OF THE CENTER COLUMN AND APPROX. 36" NORTH OF THE COLUMN. THE DAMAGE WAS A GROUND AREA 2" WIDE BY 3" LONG AND .190" DEEP. THE FLOOR HAD NUMEROUS BULGES AND DEPRESSIONS THROUGH OUT. SOME OF THE BULGES OR DEPRESSIONS WERE GREATER THAN CODE ALLOWANCES.
				(PG. 2)

EQUIPMENT INSPECTION

4-30-01 THE TANK WAS HOT WATER/SOAP CLEANED TO REMOVE THE RESIDUE FROM THE FLOOR AND BOTTOM WALL COURSE. A THOROUGH INSPECTION OF THE FLOOR REVEALED OVERALL PITTING TO A AVERAGE DEPTH OF .050" TO .060". ALL PITTING .090" OR DEEPER WERE MARKED FOR REPAIR. THE TOTAL WAS APPROXIMATELY 65 PITS. THERE WERE TWO AREAS OF PITS THAT WERE COVERED WITH PATCH PLATES. THE TWO PATCH PLATES WERE APPROXIMATELY 4"X6" AND 12"X16". THE REMAINING PITS WERE FILLED WITH E-7018 WELD METAL. THE AUTOMATIC GAGE FLOAT WAS LOOSE FROM THE GUIDE WIRES AND REQUIRED REPAIR. THE TWO WEST NOZZLES WERE STILL FULL OF HEAVY OIL. THE INTERNAL HEATING BUNDLE AND SHELL WERE COMPETELY FULL OF HEAVY OIL. THE COIL WASN'T RE-INSTALLED BECAUSE OF THE EXTERNAL HEATING EXCHANGER. THE EXTERIOR OF THE TANK IS A INSULATED AND JACKETED A.S.T. THE INSULATION AND METAL JACKET ARE IN GOOD CONDITION. THE GROUND AND CATHODIC WIRES ARE IN GOOD CONDITION. THE STEPS AND RAILINGS ARE SERVICEABLE. VENTS AND VACUUM BREAKER LOOK TO BE IN SERVICEABLE CONDITION. THE EXTERNAL AUTO-GAGE IS SERVICEABLE. SOME EDGE SETTLEMENT OF THE TANK WAS NOTED AND A LEVEL SURVEY SHOULD BE TAKEN AND RECORDED.



INSPECTORS: G. SNOW D. PERRY

GIANT
REFINING CO.

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

May 7, 1997

Roger Anderson
Environmental Bureau Chief
NMOCD
2040 South Pacheco
Santa Fe, New Mexico 87505

Denny Foust
Oil & Gas Inspector
NMOCD
1000 Rio Brazos Road
Aztec, New Mexico 87410

Gentlemen:

Giant Refining Company - Bloomfield (GW-001) submits a copy of the analytical data performed on filtered water that was used to hydrostatically test Tank #17 at this facility. All WQCC groundwater parameters were analyzed and as the attached analytical data shows, it was non-hazardous.

The tank has been draining into the south fresh water make-up lagoon (formerly the south wastewater evaporation lagoon) according to prior agreement with OCD.

Hardcopy of the analytical data, including QA/QC, will be available in a few days.

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

Verbal approval

Sincerely:

Lynn Shelton
Environmental Manager
Giant Refining Company - Bloomfield

TLS/tls

Enclosure

cc: John Stokes, Refinery Manager

DRAFT

Client:	**Giant Refining Company**		
Project:	Bloomfield		
Sample ID:	Tank 17 Water	Date Reported:	05/07/97
Laboratory ID:	0397G00732	Date Sampled:	04/29/97
Sample Matrix:	Water	Time Sampled:	4:55pm
Condition:	Cool/Intact	Date Received:	04/30/97

Parameter	Analytical Result	Units	REGULATORY LIMIT
Lab pH	8.03	s.u.	6 to 9
Chloride	7.29	mg/L	250
Fluoride	0.24	mg/L	1.60
Sulfate	69.34	mg/L	600
Total Dissolved Solids @ 180°C	226	umhos/cm	1000
Total Metals			
Aluminum	0.240	mg/L	5.00
Arsenic	<0.005	mg/L	0.10
Barium	0.111	mg/L	1.00
Boron	0.101	mg/L	0.75
Cadmium	0.001	mg/L	0.01
Chromium	<0.01	mg/L	0.05
Cobalt	<0.01	mg/L	0.05
Copper	<0.01	mg/L	1.00
Iron	6.23	mg/L	1.00
Lead	<0.05	mg/L	0.05
Manganese	0.191	mg/L	0.20
Mercury	<0.001	mg/L	0.002
Molybdenum	<0.01	mg/L	1.0
Nickel	<0.01	mg/L	0.2
Selenium	<0.005	mg/L	0.05
Silver	<0.01	mg/L	0.05
Zinc	0.058	mg/L	10.0

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_____ Reviewed by_____

Inter·Mountain Laboratories, Inc.

1180 Research Drive
Bozeman, Montana 59718

GENERAL PARAMETERS

Client: GIANT REFINING COMPANY
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL	REG. LIMIT	Units
Cyanide, Total	05/05/97	ND	0.01	0.2	mg/L

ND - Not Detected at Practical Quantitation Level (PQL)

DRAFT

Reference: U.S.E.P.A. 600/4-79-020, "Methods for Chemical Analysis of Water and Wastes",1983.
Standard Methods for Examination of Water and Wastewater, 18th Edition, 1992.
SW-846, United States Environmental Protection Agency, November, 1992.

Reviewed

GENERAL PARAMETERS

1160 Research Drive
Bozeman, Montana 59718

GIANT REFINING COMPANY

Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: NA

Parameter	Date Analyzed	Result	PQL		Units
Phenols	05/05/97	ND	0.05	0.005	mg/L

ND - Not Detected at Practical Quantitation Level (PQL)

DRAFT

Reference: EPA - 600/4-79-020 Methods for Chemical Analysis of Water and Waste Water, Method 420.2 (Colorimetric, Automated 4-AAP with Distillation).

Analyst _____ Reviewed _____

Inter-Mountain Laboratories, Inc.

1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 8260
VOLATILE ORGANIC COMPOUNDS

DRAFT

Client:	GIANT REFINING COMPANY	Date Reported:	05/02/97
Sample ID:	Tank 17	Date Sampled:	04/29/97
Project ID:	Bloomfield, NM	Date Received:	05/01/97
Lab ID:	B872231 0397G00732	Date Extracted:	NA
Matrix:	Water	Date Analyzed:	05/01/97

Parameter	Result	PQL	REG LIMIT	Units
1,1,1-Trichloroethane	ND	0.06	0.06	mg/L
1,1,2,2-Tetrachloroethane	ND	0.01	0.01	mg/L
1,1,2-Trichloroethane	ND	0.01	0.01	mg/L
1,1-Dichloroethane	ND	0.025	0.025	mg/L
1,1-Dichloroethene	ND	0.005	0.005	mg/L
1,2-Dichloroethane	ND	0.01	0.01	mg/L
Benzene	ND	0.01	0.01	mg/L
Carbon Tetrachloride	ND	0.01	0.01	mg/L
Chloroform	ND	0.1	0.10	mg/L
Ethylbenzene	ND	0.75	0.75	mg/L
Methylene chloride	ND	0.1	0.10	mg/L
Tetrachloroethene (PCE)	ND	0.02	0.02	mg/L
Toluene	ND	0.75	0.75	mg/L
Trichloroethene (TCE)	ND	0.1	0.1	mg/L
Vinyl Chloride	ND	0.005	0.002	mg/L
Xylenes (total)	ND	0.62	0.62	mg/L

QUALITY CONTROL - Surrogate Recovery	%	QC Limits
1,2-Dichloroethane-d4	93	80 - 120
Bromofluorobenzene	105	86 - 115
Toluene-d8	97	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.

Analyst C. D. Reviewed

Inter-Mountain Laboratories, Inc.
Bozeman, Montana 59718

EPA METHOD 8270
HSL SEMI-VOLATILE COMPOUNDS
BASE/NEUTRAL/ACID EXTRACTABLES

DRAFT

Client: GIANT REFINING COMPANY
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/07/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: 05/05/97
Date Analyzed: 05/06/97

Parameter	Result	PQL		Units
1-Methylnaphthalene	ND	10	30	ug/L
2-Methylnaphthalene	ND	10	30	ug/L
Benzo(a)pyrene	ND	10	0.7 ~~#~~	ug/L
Naphthalene	ND	10	30 ~~#~~	ug/L

QUALITY CONTROL - Surrogate Recovery	%		QC Limits
2,4,6-Tribromophenol	56		10 - 123
2-Fluorobiphenyl	42	#	43 - 116
2-Fluorophenol	56		21 - 110
Nitrobenzene-d5	45		35 - 114
Phenol-d6	67		10 - 110
Terphenyl-d14	47		33 - 141

ND - Not Detected at Practical Quantitation Level (PQL)
- Surrogate Recovery not within control limits.

Reference: Method 8270B, Gas Chromatography/Mass Spectrometry for Semivolatile Organics, Test Methods for Evaluating Solid Wastes, SW-846, United States Environmental Protection Agency, September 1994.

Analyst _____ Reviewed _____

Inter-Mountain Laboratories, Inc.
1160 Research Drive
Bozeman, Montana 59715

EPA METHOD 504
HALOGENATED PESTICIDES

DRAFT

Client: GIANT REFINING COMPANY
Sample ID: Tank 17
Project ID: Bloomfield, NM
Lab ID: B972231 0397G00732
Matrix: Water

Date Reported: 05/06/97
Date Sampled: 04/29/97
Date Received: 05/01/97
Date Extracted: 05/05/97
Date Analyzed: 05/06/97

Parameter	Result	PQL	Regulatory Level	Units
Ethylene dibromide (EDB)	ND	0.00005	0.00005	mg/L

0,0001 ?

ND - Not Detected at Practical Quantitation Level (PQL)

Reference: Method 504, 1,2-Dibromoethane (EDB) and 1,2-Dibromo-3-Chloropropane (DBCP) in Water by Microextraction and Gas Chromatography, EPA/600/4-88/039, December, 1988.

Analyst _____ Reviewed _____

Pat Sanchez

From: Wayne Price
Sent: Tuesday, April 15, 1997 10:07 AM
To: Roger Anderson
Cc: Jerry Sexton; Martyne Kieling; Pat Sanchez
Subject: CRI C-138 Giant Refining -Bloomfield
Importance: High

Dear Roger,

I am faxing up a C-138 request from CRI for tank bottoms generated from the Giant Refinery in their Tank #27 which contains #6 fuel oil a refined product.

CRI proposes to recycle this material through their treating plant.

Art Hilliker with CRI and Ken Marsh have discussed this issue with me. Mr. Marsh has some concern since this material is generated from refined products. In an attempt to ensure that this material or any of it's "derived from " end products would not be classified as a refinery hazardous waste, I recommended that CRI have someone from the Giant Refinery sign a certificate of Waste Status. This has been done and is enclosed.

Please note some of the wording has been changed. After further review it is my recommendation to you that we have Giant certify that this material , if deemed a waste , would not be hazardous or have CRI certify the spent material from the treating plant would not be hazardous.

cc: Ken Marsh-CRI