GW - 32

REPORTS

YEAR(S):

1991 ANALYTICAL DATA 4/91 → 5/91

GIANT REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

June 12, 1991

Roger Anderson
New Mexico Oil Conservation Division
P.O. Box 2088
State Land Office Building
Santa Fe, New Mexico 87504

RE: Analytical Data for GW-32 Renewal Request

Dear Roger:

The attached data includes the analytical associated with all samples collected by Giant Refining Company during the April 30, 1991 to May 3, 1991 audit and inspection conducted by your office. The attachments also include the "Ground Water Monitoring Sample Record" or field log. This log includes field data such as water levels, pH, conductance, temperature, etc.. The ground water samples consist of well samples, two equipment washes and a duplicate sample of OW-1, labeled as OW-30.

This data should aid your office in the preparation of comments for the renewal request of Ground Water Discharge Permit GW-32.

If you have any questions, contact my office at (505) 722-0217.

Sincerely,

Claud Rosendale

Claud Rosendale
Environmental Manager
Ciniza Refinery

List of Attachments: ATI Analytical and Field Sample Logs for MW-4, OW-1, OW-2, OW-5, OW-7, OW-9, OW-10, OW-12, OW-13, OW-14, OW-20, OW-16, OW-25, OW-26, Duplicate of OW-1, Equipment Wash (2) and Trip Blanks (2). ATI Analytical for Aeration Lagoon Effluents

cc w/attachments: Kim Bullerdick - Corporate Counsel
Giant Industries Arizona, Inc.

'91 JUN 13 AM 11 34

OIL CONSER... RE... ...N DIVISION

Ground Water Monitoring
Sample Record
Giant Refinery
Gallup, New Mexico

Job Number RFI-SWMU #2
Location Giant - Ciniza
Date 4-30-91
Weather

Purpose RFI-SWMU #2 + DCD

NOTE: 2-in Sch 40=0.163 gal/ft or 0
4-in Sch 40=0.653 gal/ft or 0
5-in Sch 40=1.020 gal/ft or 1

Purged on 4-29-91 Sampled on 4-30-91

Well Number	Water Level	Casing Storage	Purge Time	Total Purged (gal)	Sample Time	pH	Temp	Cond	Sample Collection Method
Equip. Blank	Total Depth, TOC, ft X Depth to Water, TOC, ft X Length of Water Column X	Casing Diam — 1 Casing Vol (gal) —	Begin Purge X End Purge X	X Dry Y N	0700	5.04 X	39 X	60 X	Beaker
From OW-1	Total Depth, TOC, ft Depth to Water, TOC, ft Length of Water Column	Casing Diam 1 Casing Vol (gal)	Begin Purge End Purge	Dry Y N					
	Total Depth, TOC, ft Depth to Water, TOC, ft Length of Water Column	Casing Diam 1 Casing Vol (gal)	Begin Purge End Purge	Dry Y N					
	Total Depth, TOC, ft Depth to Water, TOC, ft Length of Water Column	Casing Diam 1 Casing Vol (gal)	Begin Purge End Purge	Dry Y N					
	Total Depth, TOC, ft Depth to Water, TOC, ft Length of Water Column	Casing Diam 1 Casing Vol (gal)	Begin Purge End Purge	Dry Y N					

FIGURE 1

Ground Water Monitoring
Sample Record
Giant Refinery
Gallup, New Mexico

Job Number RFI SWMU #2
Location Giant - Ciniza
Date 4-30-91
Weather

Purpose RFI - SWMU #2 + OCD

NOTE: 2-in Sch 40=0.163 gal/ft or
4-in Sch 40=0.653 gal/ft or
5-in Sch 40=1.020 gal/ft or

Purged on 4-29-91 Sampled on 4-30-91

Well Number	Water Level	Casing Storage	Purge Time	Total Purged (gal)	Sample Time	pH	Temp	Cond	Sample Collection Method
MW-4	Total Depth, TOC, ft 129.99 Depth to Water, TOC, ft 5.80 Length of Water Column 124.19	Casing Diam 4" 1 Casing Vol (gal) 5.88 0.74	Begin Purge 2:25 End Purge 2:53	280 Dry Y (N)	0850	8.78 8.68	48 49	1210 1220	Bail
OW-5	Total Depth, TOC, ft 23.67 Depth to Water, TOC, ft 14.02 Length of Water Column 9.65	Casing Diam 4" 1 Casing Vol (gal) 15.68 0.74	Begin Purge 2:09 End Purge 2:11	18 Dry (Y) N	0755	6.47 6.68	48 49	39200 39700	Bail
OW-7	Total Depth, TOC, ft 75.35' Depth to Water, TOC, ft 3.79' Length of Water Column 71.56'	Casing Diam 4" 1 Casing Vol (gal) 4.12 0.74	Begin Purge 1:42 End Purge 1:59	170 Dry Y (N)	0915	8.75 8.82	47 48	1230 1280	Bail
OW-1	Total Depth, TOC, ft 99.73' Depth to Water, TOC, ft 0' Length of Water Column 99.73'	Casing Diam 4" 1 Casing Vol (gal) 58.41' 0.74 1.18	Begin Purge 1:17 End Purge 1:25	80 Dry (Y) N	7:15 AM	8.68 8.64	51 51	1262 1275	Bail
OW-30	Total Depth, TOC, ft ~~_____~~ Depth to Water, TOC, ft ~~_____~~ Length of Water Column ~~_____~~	Casing Diam 4" 1 Casing Vol (gal) 0.74	Begin Purge ~~_____~~ End Purge ~~_____~~	~~_____~~ Dry ~~Y~~ N	0730	8.63 X	51 V	1276 X	Bail

OW-1 Duplicate

FIGURE 1

Ground Water Monitoring
Sample Record
Giant Refinery
Gallup, New Mexico

Job Number _____
Location _____
Date _____
Weather Clear
SE wind 5-15 mph.

Purpose _____

NOTE: 2-in Sch 40=0.163 gal/ft or 0
4-in Sch 40=0.653 gal/ft or 0
5-in Sch 40=1.020 gal/ft or 1

Well Number	Water Level	Casing Storage	Purge Time	Total Purged (gal)	Sample Time	pH	Temp	Cond	Sample Collection Method
OW2	Total Depth, TOC, ft 64.41 Depth to Water, TOC, ft 28.80 Length of Water Column 35.61	Casing Diam 4 1 Casing Vol (gal) 28.85 .74	Begin Purge 4:27 End Purge 4:48	125g Dry (Y) N	0915	7.80	50	1360	
	HNU-0								
OW9	Total Depth, TOC, ft 45.12 Depth to Water, TOC, ft .9 Length of Water Column 44.22	Casing Diam 4 1 Casing Vol (gal) .45 .74	Begin Purge 506 End Purge 5:17	125 Dry Y (N)	0835	7.76 7.74	45 46	1860 1880	
	HNU-0								
OW10	Total Depth, TOC, ft 61.29 Depth to Water, TOC, ft 0 Length of Water Column 61.29	Casing Diam 4 1 Casing Vol (gal) 0" .74	Begin Purge 5:24 End Purge 5:35	150g Dry Y (N)	0815	7.46 7.52	52 52	1910 1960	
	HNU-0								
Equip Wash	Total Depth, TOC, ft ~~/~~ Depth to Water, TOC, ft ~~/~~ Length of Water Column ~~/~~	Casing Diam ~~/~~ 1 Casing Vol (gal) ~~/~~	Begin Purge ~~/~~ End Purge ~~/~~ From OW-9	~~/~~ Dry Y N	0850	~~5.08~~ ~~3.46~~ 5.09	~~47~~ ~~46.8~~ ~~47~~ 47	60 60	
	Total Depth, TOC, ft _____ Depth to Water, TOC, ft _____ Length of Water Column _____	Casing Diam _____ 1 Casing Vol (gal) _____	Begin Purge _____ End Purge _____	_____ Dry Y N		_____	_____	_____	

FIGURE 1

Ground Water Monitoring
Sample Record
Giant Refinery
Gallup, New Mexico

Job Number _____
Location _____
Date _____
Weather _____ Purpose _____

NOTE: 2-in Sch 40=0.163 gal/ft or
4-in Sch 40=0.653 gal/ft or
5-in Sch 40=1.020 gal/ft or

Well Number	Water Level	Casing Storage	Purge Time	Total Purged (gal)	Sample Time	pH	Temp	Cond	Sample Collection Method
OW12	Total Depth, TOC, ft 131.51 Depth to Water, TOC, ft 47.38 Length of Water Column 84.03	Casing Diam 4 1 Casing Vol (gal) 106.09 .74	Begin Purge 9:50 End Purge 9:00 75 GAL	400 Dry (Y) N	1:45	11.33	57	1770	
	HNU-0								
OW13	Total Depth, TOC, ft 105.60 Depth to Water, TOC, ft 23.11 Length of Water Column 82.49	Casing Diam 4 1 Casing Vol (gal) 23.39 .74	Begin Purge 8:57 End Purge 9:19 220 GAL.	– Dry Y (N)	2:25	7.99	53	1194	
	HNU-0								
OW14	Total Depth, TOC, ft 46.71 Depth to Water, TOC, ft 25.93 Length of Water Column 20.78	Casing Diam 4 1 Casing Vol (gal) (15.4) .74	Begin Purge 10:17 End Purge 10:24 60 gal	– Dry Y (N)	2:55	7.55	54	1571	
	HNU-0								
OW20	Total Depth, TOC, ft 66.10 Depth to Water, TOC, ft 55.84 Length of Water Column 10.26	Casing Diam 4 1 Casing Vol (gal) .74	Begin Purge 9:35 End Purge 9:37 12 GAL	– Dry (Y) N	3:30	12.06	56.	5410	
	HNV-2								
	Total Depth, TOC, ft _____ Depth to Water, TOC, ft _____ Length of Water Column _____	Casing Diam _____ 1 Casing Vol (gal) _____	Begin Purge _____ End Purge _____	_____ Dry Y N		_____	_____	_____	

FIGURE 1

Ground Water Monitoring
Sample Record
Giant Refinery
Gallup, New Mexico

Job Number OCD Discharge
Location Ciniza
Date 4-29
Weather Sunny, Wind West @ 3mph 25°F

Purpose OCD

NOTE: 2-in Sch 40=0.163 gal/ft or 0
4-in Sch 40=0.653 gal/ft or 0
5-in Sch 40=1.020 gal/ft or 1

Well Number	Water Level	Casing Storage	Purge Time	Total Purged (gal)	Sample Time	pH	Temp	Cond	Sample Collection Method
OW-36	Total Depth, TOC, ft 53.12 Depth to Water, TOC, ft 31.93 Length of Water Column 21.19 TLV - 10.1 ppm	Casing Diam 4" 1 Casing Vol (gal) 0.74	Begin Purge 0815 End Purge 0821 contained visible oily hydrocarbons	21 gal Dry (Y) N	0830	7.12 7.16	54 54	1,910 1920	Pump
OW-16	Total Depth, TOC, ft 56.81 Depth to Water, TOC, ft 27.39 Length of Water Column 29.42 TLV - 0	Casing Diam 4" 1 Casing Vol (gal) 0.74	Begin Purge 0845 End Purge 0856 Clear Water	16 gal Dry Y (N)	0815	8.41 8.50	52 53	1210 1220	Bail
OW-25	Total Depth, TOC, ft 51.98 Depth to Water, TOC, ft 45.27 Length of Water Column 6.71 TLV - 0	Casing Diam 4" 1 Casing Vol (gal) 0.74	Begin Purge 0930 End Purge 0933 Clear Water	6 gal Dry (Y) N	1000	7.92 7.80	46 47	1280 1310	Pump
	Total Depth, TOC, ft _____ Depth to Water, TOC, ft _____ Length of Water Column _____	Casing Diam _____ 1 Casing Vol (gal) _____	Begin Purge _____ End Purge _____	_____ Dry Y N		_____	_____	_____	
	Total Depth, TOC, ft _____ Depth to Water, TOC, ft _____ Length of Water Column _____	Casing Diam _____ 1 Casing Vol (gal) _____	Begin Purge _____ End Purge _____	_____ Dry Y N		_____	_____	_____	

FIGURE 1

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105511

June 10, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: RFI

Attention: Claud Rosendale

On 05/01/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/01/91
REPORT DATE : 05/29/91

ATI I.D. : 105511

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-1	AQUEOUS	04/30/91
02	OW-30	AQUEOUS	04/30/91
03	EQUIP. WASH	AQUEOUS	04/30/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	3

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 105511

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/01/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02	03
PH	UNITS	8.86	8.85	5.79

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105511

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PH	UNITS	10553702	8.36	8.37	0.1	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 105511

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/01/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02	03
ARSENIC	MG/L	<0.005	<0.005	<0.005
BARIUM	MG/L	0.128	0.130	<0.010
BERYLLIUM	MG/L	<0.005	<0.005	<0.005
CADMIUM	MG/L	0.006	<0.005	<0.005
COBALT	MG/L	<0.010	<0.010	<0.010
CHROMIUM	MG/L	<0.010	<0.050	<0.010
COPPER	MG/L	0.017	0.019	<0.010
MERCURY	MG/L	<0.0002	<0.0002	<0.0002
POTASSIUM	MG/L	2.6	2.2	<1.0
NICKEL	MG/L	<0.020	<0.020	<0.020
LEAD	MG/L	0.008	0.010	<0.002
ANTIMONY	MG/L	<0.05	<0.05	<0.05
SELENIUM	MG/L	0.007	0.007	<0.005
VANADIUM	MG/L	0.050	0.051	<0.010
ZINC	MG/L	0.033	0.036	0.012

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

ATI I.D. : 105511

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
ARSENIC	MG/L	10551904	<0.005	<0.005	NA	0.040	0.050	80
ARSENIC	MG/L	10551103	<0.005	<0.005	NA	0.038	0.050	76
BARIUM	MG/L	10551003	0.067	0.068	1	1.01	1.00	94
BERYLLIUM	MG/L	10551103	<0.005	<0.005	NA	0.465	0.500	93
CADMIUM	MG/L	10551003	<0.005	<0.005	NA	0.490	0.500	98
COBALT	MG/L	10551003	<0.010	<0.010	NA	0.960	1.00	96
CHROMIUM	MG/L	10551003	<0.010	<0.010	NA	0.929	1.00	93
COPPER	MG/L	10551003	0.018	0.018	0	0.502	0.500	97
MERCURY	MG/L	10491402	<0.0002	<0.0002	NA	0.0049	0.0050	98
POTASSIUM	MG/L	10551101	2.6	2.6	0	56.4	50.0	108
NICKEL	MG/L	10551003	<0.020	<0.020	NA	0.949	1.00	95
LEAD	MG/L	10551102	0.010	0.008	22	0.061	0.050	102
LEAD	MG/L	10551103	<0.002	<0.002	NA	0.047	0.050	94
ANTIMONY	MG/L	10551003	<0.05	<0.05	NA	0.94	1.00	94
SELENIUM	MG/L	10488708	<0.005	<0.005	NS	0.037	0.050	74
SELENIUM	MG/L	10551103	<0.005	<0.005	NA	0.049	0.050	98
VANADIUM	MG/L	10551003	0.024	0.022	9	1.00	1.00	98
ZINC	MG/L	10551003	0.015	0.011	31	0.506	0.500	98

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551101

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-1	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	105
BROMOFLUOROBENZENE (%)	82
TOLUENE-D8 (%)	106

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551102

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-30	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	110
BROMOFLUOROBENZENE (%)	106
TOLUENE-D8 (%)	108

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551103

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: EQUIP. WASH	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	105
BROMOFLUOROBENZENE (%)	90
TOLUENE-D8 (%)	109

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105511
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/13/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/13/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	105

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105511

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599906

DATE ANALYZED : 05/13/91
SAMPLE MATRIX : SOIL
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<1	50	59	118	53	106	11
TRICHLOROETHENE	<1	50	47	94	51	102	8
CHLOROBENZENE	<5	50	49	98	53	106	8
TOLUENE	<5	50	53	106	58	116	9
BENZENE	<5	50	51	102	51	102	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551101

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-1	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551101

COMPOUNDS	RESULTS
ADDITIONAL COMPOUND	
HYDROCARBON C10	40
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	54
2-FLUOROBIPHENYL (%)	58
TERPHENYL (%)	83
PHENOL-D6 (%)	33
2-FLUOROPHENOL (%)	47
2,4,6-TRIBROMOPHENOL (%)	42

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551102

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-30	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551102

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	63
2-FLUOROBIPHENYL (%)	55
TERPHENYL (%)	92
PHENOL-D6 (%)	35
2-FLUOROPHENOL (%)	49
2,4,6-TRIBROMOPHENOL (%)	46

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551103

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: EQUIP. WASH	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551103

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	50
2-FLUOROBIPHENYL (%)	48
TERPHENYL (%)	111
PHENOL-D6 (%)	34
2-FLUOROPHENOL (%)	52
2,4,6-TRIBROMOPHENOL (%)	35

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

		ATI I.D.	: 105511
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/01/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/10/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<25
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<5
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551101

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	41
2-FLUOROBIPHENYL (%)	49
TERPHENYL (%)	96
PHENOL-D6 (%)	57
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	40

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105511

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599911

DATE ANALYZED : 05/09/91
SAMPLE MATRIX :
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	37	74	34	68	8
ACENAPHTHENE	<10	50	36	72	41	82	13
2,4-DINITROTOLUENE	<25	50	31	62	34	68	9
PYRENE	<5	50	63	126	57	114	10
N-NITROSO-DI-N-PROPYL AMINE	<10	50	38	76	43	86	12
1,4-DICHLOROBENZENE	<5	50	42	84	41	82	2
PENTACHLOROPHENOL	<50	100	88	88	89	89	1
PHENOL	<5	100	77	77	79	79	3
2-CHLOROPHENOL	<10	100	84	84	82	82	2
4-CHLORO-3-METHYLPHENOL	<10	100	80	80	75	75	6
4-NITROPHENOL	<50	100	40	40	47	47	16

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 4-30-91 PAGE 1 OF 1

PROJECT MANAGER: Elizabeth Proffit

COMPANY: Giant Refining Co.
ADDRESS: Rt. 3 Box 7
Gallup N.M. 87301

BILL TO:
COMPANY: Same
ADDRESS:

Chad Rosendale (505) 722-0217
SAMPLERS: (Signature) PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	DH (MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (8270) See Attached	Volatile Organics GC/MS (8240)	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	15 Background Metals See Attached	NUMBER OF CONTAINERS
OW-1	4-30	0715	Water	1		X								X	X								X	6
OW-30	4-30	0730	Water	2		X								X	X								X	6
Equip Wash	4-30	0700	Water	3		X								X	X								X	6

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:		TOTAL NO. OF CONTAINERS	15
PROJECT NAME: RFI		CHAIN OF CUSTODY SEALS	Y
P.O. NO. 01929		INTACT?	Y
SHIPPED VIA: Fed Ex.		RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	10551
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See Attachments for specific analytical Parameters

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 0930	Signature: Time:	Signature: Time:
Printed Name: Chad Rosendale Date: 4-30-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining Co	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 1145
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 5/1/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

TABLE -1
BACKGROUND METALS

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg
Antimony	6010	6.0
Arsenic	7060	0.5
Barium	6010	1.0
Beryllium	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	6010	5.0
Mercury	7471	0.2
Nickel	6010	4.0
Potassium	6010	500
Selenium	7740	0.5
Vanadium	6010	1.0
Zinc	6010	2.0

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,X)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

TABLE-4 Continued

Phenol.	5,000
Pyrene	5,000
Pyridine	10,000
Quinoline	25,000

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105537

June 10, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: RFI

Attention: Claud Rosendale

On 05/02/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

The 14 day volatile holding time for samples OW-9, OW-10, and the trip blank has been surpassed by one day. The samples were maintained at 4°C with hydrochloric acid so the data is thought to be reliable. The results for the 8240 analysis are provided at no charge.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 05/02/91
PROJECT # : (NONE)
PROJECT NAME : RFI REPORT DATE : 05/29/91
ATI I.D. : 105537

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-9	AQUEOUS	05/01/91
02	OW-10	AQUEOUS	05/01/91
03	TRIP BLANK	AQUEOUS	05/01/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	3

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 105537

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/02/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02
PH	UNITS	8.48	8.36

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105537

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PH	UNITS	10553702	8.36	8.37	0.1	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 105537

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/02/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02
ARSENIC	MG/L	<0.005	<0.005
BARIUM	MG/L	0.044	0.081
BERYLLIUM	MG/L	<0.005	<0.005
CADMIUM	MG/L	<0.005	0.013
COBALT	MG/L	<0.010	<0.010
CHROMIUM	MG/L	<0.010	<0.010
COPPER	MG/L	0.014	<0.010
MERCURY	MG/L	<0.0002	<0.0002
POTASSIUM	MG/L	1.0	1.8
NICKEL	MG/L	<0.020	<0.020
LEAD	MG/L	0.002	<0.002
ANTIMONY	MG/L	<0.05	<0.05
SELENIUM	MG/L	0.013	0.024
VANADIUM	MG/L	0.012	<0.010
ZINC	MG/L	0.023	0.012

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

ATI I.D. : 105537

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
ARSENIC	MG/L	10554901	<0.005	<0.005	NA	0.052	0.050	104
BARIUM	MG/L	10553701	0.044	0.042	5	0.987	1.00	94
BARIUM	MG/L	10553702	0.081	0.080	1	0.178	0.100	97
BERYLLIUM	MG/L	10553401	0.007	0.007	0	0.105	0.100	98
BERYLLIUM	MG/L	10599912	<0.005	<0.005	NA	0.112	0.100	112
CADMIUM	MG/L	10553701	<0.005	<0.005	NA	0.500	0.500	100
CADMIUM	MG/L	10553702	0.013	0.014	7	0.109	0.100	96
COBALT	MG/L	10553701	<0.010	<0.010	NA	1.00	1.00	100
COBALT	MG/L	10553702	<0.010	<0.010	NA	0.110	0.100	110
CHROMIUM	MG/L	10553701	<0.010	<0.010	NA	0.944	1.00	94
CHROMIUM	MG/L	10553702	<0.010	<0.010	NA	0.089	0.100	89
COPPER	MG/L	10553701	0.014	0.014	0	0.504	0.500	98
COPPER	MG/L	10553702	<0.010	<0.010	NA	0.097	0.100	97
MERCURY	MG/L	10557001	<0.0002	<0.0002	NA	0.0048	0.0050	96
POTASSIUM	MG/L	10551101	2.6	2.6	0	56.4	50.0	108
POTASSIUM	MG/L	10557001	3.9	3.8	3	59.5	50.0	111
NICKEL	MG/L	10553701	<0.020	<0.020	NA	0.960	1.00	96
NICKEL	MG/L	10553702	<0.020	<0.020	NA	0.100	0.100	100
LEAD	MG/L	10551103	<0.002	<0.002	NA	0.047	0.050	94
ANTIMONY	MG/L	10553701	<0.05	<0.05	NA	0.93	1.00	93
ANTIMONY	MG/L	10599906	<0.05	<0.05	NA	0.09	0.10	90
SELENIUM	MG/L	10554901	<0.005	<0.005	NA	0.031	0.050	62
VANADIUM	MG/L	10553701	0.012	0.011	9	0.990	1.00	98
VANADIUM	MG/L	10553702	<0.010	<0.010	NA	0.104	0.100	104
ZINC	MG/L	10553701	0.023	0.023	0	0.527	0.500	101
ZINC	MG/L	10553702	0.012	0.012	0	0.122	0.100	110

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553701

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-9	DATE ANALYZED	: 05/16/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	102
BROMOFLUOROBENZENE (%)	90
TOLUENE-D8 (%)	102

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553702

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-10	DATE ANALYZED	: 05/16/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	103
BROMOFLUOROBENZENE (%)	91
TOLUENE-D8 (%)	101

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553703

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 05/16/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	103
BROMOFLUOROBENZENE (%)	87
TOLUENE-D8 (%)	99

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105537
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/16/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/16/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	99
BROMOFLUOROBENZENE (%)	88
TOLUENE-D8 (%)	102

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105537

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599907

DATE ANALYZED : 05/16/91
SAMPLE MATRIX : SOIL
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<1	50	55	110	54	108	2
TRICHLOROETHENE	<1	50	49	98	49	98	0
CHLOROBENZENE	<5	50	51	102	51	102	0
TOLUENE	<5	50	51	102	51	102	0
BENZENE	<5	50	41	82	41	82	0

$$\%\ \text{Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553701

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/06/91
CLIENT I.D.	: OW-9	DATE ANALYZED	: 05/15/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10553701

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	45
2-FLUOROBIPHENYL (%)	46
TERPHENYL (%)	87
PHENOL-D6 (%)	37
2-FLUOROPHENOL (%)	57
2,4,6-TRIBROMOPHENOL (%)	42

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553702

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/06/91
CLIENT I.D.	: OW-10	DATE ANALYZED	: 05/15/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10553702

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	52
2-FLUOROBIPHENYL (%)	57
TERPHENYL (%)	107
PHENOL-D6 (%)	37
2-FLUOROPHENOL (%)	51
2,4,6-TRIBROMOPHENOL (%)	39

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

		ATI I.D.	: 105537
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/06/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/15/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHYLPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROTOLUENE	<5
2,6-DINITROTOLUENE	<5
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 105537

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	107
PHENOL-D6 (%)	45
2-FLUOROPHENOL (%)	56
2,4,6-TRIBROMOPHENOL (%)	38

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105537

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599915

DATE ANALYZED : 05/15/91
SAMPLE MATRIX :
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	31	62	33	66	6
ACENAPHTHENE	<10	50	32	64	37	74	14
2,4-DINITROTOLUENE	<25	50	26	52	31	62	18
PYRENE	<5	50	52	104	55	110	6
N-NITROSO-DI-N-PROPYL AMINE	<10	50	26	52	29	58	11
1,4-DICHLOROBENZENE	<5	50	37	74	38	76	3
PENTACHLOROPHENOL	<50	100	61	61	65	65	6
PHENOL	<5	100	50	50	52	104	4
2-CHLOROPHENOL	<10	100	52	52	58	58	11
4-CHLORO-3-METHYLPHENOL	<10	100	47	47	47	47	0
4-NITROPHENOL	<50	100	40	40	41	41	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

AnalyticalTechnologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 5-1-91 PAGE 1 OF 1

PROJECT MANAGER: Elizabeth Profitt

COMPANY: Giant Refining Co.
ADDRESS: Rt. 3 Box 7
Gallup, New Mexico 87301

BILL TO:
COMPANY: Same
ADDRESS:

Dave Kindall — SAMPLERS: (Signature)
505 722-0217 — PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	BTEX (8020) Gas/Diesel (MOD 8015)	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS ~~625~~/8270	Volatile Organics GC/MS ~~624~~/8240 See Attached	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	15 Background Metals See Attached	NUMBER OF CONTAINERS
OW-9	5-1	0815	Water	1		X								X	X								X	6
OW-10	5-1	0835	Water	2		X								X	X								X	6
Trip Blank	—	—	Water	3											X									1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:		TOTAL NO. OF CONTAINERS	13
PROJECT NAME: RFT		CHAIN OF CUSTODY SEALS	4
P.O. NO. 01909		INTACT?	4
SHIPPED VIA: Fed. Exp.		RECEIVED GOOD COND./COLD	4
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	105537
☒ ATI	☐ RETURN		

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See Attached for specific Analytical parameters 8270 Surrogates off 2K.

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Dave Kindall Time: 0930	Signature: Time:	Signature: Time:
Printed Name: Dave Kindall Date: 5-1-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining Co.	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: R. Tudeszewski Time: 11:15
Printed Name: Date:	Printed Name: Date:	Printed Name: R. Tudeszewski Date: 5/2
Company:	Company:	Analytical Technologies, Inc. ATI - Phoenix

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001

DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

TABLE -1
BACKGROUND METALS

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg
Antimony	6010	6.0
Arsenic	7060	0.5
Barium	6010	1.0
Beryllium	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	6010	5.0
Mercury	7471	0.2
Nickel	6010	4.0
Potassium	6010	500
Selenium	7740	0.5
Vanadium	6010	1.0
Zinc	6010	2.0

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,X)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

TABLE-4 Continued

Phenol.	5,000
Pyrene	5,000
Pyridine	10,000
Quinoline	25,000

Analytical **Technologies,** Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105510

June 10, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: RFI

Attention: Claud Rosendale

On 05/01/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Sample OW-5 had matrix interferences for several metals (excluding As, Pb, K, and Mercury) analyses. These samples had to be diluted to be analyzed. Detection limits have been raised accordingly.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

Lorraine Davis
QA Coordinator

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 05/01/91
PROJECT # : (NONE)
PROJECT NAME : RFI REPORT DATE : 05/29/91
ATI I.D. : 105510

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-4	AQUEOUS	04/30/91
02	OW-5	AQUEOUS	04/30/91
03	OW-7	AQUEOUS	04/30/91
04	TRIP BLANK	AQUEOUS	04/30/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	4

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 105510

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/01/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02	03
PH	UNITS	8.77	6.98	8.87

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105510

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PH	UNITS	10551003	8.87	8.87	0	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 105510

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/01/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02	03
ARSENIC	MG/L	<0.005	<0.005	<0.005
BARIUM	MG/L	0.024	0.085	0.067
BERYLLIUM	MG/L	<0.005	<0.010	<0.005
CADMIUM	MG/L	<0.005	<0.025	<0.005
COBALT	MG/L	<0.010	<0.050	<0.010
CHROMIUM	MG/L	<0.010	<0.010	<0.010
COPPER	MG/L	0.379	<0.050	0.018
MERCURY	MG/L	<0.0002	<0.0002	<0.0002
POTASSIUM	MG/L	1.4	7.9	2.0
NICKEL	MG/L	<0.020	<0.10	<0.020
LEAD	MG/L	0.002	0.021	0.003
ANTIMONY	MG/L	<0.05	<0.25	<0.05
SELENIUM	MG/L	<0.005	<0.05	<0.005
VANADIUM	MG/L	<0.010	<0.50	0.024
ZINC	MG/L	0.038	<0.050	0.015

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105510

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
ARSENIC	MG/L	10551904	<0.005	<0.005	NA	0.040	0.050	80
BARIUM	MG/L	10551003	0.067	0.068	1	1.01	1.00	94
BERYLLIUM	MG/L	10551103	<0.005	<0.005	NA	0.465	0.500	93
CADMIUM	MG/L	10551003	<0.005	<0.005	NA	0.490	0.500	98
COBALT	MG/L	10551003	<0.010	<0.010	NA	0.960	1.00	96
CHROMIUM	MG/L	10551003	<0.010	<0.010	NA	0.929	1.00	93
COPPER	MG/L	10551003	0.018	0.018	0	0.502	0.500	97
MERCURY	MG/L	10491402	<0.0002	<0.0002	NA	0.0049	0.0050	98
POTASSIUM	MG/L	10551101	2.6	2.6	0	56.4	50.0	108
NICKEL	MG/L	10551003	<0.020	<0.020	NA	0.949	1.00	95
LEAD	MG/L	10490101	0.009	0.009	0	0.057	0.050	96
ANTIMONY	MG/L	10551003	<0.05	<0.05	NA	0.94	1.00	94
SELENIUM	MG/L	10488708	<0.005	<0.005	NA	0.037	0.050	74
VANADIUM	MG/L	10551003	0.024	0.022	9	1.00	1.00	98
ZINC	MG/L	10551003	0.015	0.011	31	0.506	0.500	98

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551001

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-4	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	96
BROMOFLUOROBENZENE (%)	94
TOLUENE-D8 (%)	105

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551002

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-5	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	103
BROMOFLUOROBENZENE (%)	104
TOLUENE-D8 (%)	109

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551003

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-7	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	103
BROMOFLUOROBENZENE (%)	90
TOLUENE-D8 (%)	110

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551004

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BROMOFLUOROBENZENE (%)	92
TOLUENE-D8 (%)	107

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105510
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/13/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/13/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	105

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105510

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599906

DATE ANALYZED : 05/13/91
SAMPLE MATRIX : SOIL
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<1	50	59	118	53	106	11
TRICHLOROETHENE	<1	50	47	94	51	102	8
CHLOROBENZENE	<5	50	49	98	53	106	8
TOLUENE	<5	50	53	106	58	116	9
BENZENE	<5	50	51	102	51	102	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551001

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: MW-4	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551001

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	42
2-FLUOROBIPHENYL (%)	46
TERPHENYL (%)	92
PHENOL-D6 (%)	38
2-FLUOROPHENOL (%)	51
2,4,6-TRIBROMOPHENOL (%)	44

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551002

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-5	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551002

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	60
2-FLUOROBIPHENYL (%)	56
TERPHENYL (%)	97
PHENOL-D6 (%)	32
2-FLUOROPHENOL (%)	44
2,4,6-TRIBROMOPHENOL (%)	42

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10551003

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/30/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/01/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-7	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10551003

COMPOUNDS	RESULTS
PYRIDINE	<5
QUINOLINE	<25
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	59
2-FLUOROBIPHENYL (%)	58
TERPHENYL (%)	106
PHENOL-D6 (%)	10
2-FLUOROPHENOL (%)	21
2,4,6-TRIBROMOPHENOL (%)	14

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

		ATI I.D.	: 105510
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/01/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/10/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 105510

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	41
2-FLUOROBIPHENYL (%)	49
TERPHENYL (%)	96
PHENOL-D6 (%)	57
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	40

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105510

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599911

DATE ANALYZED : 05/09/91
SAMPLE MATRIX :
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	37	74	34	68	8
ACENAPHTHENE	<10	50	36	72	41	82	13
2,4-DINITROTOLUENE	<25	50	31	62	34	68	9
PYRENE	<5	50	63	126	57	114	10
N-NITROSO-DI-N-PROPYL AMINE	<10	50	38	76	43	86	12
1,4-DICHLOROBENZENE	<5	50	42	84	41	82	2
PENTACHLOROPHENOL	<50	100	88	88	89	89	1
PHENOL	<5	100	77	77	79	79	3
2-CHLOROPHENOL	<10	100	84	84	82	82	2
4-CHLORO-3-METHYLPHENOL	<10	100	80	80	75	75	6
4-NITROPHENOL	<50	100	40	40	47	47	16

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 4-30-91 PAGE 1 OF 1

PROJECT MANAGER: Elizabeth Proffitt

COMPANY: Giant Refining Co.
ADDRESS: Rt. 3 Box 7
Gallup, New Mexico 87301

BILL TO:
COMPANY: Same
ADDRESS:

Chuck Kendall — SAMPLERS: (Signature)
(505) 722-0217 — PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (8270)	Volatile Organics GC/MS (8240) See Attached	15 Background Metals (As Attached)	NUMBER OF CONTAINERS
MW-4	4-30	0950	Water	1	X						X	X	X	6
OW-5	4-30	0955	Water	2	X						X	X	X	6
OW-7	4-30	0919	Water	3	X						X	X	X	6
Trip Blank	—	—	Water	4								X		1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:		TOTAL NO. OF CONTAINERS	19
PROJECT NAME:	REF	CHAIN OF CUSTODY SEALS	Y
P.O. NO.	01909	INTACT?	Y
SHIPPED VIA:	Fed. Exp.	RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	105510
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See attached for specific analytical parameters

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Chuck Kendall Time: 0930	Signature: Time:	Signature: Time:
Printed Name: W. Chuck Kendall Date: 4-30-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Linda Eshelman Time: 10:00
Printed Name: Date:	Printed Name: Date:	Printed Name: Linda Eshelman Date: 5/1/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC.• Pink - ORIGINATOR

TABLE -1
BACKGROUND METALS

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg
Antimony	6010	6.0
Arsenic	7060	0.5
Barium	6010	1.0
Beryllium	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	7471	5.0
Mercury	6010	0.2
Nickel	6010	4.0
Potassium	7740	500
Selenium	6010	0.5
Vanadium	6010	1.0
Zinc		2.0

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,X)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

TABLE-4 Continued

	5,000
Phenol	5,000
Pyrene	10,000
Pyridine	25,000
Quinoline	

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105534

June 10, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: RFI

Attention: Claud Rosendale

On 05/02/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

Due to matrix interferences, sample OW-1 had to be diluted for Selenium analysis, causing the detection limit to be raised.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 05/02/91
PROJECT # : (NONE)
PROJECT NAME : RFI REPORT DATE : 05/29/91

ATI I.D. : 105534

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-2	AQUEOUS	05/01/91
02	EQUIP WASH #2	AQUEOUS	05/01/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 105534

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/02/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02
PH	UNITS	8.50	5.79

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105534

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
PH	UNITS	10553702	8.36	8.37	0.1	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 105534

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI

DATE RECEIVED : 05/02/91
REPORT DATE : 05/29/91

PARAMETER	UNITS	01	02
ARSENIC	MG/L	0.006	<0.005
BARIUM	MG/L	0.497	0.057
BERYLLIUM	MG/L	0.007	<0.005
CADMIUM	MG/L	<0.005	<0.005
COBALT	MG/L	<0.010	<0.010
CHROMIUM	MG/L	0.023	<0.010
COPPER	MG/L	0.044	0.017
MERCURY	MG/L	<0.0002	<0.0002
POTASSIUM	MG/L	2.7	<1.0
NICKEL	MG/L	<0.020	<0.020
LEAD	MG/L	0.026	<0.002
ANTIMONY	MG/L	<0.05	<0.05
SELENIUM	MG/L	<0.010	<0.005
VANADIUM	MG/L	0.051	<0.010
ZINC	MG/L	0.063	0.014

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI ATI I.D. : 105534

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
ARSENIC	MG/L	10554901	<0.005	<0.005	NA	0.052	0.050	104
BARIUM	MG/L	10553106	<0.010	<0.010	NA	0.098	0.100	98
BERYLLIUM	MG/L	10553401	0.007	0.007	0	0.105	0.100	98
CADMIUM	MG/L	10553701	<0.005	<0.005	NA	0.500	0.500	100
COBALT	MG/L	10553701	<0.010	<0.010	NA	1.00	1.00	100
CHROMIUM	MG/L	10553106	<0.010	<0.010	NA	0.088	0.100	88
COPPER	MG/L	10553106	<0.010	<0.010	NA	0.090	0.100	90
COPPER	MG/L	10553701	0.014	0.014	0	0.504	0.500	98
MERCURY	MG/L	10557001	<0.0002	<0.0002	NA	0.0048	0.0050	96
POTASSIUM	MG/L	10551101	2.6	2.6	0	56.4	50.0	108
NICKEL	MG/L	10553701	<0.020	<0.020	NA	0.960	1.00	96
LEAD	MG/L	10551103	<0.002	<0.002	NA	0.047	0.050	94
ANTIMONY	MG/L	10553701	<0.05	<0.05	NA	0.93	1.00	93
SELENIUM	MG/L	10490101	<0.005	<0.005	NA	0.030	0.050	60
VANADIUM	MG/L	10553701	0.012	0.011	9	0.990	1.00	98
ZINC	MG/L	10553106	0.015	0.016	6	0.123	0.100	108

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553401

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-2	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5

SURROGATE PERCENT RECOVERIES

1,2-DICHLOROETHANE-D4 (%)	108
BROMOFLUOROBENZENE (%)	81
TOLUENE-D8 (%)	108

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553402

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: N/A
CLIENT I.D.	: EQUIP WASH #2	DATE ANALYZED	: 05/13/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	108
BROMOFLUOROBENZENE (%)	86
TOLUENE-D8 (%)	102

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105534
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/13/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/13/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<2.5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	105

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105534

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599906

DATE ANALYZED : 05/13/91
SAMPLE MATRIX : SOIL
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<1	50	59	118	53	106	11
TRICHLOROETHENE	<1	50	47	94	51	102	8
CHLOROBENZENE	<5	50	49	98	53	106	8
TOLUENE	<5	50	53	106	58	116	9
BENZENE	<5	50	51	102	51	102	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

TR - Compound detected at an unquantifiable trace level

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553401

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/06/91
CLIENT I.D.	: OW-2	DATE ANALYZED	: 05/15/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHYLPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10553401

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	53
2-FLUOROBIPHENYL (%)	58
TERPHENYL (%)	114
PHENOL-D6 (%)	36
2-FLUOROPHENOL (%)	51
2,4,6-TRIBROMOPHENOL (%)	35

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10553402

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/01/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/91
PROJECT NAME	: RFI	DATE EXTRACTED	: 05/06/91
CLIENT I.D.	: EQUIP WASH #2	DATE ANALYZED	: 05/15/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHLYPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 10553402

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	56
2-FLUOROBIPHENYL (%)	59
TERPHENYL (%)	128
PHENOL-D6 (%)	38
2-FLUOROPHENOL (%)	54
2,4,6-TRIBROMOPHENOL (%)	34

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

		ATI I.D.	: 105534
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/06/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/15/91
PROJECT NAME	: RFI	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
PHENOL	<5
1,3-DICHLOROBENZENE	<5
1,4-DICHLOROBENZENE	<5
1,2-DICHLOROBENZENE	<5
2-METHYLPHENOL	<5
4-METHYLPHENOL	<5
2,4-DIMETHYLPHENOL	<5
NAPHTHALENE	<5
DIMETHYLPHTHALATE	<5
2,4-DINITROPHENOL	<25
4-NITROPHENOL	<25
DIETHYLPHTHALATE	<5
PHENANTHRENE	<5
ANTHRACENE	<5
DI-N-BUTYLPHTHALATE	<5
FLUORANTHENE	<5
PYRENE	<5
BUTYLBENZYLPHTHALATE	<5
BENZO(a)ANTHRACENE	<5
BIS(2-ETHYLHEXYL)PHTHALATE	<5
CHRYSENE	<5
DI-N-OCTYLPHTHALATE	<5
BENZO(b)FLUORANTHENE	<5
BENZO(k)FLUORANTHENE	<5
BENZO(a)PYRENE	<5
DIBENZO(a,h)ANTHRACENE	<5
BENZENETHIOL	<5
DIBENZO(A,J)ACRIDINE	<5 *
7,12-DIMETHYLBENZ(a)ANTHRACENE	<5
INDENE	<5
METHYLCHRYSENE	<5
1-METHYLNAPHTHALENE	<5
3-METHYLPHENOL	<5
PYRIDINE	<5
QUINOLINE	<25

* ESTIMATED PRACTICAL QUANTITATION LIMIT BASED ON A REVIEW OF THE MASS SPECTRA DATA.

Analytical Technologies, Inc.

TEST : SEMI-VOLATILE ORGANICS (SKINNER LIST) EPA 8270

ATI I.D. : 105534

COMPOUNDS	RESULTS
SURROGATE PERCENT RECOVERIES	
NITROBENZENE-D5 (%)	67
2-FLUOROBIPHENYL (%)	67
TERPHENYL (%)	107
PHENOL-D6 (%)	45
2-FLUOROPHENOL (%)	56
2,4,6-TRIBROMOPHENOL (%)	38

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105534

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : RFI
REF I.D. : 10599915

DATE ANALYZED : 05/15/91
SAMPLE MATRIX :
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	31	62	33	66	6
ACENAPHTHENE	<10	50	32	64	37	74	14
2,4-DINITROTOLUENE	<25	50	26	52	31	62	18
PYRENE	<5	50	52	104	55	110	6
N-NITROSO-DI-N-PROPYL AMINE	<10	50	26	52	29	58	11
1,4-DICHLOROBENZENE	<5	50	37	74	38	76	3
PENTACHLOROPHENOL	<50	100	61	61	65	65	6
PHENOL	<5	100	50	50	52	104	4
2-CHLOROPHENOL	<10	100	52	52	58	58	11
4-CHLORO-3-METHYLPHENOL	<10	100	47	47	47	47	0
4-NITROPHENOL	<50	100	40	40	41	41	2

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 5-1-91 PAGE 1 OF 1

PROJECT MANAGER: Elizabeth Proffitt

COMPANY: Giant Refining Co.
ADDRESS: Rt. 3 Box 7
Gallup, N.M. 87301

BILL TO:
COMPANY: Same
ADDRESS:

SAMPLERS: (Signature) [signature]
PHONE NUMBER: (505) 722-0217

ANALYSIS REQUEST

Printed analysis columns:
- Petroleum Hydrocarbons (418.1)
- (MOD 8015) Gas/Diesel
- Diesel/Gasoline/BTXE (MOD 8015/8020)
- BTXE (8020)
- Chlorinated Hydrocarbons (601/8010)
- Aromatic Hydrocarbons (602/8020)
- MTBE
- Pesticides/PCB (608/8080)
- Herbicides (615/8150)
- Base/Neutral/Acid Compounds GC/MS (625/8270) Attached
- Volatile Organics GC/MS (624/8240)
- SDWA Primary Standards
- SDWA Secondary Standards
- SDWA Volatiles (502.1/503.1)
- The 13 Priority Pollutant Metals
- The 8 EP Tox Metals by EP Tox Prep. (1310)
- The 8 EP Tox Metals by Total Digestion
- The 8 EP Tox Metals by TCLP (1311)
- 15 Background Metals See attached
- NUMBER OF CONTAINERS

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	(MOD 8015) Gas/Diesel	Base/Neutral/Acid Compounds GC/MS (8270)	Volatile Organics GC/MS (8240)	15 Background Metals	NUMBER OF CONTAINERS
OW-2	5-1	0910	Water	1	X	X	X	X	6
Equip Wash #2	5-1	0950	Water	2	X	X	X	X	6

PROJECT INFORMATION	
PROJECT NO:	—
PROJECT NAME:	RFT
P.O. NO.	01909
SHIPPED VIA:	Fed. Ex.
SAMPLE DISPOSAL INSTRUCTIONS	☒ ATI ☐ RETURN

SAMPLE RECEIPT	
TOTAL NO. OF CONTAINERS	12
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	105534

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See attached for specific analytical parameters

	RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature / Time	[signature] 9:30		
Printed Name / Date	Claud Rosendale 5-1-91		
Company	Giant Refining Co.		

	RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature / Time			[signature] 10:30
Printed Name / Date			Linda Eshelman 5/2/91
Company			Analytical Technologies, Inc.

TABLE -1
BACKGROUND METALS

Total Metals

Parameter	Analytical Method	Reporting Limit mg/kg
Antimony	6010	6.0
Arsenic	7060	0.5
Barium	6010	1.0
Beryllium	6010	0.2
Cadmium	6010	0.5
Chromium	6010	1.0
Cobalt	6010	1.0
Copper	6010	2.0
Lead	6010	5.0
Mercury	7471	0.2
Nickel	6010	4.0
Potassium	6010	500
Selenium	7740	0.5
Vanadium	6010	1.0
Zinc	6010	2.0

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,X)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

TABLE-4 Continued

Phenol.	5,000
Pyrene	5,000
Pyridine	10,000
Quinoline	25,000

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105576

June 10, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: OCD

Attention: Claud Rosendale

On 05/04/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

8240 analyses were performed by ATI, Fort Collins. The detection limit they are able to report for EDB is 10 µg/l, four times higher than that reportable by ATI, Phoenix

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 05/04/91
PROJECT # : (NONE)
PROJECT NAME : OCD REPORT DATE : 05/29/91

ATI I.D. : 105576

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-12	AQUEOUS	05/02/91
02	OW-13	AQUEOUS	05/02/91
03	OW-14	AQUEOUS	05/02/91
04	OW-20	AQUEOUS	05/02/91
05	TRIP BLANK	AQUEOUS	03/25/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	5

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10557601

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/02/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-12	DATE ANALYZED	: 05/17/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	110
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	94

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10557602

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/02/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-13	DATE ANALYZED	: 05/17/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	108
BROMOFLUOROBENZENE (%)	100
TOLUENE-D8 (%)	103

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10557603

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/02/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-14	DATE ANALYZED	: 05/17/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	114
BROMOFLUOROBENZENE (%)	99
TOLUENE-D8 (%)	101

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10557604

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/02/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-20	DATE ANALYZED	: 05/16/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	490
BENZENE	130
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	170
CHLOROBENZENE	<5
ETHYLBENZENE	5
STYRENE	<5
TOTAL XYLENES	29
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	103

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10557605

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 03/25/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 05/16/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	107
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	96

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105576
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/16/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/16/91
PROJECT NAME	: OCD	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BROMOFLUOROBENZENE (%)	96
TOLUENE-D8 (%)	110

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (SKINNER LIST) EPA 8240

		ATI I.D.	: 105576
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/17/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/17/91
PROJECT NAME	: OCD	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CARBON DISULFIDE	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
BENZENE	<5
2-CHLOROETHYLVINYLETHER	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
1,4-DIOXANE	<10
1,2-DIBROMOETHANE (EDB)	<10
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	108
BROMOFLUOROBENZENE (%)	106
TOLUENE-D8 (%)	102

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105576

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : OCD
REF I.D. : 10557601

DATE ANALYZED : 05/17/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	18	50	70	104	75	114	7
TRICHLOROETHENE	<5	50	57	114	51	102	11
CHLOROBENZENE	<5	50	51	102	48	96	6
TOLUENE	<5	50	53	106	49	98	8
BENZENE	<5	50	49	98	47	94	4

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 5-3-91 PAGE 1 OF 1

PROJECT MANAGER: Beth Proffitt

COMPANY: Giant Refining Co
ADDRESS: Rt 3 Box 7
Gallup, NM 87301

BILL TO:
COMPANY: Same
ADDRESS:

Hank Rosendale — SAMPLERS: (Signature)
505 722-0217 — PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240) See Attached	NUMBER OF CONTAINERS
OW-12	5-2	1:35p	Water	1		X	N
OW-13	5-2	2:25p	Water	2		X	N
OW-14	5-2	3:55p	Water	3		X	N
OW-20	5-2	3:30	Water	4		X	N
Trip Blank	3-25		Water	5		X	N

Petroleum Hydrocarbons (418.1); (MOD 8015) Gas/Diesel; Diesel/Gasoline/BTXE (MOD 8015/8020); BTXE (8020); Chlorinated Hydrocarbons (601/8010); Aromatic Hydrocarbons (602/8020); MTBE; Pesticides/PCB (608/8080); Herbicides (615/8150); SDWA Primary Standards; SDWA Secondary Standards; SDWA Volatiles (502.1/503.1); The 13 Priority Pollutant Metals; The 8 EP Tox Metals by EP Tox Prep. (1310); The 8 EP Tox Metals by Total Digestion; The 8 EP Tox Metals by TCLP (1311)

PROJECT INFORMATION	
PROJECT NO:	—
PROJECT NAME:	OCD
P.O. NO.	01413
SHIPPED VIA:	Fed Ex
SAMPLE DISPOSAL INSTRUCTIONS	
☒ ATI ☐ RETURN	

SAMPLE RECEIPT	
TOTAL NO. OF CONTAINERS	9
CHAIN OF CUSTODY SEALS	N
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	105576

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See Attached for analytical Requirements

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Hank Rosendale Time: 0900	Signature: Time:	Signature: Time:
Printed Name: Hank Rosendale Date: 5-3-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Linda Eshelman Time: 9:30
Printed Name: Date:	Printed Name: Date:	Printed Name: Linda Eshelman Date: 5/4/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001 DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

TABLE-4
SKINNER LIST

METHOD 8240

Parameter	Reporting Limit (ug/kg)
Benzene	500
Carbon disulfide	500
Chlorobenzene	500
2-Chloroethylvinyl ether	1,000
1,2-Dibromomethane	1,000
1,2-Dichloroethane	500
1,4-Dioxane	50,000
Ethyl Benzene	500
Methyl ethyl ketone (2-butanone)	1,000
Styrene	500
Toluene	500
Xylenes	500

METHOD 8270

Anthracene	5,000
Benzenethiol	-
Benzo(a)anthracene	5,000
Benzo(b)fluoranthene	5,000
Benzo(k)fluoranthene	5,000
Benzo(a)pyrene	5,000
Bis(2-ethylhexyl)phthalate	5,000
Butyl benzyl phthalate	5,000
Chrysene	5,000
Dibenzo(a,X)acridine	-
Dibenzo(a,h)anthracene	5,000
Di-n-butylphthalate	5,000
1,2-Dichlorobenzene	5,000
1,3-Dichlorobenzene	5,000
1,4-Dichlorobenzene	5,000
Diethyl phthalate	5,000
7,12-Dimethylbenz(a)anthrancene	5,000
2,4-Dimethylphenol	5,000
Dimethyl phthalate	5,000
2,4-Dinitrophenol	25,000
Di-n-octyl phthalate	5,000
Fluoranthene	5,000
Indene	5,000
Methylchrysene	-
1-Methylnaphthalene	5,000
2-Methylphenol	5,000
3-Methylphenol	5,000
4-Methylphenol	5,000
Naphthalene	5,000
4-Nitrophenol	25,000
Phenanthrene	5,000

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 104901

May 17, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: OCD Plan 997-9008-28

Attention: Claud Rosendale

On 04/30/91, Analytical Technologies, Inc. received a request to anayze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 04/30/91
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN REPORT DATE : 05/16/91
ATI I.D. : 104901

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-26	AQUEOUS	04/29/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	1

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104901

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	10491101	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		126	125	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		126	125	1	NA	NA	NA
CHLORIDE	MG/L	10555503	390	390	0	1150	750	101
CONDUCTIVITY(UMHOS/CM)		10490201	1190	1240	4	NA	NA	NA
PH	UNITS	10563801	8.2	8.3	1	NA	NA	NA
PHENOLICS, TOTAL	MG/L	10550401	<0.02	<0.02	NA	0.25	0.25	100
SULFATE	MG/L	10488717	130	140	7	280	140	100
TOTAL DISSOLVED SOLIDS	MG/L	10490101	1100	1100	0	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 104901

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN

DATE RECEIVED : 04/30/91
REPORT DATE : 05/16/91

PARAMETER	UNITS	01
SILVER	MG/L	<0.010
ARSENIC	MG/L	0.008
BARIUM	MG/L	4.16
CALCIUM	MG/L	89.4
CADMIUM	MG/L	0.008
CHROMIUM	MG/L	<0.010
MANGANESE	MG/L	2.26
SODIUM	MG/L	289
LEAD	MG/L	0.009
SELENIUM	MG/L	<0.005

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104901

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	10489603	<0.010	<0.010	NA	0.440	0.500	88
ARSENIC	MG/L	10490101	0.008	0.008	0	0.042	0.050	68
BARIUM	MG/L	10489603	0.041	0.040	2	0.962	1.00	92
CALCIUM	MG/L	10491401	30.6	30.7	0.3	83.9	50.0	107
CADMIUM	MG/L	10489603	<0.005	0.007	NA	0.482	0.500	96
CHROMIUM	MG/L	10489603	<0.010	<0.010	NA	0.876	1.00	88
MANGANESE	MG/L	10489603	2.32	2.33	0.4	3.26	1.00	94
SODIUM	MG/L	10491401	34.1	35.5	4	85.4	50.0	103
LEAD	MG/L	10490101	0.009	0.009	0	0.057	0.050	96
SELENIUM	MG/L	10490101	<0.005	<0.005	NA	0.030	0.050	60

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10490101

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-26	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 500

COMPOUNDS	RESULTS
BENZENE	5500
BROMODICHLOROMETHANE	<100
BROMOFORM	<100
BROMOMETHANE	<100
CARBON TETRACHLORIDE	<100
CHLOROBENZENE	<250
CHLOROETHANE	<100
CHLOROFORM	<100
CHLOROMETHANE	<100
DIBROMOCHLOROMETHANE	<100
1,3-DICHLOROBENZENE	<250
2-CHLOROETHLYL VINYL ETHER	<250
1,2 & 1,4-DICHLOROBENZENE	<250
DICHLORODIFLUOROMETHANE	<100
1,1-DICHLOROETHANE	<100
1,2-DICHLOROETHANE	<100
1,1-DICHLOROETHENE	<100
1,2-DICHLOROETHENE (TOTAL)	<100
1,2-DICHLOROPROPANE	<100
CIS-1,3-DICHLOROPROPENE	<100
TRANS-1,3-DICHLOROPROPENE	<100
ETHYLBENZENE	<250
METHYLENE CHLORIDE	<1000
1,1,2,2-TETRACHLOROETHANE	<100
TETRACHLOROETHENE	<100
TOLUENE	3000
1,1,1-TRICHLOROETHANE	<100
1,1,2-TRICHLOROETHANE	<100
TRICHLOROETHENE	<100
TRICHLOROFLUOROMETHANE	<250
VINYL CHLORIDE	<100
TOTAL XYLENES	2050
TRICHLOROFLUOROMETHANE	<100

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	110
BROMOFLUOROBENZENE (%)	88

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

		ATI I.D.	: 104901
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/09/91
PROJECT #	: 997-9008-28	DATE ANALYZED	: 05/09/91
PROJECT NAME	: OCD PLAN	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	<0.2
1,2-DICHLOROETHANE	<0.2
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	<0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	106
BROMOFLUOROBENZENE (%)	98

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104901

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10489901

DATE ANALYZED : 05/10/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.2	20	20	100	21	105	5
TRICHLOROETHENE	<0.2	20	19	95	20	100	5
TETRACHLOROETHENE	<0.2	20	18	90	19	95	5
BENZENE	<0.5	20	18	90	19	95	5
BROMODICHLOROMETHANE	<0.2	20	19	95	19	95	0
CHLOROFORM	<0.2	20	19	95	19	95	0
1,1,1-TRICHLOROETHANE	<0.2	20	19	95	19	95	0
TOLUENE	<0.5	20	19	95	18	90	5
CHLOROBENZENE	<0.5	20	18	90	18	90	0
M-XYLENE	<0.5	20	18	90	18	90	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490101

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-26	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490101

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	<10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	110
2-FLUOROBIPHENYL (%)	59
TERPHENYL (%)	90
PHENOL-D6 (%)	12
2-FLUOROPHENOL (%)	24
2,4,6-TRIBROMOPHENOL (%)	39

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490101

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10
o-TOLUIDINE	<10
1,3,5-TRINITROBENZENE	<10
PYRIDINE	<10

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490101

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-26	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	18
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	54
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	TR
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	208
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10

TR - Compound detected at an unquantifiable trace level

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Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

ATI I.D. : 10490101

COMPOUNDS	RESULTS
SUBSTITUTED BENZENES	5000
SUBSTITUTED NAPHTHALENES	300
TOTAL ORGANIC ACIDS	10000

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 104901
PROJECT #	: 997-9008-28	DATE EXTRACTED	: 05/01/91
PROJECT NAME	: OCD PLAN	DATE ANALYZED	: 05/10/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10

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Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 104901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	<10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	41
2-FLUOROBIPHENYL (%)	49
TERPHENYL (%)	96
PHENOL-D6 (%)	57
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	40

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 104901
PROJECT #	: 997-9008-28	DATE EXTRACTED	: 05/01/91
PROJECT NAME	: OCD PLAN	DATE ANALYZED	: 05/10/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	<10
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	<50
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	<10
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	<10
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10

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Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10599911

DATE ANALYZED : 05/09/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	37	74	34	68	8
ACENAPHTHENE	<10	50	36	72	41	82	13
2,4-DINITROTOLUENE	<10	50	31	62	34	68	9
PYRENE	<10	56	63	126	57	114	10
N-NITROSO-DI-N-PROPYL AMINE	<10	50	38	76	43	86	12
1,4-DICHLOROBENZENE	<10	50	42	84	41	82	2
PENTACHLOROPHENOL	<50	100	88	88	89	89	1
PHENOL	<10	100	77	77	79	79	3
2-CHLOROPHENOL	<10	100	84	84	82	82	2
4-CHLORO-3-METHYLPHENOL	<10	100	80	80	75	75	6
4-NITROPHENOL	<50	100	40	40	47	47	16

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical**Technologies,**Inc.
Phoenix, Arizona

Chain of Custody

DATE 4-29-91 PAGE 1 OF 1

PROJECT MANAGER: Beth Proffitt

COMPANY: Giant Refining Co.
ADDRESS: Rt. 3 Box 7
Gallup, NM 87301

BILL TO:
COMPANY: Same
ADDRESS:

SAMPLERS: (Signature) [signature]
PHONE NUMBER (505) 722-0217

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	Alkalinity, Cl, pH, EC	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (601/8010) See Attached	Aromatic Hydrocarbons (602/8020) See Attached	MTBE	TDS, SO4	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Phenols	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Appendix IX 8270 See Attached	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	10 Total Metals See Attached	NUMBER OF CONTAINERS
OW-26	4-29-91	0830	Water	1		X				X	X		X			X			X								X	9 (8)

8 — 1 l Amber Fr Phenol Broken

PROJECT INFORMATION	
PROJECT NO:	—
PROJECT NAME:	OCD Plan
P.O. NO.	997-9008-28
SHIPPED VIA:	Fed Ex
SAMPLE DISPOSAL INSTRUCTIONS	☒ ATI ☐ RETURN

SAMPLE RECEIPT	
TOTAL NO. OF CONTAINERS	8
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	104901

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) ✓ (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See attachments for specific analytical details

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature] Time: 1100	Signature: Time:	Signature: Time:
Printed Name: Claud Rosendale Date: 4-29-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining Co.	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 1100
Printed Name: Date:	Printed Name: Date:	Printed Name: Marguerite [illegible] Date: 4/30/91
Company:	Company:	Analytical Technologies, Inc.

Table 5

GIANT REFINING GALLUP, NEW MEXICO

General Inorganics

Parameter	Units	Reporting Limit
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	5.0
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	5.0
Alkalinity, Carb. as CaCO3at pH 8.3	mg/L	5.0
Alkalinity, Hydrox. as CaCO3	mg/L	5.0
Chloride	mg/L	3.0
pH	units	--
Phenolics	mg/L	0.010
Sulfate	mg/L	5.0
Specific Conductance at 25 deg.C	umhos/c	1.0
Total Dissolved Solids	mg/L	10.0

Table 6

GIANT REFINING GALLUP, NEW MEXICO

METALS

~~DISSOLVED~~ METALS

Total

Parameter	Units	Reporting Limit
Arsenic	mg/L	0.0050
Barium	mg/L	0.010
Cadmium	mg/L	0.0050
Calcium	mg/L	0.20 (?)
Chromium	mg/L	0.010
Lead	mg/L	0.010
Manganese	mg/L	0.010
Selenium	mg/L	0.0050
Silver	mg/L	0.010
Sodium	mg/L	5.0

Table 7

GIANT REFINING GALLUP, NEW MEXICO

AROMATIC VOLATILE ORGANICS

Parameter	Units	Reporting Limit
Benzene	ug/L	0.50
Toluene	ug/L	0.50
Chlorobenzene	ug/L	0.50
Ethyl benzene	ug/L	0.50
Total xylenes	ug/L	1.0
1,3-Dichlorobenzene	ug/L	0.50
1,4-Dichlorobenzene	ug/L	0.50
1,2-Dichlorobenzene	ug/L	0.50

Table 8

GIANT REFINING GALLUP, NEW MEXICO

Halogenated Volatile Organics

Parameter	Units	Reporting Limit
Chloromethane	ug/L	5.0
Bromomethane	ug/L	5.0
Vinyl chloride	ug/L	1.0
Chloroethane	ug/L	5.0
Methylene chloride	ug/L	5.0
1,1-Dichloroethene	ug/L	0.50
1,1-Dichloroethane	ug/L	0.50
1,2-Dichloroethane	ug/L	1.0
trans-1,2-Dichloroethene	ug/L	0.50
Chloroform	ug/L	0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	0.50
1,1,1-Trichloroethane	ug/L	0.50
Carbon tetrachloride	ug/L	1.0
Bromodichloromethane	ug/L	1.0
1,2-Dichloropropane	ug/L	5.0
Bromoform	ug/L	1.0
1,1,2,2-Tetrachloroethane	ug/L	0.50
Tetrachloroethene	ug/L	2.0
Chlorobenzene		

Table 9

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
Acenaphthene	ug/L	10
Acenaphthylene	ug/L	10
Acetophenone	ug/L	10
2-Acetylaminofluorene	ug/L	10
4-Aminobiphenyl	ug/L	10
Aniline	ug/L	10
Anthracene	ug/L	10
Aramite	ug/L	10
Benzo(a)anthracene	ug/L	10
Benzo(b)fluoranthene	ug/L	10
Benzo(k)flouranthene	ug/L	10
Benzo(g,h,i)perylene	ug/L	10
Benzo(a)pyrene	ug/L	10
Benzyl alcohol	ug/L	10
bis(2-Chloroethoxy)-methane	ug/L	10
bis(2-Chloroethyl)ether	ug/L	10
bis(2-Chloroisopropyl) ether	ug/L	10
bis(2-Ethylhexyl) phthalate	ug/L	10
4-Bromophenyl phenyl ether	ug/L	10
Butyl benzyl phthalate	ug/L	10
2sec-Butyl-4,6-dinitro-phenol (Dinoseb)	ug/L	10
4-Chloroaniline	ug/L	10
4-Chloro-3-methylphenol	ug/L	10
2-Chloronaphthalene	ug/L	10
2-Chlorophenol	ug/L	10
4-Chlorophenyl phenyl ether	ug/L	10
o-Cresol	ug/L	10
m & p-Cresol(s)	ug/L	10
Chrysene	ug/L	10
Dibenz(a,h)anthracene	ug/L	10
Dibenzofuran	ug/L	10
Di-n-butyl phthalate	ug/L	10
1,2-Dichlorobenzene	ug/L	10
1,3-Dichlorobenzene	ug/L	10
1,4-Dichlorobenzene	ug/L	10

Table 9 cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
3,3'-Dichlorobenzidine	ug/L	20
2,4-Dichlorophenol	ug/L	10
2,6-Dichlorophenol	ug/L	10
Diethyl phthalate	ug/L	10
Dimethoate	ug/L	10
p-Dimethylaminoazobenzene	ug/L	10
7,12-Dimethylbenz-anthracene	ug/L	10
3,3'-Dimethylbenzidine	ug/L	10
a,a-Dimethylphen-ethylamine	ug/L	10
2,4-Dimethylphenol	ug/L	10
Dimethyl phthalate	ug/L	10
1,3-Dinitrobenzene	ug/L	10
4,6-Dinitro-2-methylphenol	ug/L	10
4,6-Dinitro-o-cresol	ug/L	50
2,4-Dinitrophenol	ug/L	50
2,4-Dinitrotoluene	ug/L	10
2,6-Dinitrotoluene	ug/L	10
Di-n-octyl phthalate	ug/L	10
Diphenylamine	ug/L	10
Disulfoton	ug/L	50
bis(2-Ethylhexyl) phthalate	ug/L	10
Ethyl methanesulfonate	ug/L	10
Famphur	ug/L	--
Flouranthene	ug/L	10
Flourene	ug/L	10
Hexachlorobenzene	ug/L	10
Hexachlorobutadiene	ug/L	10
Hexachlororcyclopentadiene	ug/L	10
Hexachloroethane		
Hexachlorophene	ug/L	--
Hexachloropropene	ug/L	10
Indeno(1,2,3-c,d)pyrene	ug/L	10
Isophorone	ug/L	10
Isosafrole	ug/L	20
Methapyrilene	ug/L	10
3-Methylcholanthrene	ug/L	10
Methyl methanesulfonate	ug/L	10
2-Methylnaphthalen	ug/L	10
Methyl parathion	ug/L	50
2-Methylphenol	ug/L	10
3/4-Methylphenol	ug/L	10
Methyl methacrylate	ug/L	10
Napthalene	ug/L	10

Table 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
1,4-Naphthaquinone	ug/L	10
1-Naphthylamine	ug/L	10
2-Naphthylamine	ug/L	10
2-Nitroaniline	ug/L	50
3-Nitroaniline	ug/L	50
4-Nitroaniline	ug/L	50
Nitrobenzene	ug/L	10
2-Nitrophenol	ug/L	10
4-Nitrophenol	ug/L	50
4-Nitroquinoline-1-oxide	ug/L	--
N-Nitroso-di-n-butylamine	ug/L	10
N-Nitrosodiethylamine	ug/L	10
N-Nitrosodimethylamine	ug/L	10
N-Nitrosodiphenylamine	ug/L	10
N-Nitroso-di-n-propylamine	ug/L	10
N-Nitrosomethylethylamine	ug/L	10
N-Nitrosomorpholine	ug/L	10
N-Nitrosopiperidine	ug/L	10
5-Nitro-o-toluidine	ug/L	10
N-Nitrosopyrrolidine	ug/L	10
Parathion	ug/L	50
Pentachlorobenzene	ug/L	10
Pentachlorethane	ug/L	10
Pentachloronitrobenzene	ug/L	50
Pentachlorophenol	ug/L	50
Phenacetin	ug/L	10
Phenanthrene	ug/L	10
Phenol	ug/L	10
4-Phenylenediamine	ug/L	--
Phorate	ug/L	100
2-Picoline	ug/L	10
Pronamide	ug/L	10
Pyrene	ug/L	10
Pyridine	ug/L	20
Safrole	ug/L	10
Sulfotepp	ug/L	50
1,2,4,5-Tetrachloro-benzene	ug/L	10
2,3,4,6-Tetrachlorophenol	ug/L	50
Thionazin	ug/L	50

Sole 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
sym-Trinitrobenzene	ug/L	10
2-Toluidine	ug/L	10
1,2,4-Trichlorobenzene	ug/L	10
2,4,5-Trichlorophenol	ug/L	50
0,0,0-Triethylphosphorothioate	ug/L	10
2,4,6-Trichlorophenol	ug/L	10
1,3,5-Trinitrobenzene	ug/L	10
Ethyl methacrylate	ug/L	10

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 104899

May 17, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: OCD Plan 997-9008-28

Attention: Claud Rosendale

On 04/30/91, Analytical Technologies, Inc. received a request to anayze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 04/30/91
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN REPORT DATE : 05/16/91
ATI I.D. : 104899

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-16	AQUEOUS	04/29/91
02	TRIP BLANK	AQUEOUS	04/23/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 104899

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN

DATE RECEIVED : 04/30/91
REPORT DATE : 05/16/91

PARAMETER	UNITS	01
CARBONATE (CACO3)	MG/L	14
BICARBONATE (CACO3)	MG/L	282
HYDROXIDE (CACO3)	MG/L	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	296
CHLORIDE	MG/L	170
CONDUCTIVITY, (UMHOS/CM)		1130
PH	UNITS	8.63
PHENOLICS, TOTAL	MG/L	<0.02
SULFATE	MG/L	32
TOTAL DISSOLVED SOLIDS	MG/L	710

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104899

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	10491101	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		126	125	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		126	125	1	NA	NA	NA
CHLORIDE	MG/L	10555503	390	390	0	1150	750	101
CONDUCTIVITY(UMHOS/CM)		10488708	993	997	0.4	NA	NA	NA
PH	UNITS	10563801	8.2	8.3	1	NA	NA	NA
PHENOLICS, TOTAL	MG/L	10550401	<0.02	<0.02	NA	0.25	0.25	100
SULFATE	MG/L	10488717	130	140	7	280	140	100
TOTAL DISSOLVED SOLIDS	MG/L	10490101	1100	1100	0	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 104899

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN

DATE RECEIVED : 04/30/91
REPORT DATE : 05/16/91

PARAMETER	UNITS	01
SILVER	MG/L	<0.010
ARSENIC	MG/L	<0.005
BARIUM	MG/L	0.043
CALCIUM	MG/L	5.4
CADMIUM	MG/L	0.008
CHROMIUM	MG/L	<0.010
MANGANESE	MG/L	0.022
SODIUM	MG/L	226
LEAD	MG/L	<0.002
SELENIUM	MG/L	0.030

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104899

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	10489603	<0.010	<0.010	NA	0.440	0.500	88
ARSENIC	MG/L	10551103	<0.005	<0.005	NA	0.038	0.050	76
BARIUM	MG/L	10488708	0.036	0.035	3	0.135	0.100	99
CALCIUM	MG/L	10491401	30.6	30.7	0.3	83.9	50.0	107
CADMIUM	MG/L	10489603	<0.005	0.007	NA	0.482	0.500	96
CHROMIUM	MG/L	10489603	<0.010	<0.010	NA	0.876	1.00	88
MANGANESE	MG/L	10488708	<0.010	<0.010	NA	0.097	0.100	97
SODIUM	MG/L	10491401	34.1	35.5	4	85.4	50.0	103
LEAD	MG/L	10489601	<0.002	<0.002	NA	0.046	0.050	92
SELENIUM	MG/L	10488707	<0.005	<0.005	NA	0.027	0.050	54

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10489901

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-16	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	0.8
1,2-DICHLOROETHANE	5.7
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	<0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	98
BROMOFLUOROBENZENE (%)	99

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10489902

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/23/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	<0.2
1,2-DICHLOROETHANE	<0.2
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	<0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	118
BROMOFLUOROBENZENE (%)	99

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

		ATI I.D.	: 104899
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/09/91
PROJECT #	: 997-9008-28	DATE ANALYZED	: 05/09/91
PROJECT NAME	: OCD PLAN	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	<0.2
1,2-DICHLOROETHANE	<0.2
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	<0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	106
BROMOFLUOROBENZENE (%)	98

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104899

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10489901

DATE ANALYZED : 05/10/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.2	20	20	100	21	105	5
TRICHLOROETHENE	<0.2	20	19	95	20	100	5
TETRACHLOROETHENE	<0.2	20	18	90	19	95	5
BENZENE	<0.5	20	18	90	19	95	5
BROMODICHLOROMETHANE	<0.2	20	19	95	19	95	0
CHLOROFORM	<0.2	20	19	95	19	95	0
1,1,1-TRICHLOROETHANE	<0.2	20	19	95	19	95	0
TOLUENE	<0.5	20	19	95	18	90	5
CHLOROBENZENE	<0.5	20	18	90	18	90	0
M-XYLENE	<0.5	20	18	90	18	90	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10489901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-16	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10

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Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10489901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	47
2-FLUOROBIPHENYL (%)	45
TERPHENYL (%)	88
PHENOL-D6 (%)	39
2-FLUOROPHENOL (%)	53
2,4,6-TRIBROMOPHENOL (%)	44

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10489901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10
o-TOLUIDINE	<10
1,3,5-TRINITROBENZENE	<10
PYRIDINE	<10

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10489901

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-16	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	<10
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	<50
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	<10
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	<10
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10

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Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 104899
PROJECT #	: 997-9008-28	DATE EXTRACTED	: 05/01/91
PROJECT NAME	: OCD PLAN	DATE ANALYZED	: 05/10/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 104899

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	<10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	41
2-FLUOROBIPHENYL (%)	49
TERPHENYL (%)	96
PHENOL-D6 (%)	57
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	40

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 104899
PROJECT #	: 997-9008-28	DATE EXTRACTED	: 05/01/91
PROJECT NAME	: OCD PLAN	DATE ANALYZED	: 05/10/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	<10
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	<50
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	<10
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	<10
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 104899

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
o-TOLUIDINE	<10
1,3,5-TRINITROBENZENE	<10
PYRIDINE	<10

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104899

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10599911

DATE ANALYZED : 05/09/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	37	74	34	68	8
ACENAPHTHENE	<10	50	36	72	41	82	13
2,4-DINITROTOLUENE	<10	50	31	62	34	68	9
PYRENE	<10	56	63	126	57	114	10
N-NITROSO-DI-N-PROPYL AMINE	<10	50	38	76	43	86	12
1,4-DICHLOROBENZENE	<10	50	42	84	41	82	2
PENTACHLOROPHENOL	<50	100	88	88	89	89	1
PHENOL	<10	100	77	77	79	79	3
2-CHLOROPHENOL	<10	100	84	84	82	82	2
4-CHLORO-3-METHYLPHENOL	<10	100	80	80	75	75	6
4-NITROPHENOL	<50	100	40	40	47	47	16

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 4-29-91 PAGE 1 OF 1

PROJECT MANAGER: Beth Proffitt

COMPANY: Giant Refining Co.
ADDRESS: Rt 3 Box 7
Gallup, NM 87301

BILL TO:
COMPANY: Same
ADDRESS:

Cloud Rosenlee — SAMPLERS: (Signature)
(505) 722-0217 — PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	Alkalinity, Cl, pH, Hg, EC	Diesel (MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020)	Chlorinated Hydrocarbons (8010) See Attached	Aromatic Hydrocarbons (8020) See Attached	MTBE	TDS Soil	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Phenols	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Appendix IX 8270 Attached	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	10 Day Turnaround 10 Days	NUMBER OF CONTAINERS
DW-16	4-29	9:15	Water	1		X				X	X		X			X			X								X	9
Trip Blank	4-23		Water	2						X																		1

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:	—	TOTAL NO. OF CONTAINERS	9
PROJECT NAME:	OCD Plan	CHAIN OF CUSTODY SEALS	Y
P.O. NO.	997-9003-28	INTACT?	Y
SHIPPED VIA:	Fed Ex	RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	104899
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See Attachments for Specific Analytical Parameters

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Cloud Rosenlee Time: 11:00	Signature: Time:	Signature: Time:
Printed Name: Cloud Rosenlee Date: 4-29-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Linda Eshelman Time: 10:55
Printed Name: Date:	Printed Name: Date:	Printed Name: Linda Eshelman Date: 4/30/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001

DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

1 bottle broke for 8270

Table 5

GIANT REFINING GALLUP, NEW MEXICO

General Inorganics

Parameter	Units	Reporting Limit
Alkalinity, Total as CaCO3 at pH 4.5	mg/L	5.0
Alkalinity, Bicarb. as CaCO3 at pH 4.5	mg/L	5.0
Alkalinity, Carb. as CaCO3at pH 8.3	mg/L	5.0
Alkalinity, Hydrox. as CaCO3	mg/L	5.0
Chloride	mg/L	3.0
pH	units	--
Phenolics	mg/L	0.010
Sulfate	mg/L	5.0
Specific Conductance at 25 deg.C	umhos/c	1.0
Total Dissolved Solids	mg/L	10.0

Table 6

GIANT REFINING GALLUP, NEW MEXICO

METALS

~~[redacted]~~ METALS

Tot+ 1

Parameter	Units	Reporting Limit
Arsenic	mg/L	0.0050
Barium	mg/L	0.010
Cadmium	mg/L	0.0050
Calcium	mg/L	0.20 (?)
Chromium	mg/L	0.010
Lead	mg/L	0.010
Manganese	mg/L	0.010
Selenium	mg/L	0.0050
Silver	mg/L	0.010
Sodium	mg/L	5.0

Table 7

GIANT REFINING GALLUP, NEW MEXICO

AROMATIC VOLATILE ORGANICS

Parameter	Units	Reporting Limit
Benzene	ug/L	0.50
Toluene	ug/L	0.50
Chlorobenzene	ug/L	0.50
Ethyl benzene	ug/L	0.50
Total xylenes	ug/L	1.0
1,3-Dichlorobenzene	ug/L	0.50
1,4-Dichlorobenzene	ug/L	0.50
1,2-Dichlorobenzene	ug/L	0.50

Table 8

GIANT REFINING GALLUP, NEW MEXICO

Halogenated Volatile Organics

Parameter	Units	Reporting Limit
Chloromethane	ug/L	5.0
Bromomethane	ug/L	5.0
Vinyl chloride	ug/L	1.0
Chloroethane	ug/L	5.0
Methylene chloride	ug/L	5.0
1,1-Dichloroethene	ug/L	0.50
1,1-Dichloroethane	ug/L	0.50
1,2-Dichloroethane	ug/L	1.0
trans-1,2-Dichloroethene	ug/L	0.50
Chloroform	ug/L	0.50
1,1,2-Trichloro-1,2,2-trifluoroethane	ug/L	0.50
1,1,1-Trichloroethane	ug/L	0.50
Carbon tetrachloride	ug/L	1.0
Bromodichloromethane	ug/L	1.0
1,2-Dichloropropane	ug/L	5.0
Bromoform	ug/L	1.0
1,1,2,2-Tetrachloroethane	ug/L	0.50
Tetrachloroethene	ug/L	2.0
Chlorobenzene		

Table 9

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	nits	Reporting Limit
Acenaphthene	ug/L	10
Acenaphthylene	ug/L	10
Acetophenone	ug/L	10
2-Acetylaminofluorene	ug/L	10
4-Aminobiphenyl	ug/L	10
Aniline	ug/L	10
Anthracene	ug/L	10
Aramite	ug/L	10
Benzo(a)anthracene	ug/L	10
Benzo(b)fluoranthene	ug/L	10
Benzo(k)flouranthene	ug/L	10
Benzo(g,h,i)perylene	ug/L	10
Benzo(a)pyrene	ug/L	10
Benzyl alcohol	ug/L	10
bis(2-Chloroethoxy)-methane	ug/L	10
bis(2-Chloroethyl)ether	ug/L	10
bis(2-Chloroisopropyl) ether	ug/L	10
bis(2-Ethylhexyl) phthalate	ug/L	10
4-Bromophenyl phenyl ether	ug/L	10
Butyl benzyl phthalate	ug/L	10
2sec-Butyl-4,6-dinitro-phenol (Dinoseb)	ug/L	10
4-Chloroaniline	ug/L	10
4-Chloro-3-methylphenol	ug/L	10
2-Chloronaphthalene	ug/L	10
2-Chlorophenol	ug/L	10
4-Chlorophenyl phenyl ether	ug/L	10
o-Cresol	ug/L	10
m & p-Cresol(s)	ug/L	10
Chrysene	ug/L	10
Dibenz(a,h)anthracene	ug/L	10
Dibenzofuran	ug/L	10
Di-n-butyl phthalate	ug/L	10
1,2-Dichlorobenzene	ug/L	10
1,3-Dichlorobenzene	ug/L	10
1,4-Dichlorobenzene	ug/L	10

Table 9 cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
3,3'-Dichlorobenzidine	ug/L	20
2,4-Dichlorophenol	ug/L	10
2,6-Dichlorophenol	ug/L	10
Diethyl phthalate	ug/L	10
Dimethoate	ug/L	10
p-Dimethylaminoazobenzene	ug/L	10
7,12-Dimethylbenz-anthracene	ug/L	10
3,3'-Dimethylbenzidine	ug/L	10
a,a-Dimethylphen-ethylamine	ug/L	10
2,4-Dimethylphenol	ug/L	10
Dimethyl phthalate	ug/L	10
1,3-Dinitrobenzene	ug/L	10
4,6-Dinitro-2-methylphenol	ug/L	10
4,6-Dinitro-o-cresol	ug/L	50
2,4-Dinitrophenol	ug/L	50
2,4-Dinitrotoluene	ug/L	10
2,6-Dinitrotoluene	ug/L	10
Di-n-octyl phthalate	ug/L	10
Diphenylamine	ug/L	10
Disulfoton	ug/L	50
bis(2-Ethylhexyl) phthalate	ug/L	10
Ethyl methanesulfonate	ug/L	10
Famphur	ug/L	--
Flouranthene	ug/L	10
Flourene	ug/L	10
Hexachlorobenzene	ug/L	10
Hexachlorobutadiene	ug/L	10
Hexachlororcyclopentadiene	ug/L	10
Hexachloroethane	ug/L	--
Hexachlorophene	ug/L	10
Hexachloropropene	ug/L	10
Indeno(1,2,3-c,d)pyrene	ug/L	10
Isophorone	ug/L	20
Isosafrole	ug/L	10
Methapyrilene	ug/L	10
3-Methylcholanthrene	ug/L	10
Methyl methanesulfonate	ug/L	10
2-Methylnaphthalen	ug/L	50
Methyl parathion	ug/L	10
2-Methylphenol	ug/L	10
3/4-Methylphenol	ug/L	10
Methyl methacrylate	ug/L	10
Napthalene	ug/L	10

Table 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
1,4-Naphthaquinone	ug/L	10
1-Naphthylamine	ug/L	10
2-Naphthylamine	ug/L	10
2-Nitroaniline	ug/L	50
3-Nitroaniline	ug/L	50
4-Nitroaniline	ug/L	50
Nitrobenzene	ug/L	10
2-Nitrophenol	ug/L	10
4-Nitrophenol	ug/L	50
4-Nitroquinoline-1-oxide	ug/L	--
N-Nitroso-di-n-butylamine	ug/L	10
N-Nitrosodiethylamine	ug/L	10
N-Nitrosodimethylamine	ug/L	10
N-Nitrosodiphenylamine	ug/L	10
N-Nitroso-di-n-propylamine	ug/L	10
N-Nitrosomethylethylamine	ug/L	10
N-Nitrosomorpholine	ug/L	10
N-Nitrosopiperidine	ug/L	10
5-Nitro-o-toluidine	ug/L	10
N-Nitrosopyrrolidine	ug/L	10
Parathion	ug/L	50
Pentachlorobenzene	ug/L	10
Pentachlorethane	ug/L	10
Pentachloronitrobenzene	ug/L	50
Pentachlorophenol	ug/L	50
Phenacetin	ug/L	10
Phenanthrene	ug/L	10
Phenol	ug/L	10
4-Phenylenediamine	ug/L	--
Phorate	ug/L	100
2-Picoline	ug/L	10
Pronamide	ug/L	10
Pyrene	ug/L	10
Pyridine	ug/L	20
Safrole	ug/L	10
Sulfotepp	ug/L	50
1,2,4,5-Tetrachloro-benzene	ug/L	10
2,3,4,6-Tetrachlorophenol	ug/L	50
Thionazin	ug/L	50

Table 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
sym-Trinitrobenzene	ug/L	10
2-Toluidine	ug/L	10
1,2,4-Trichlorobenzene	ug/L	10
2,4,5-Trichlorophenol	ug/L	50
0,0,0-Triethylphosphorothioate	ug/L	10
2,4,6-Trichlorophenol	ug/L	10
1,3,5-Trinitrobenzene	ug/L	10
Ethyl methacrylate	ug/L	10

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 104902

May 17, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: OCD Plan 997-9008-28

Attention: Claud Rosendale

On 04/30/91, Analytical Technologies, Inc. received a request to anayze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 04/30/91
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN REPORT DATE : 05/16/91
ATI I.D. : 104902

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-25	AQUEOUS	04/29/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	1

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 104902

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN

DATE RECEIVED : 04/30/91
REPORT DATE : 05/16/91

PARAMETER	UNITS	01
CARBONATE (CACO3)	MG/L	<1
BICARBONATE (CACO3)	MG/L	525
HYDROXIDE (CACO3)	MG/L	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	525
CHLORIDE	MG/L	91
CONDUCTIVITY, (UMHOS/CM)		1190
PH	UNITS	8.51
PHENOLICS, TOTAL	MG/L	<0.02
SULFATE	MG/L	27
TOTAL DISSOLVED SOLIDS	MG/L	780

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104902

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	10491101	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		126	125	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		126	125	1	NA	NA	NA
CHLORIDE	MG/L	10555503	390	390	0	1150	750	101
CONDUCTIVITY(UMHOS/CM)		10490201	1190	1240	4	NA	NA	NA
PH	UNITS	10563801	8.2	8.3	1	NA	NA	NA
PHENOLICS, TOTAL	MG/L	10550401	<0.02	<0.02	NA	0.25	0.25	100
SULFATE	MG/L	10488717	130	140	7	280	140	100
TOTAL DISSOLVED SOLIDS	MG/L	10490101	1100	1100	0	NA	NA	NA

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 104902

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN

DATE RECEIVED : 04/30/91
REPORT DATE : 05/16/91

PARAMETER	UNITS	01
SILVER	MG/L	<0.010
ARSENIC	MG/L	<0.005
BARIUM	MG/L	0.148
CALCIUM	MG/L	15.6
CADMIUM	MG/L	0.008
CHROMIUM	MG/L	<0.010
MANGANESE	MG/L	0.032
SODIUM	MG/L	266
LEAD	MG/L	0.002
SELENIUM	MG/L	<0.005

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN ATI I.D. : 104902

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	10489603	<0.010	<0.010	NA	0.440	0.500	88
ARSENIC	MG/L	10551103	<0.005	<0.005	NA	0.038	0.050	76
BARIUM	MG/L	10489603	0.041	0.040	2	0.962	1.00	92
CALCIUM	MG/L	10491401	30.6	30.7	0.3	83.9	50.0	107
CADMIUM	MG/L	10489603	<0.005	0.007	NA	0.482	0.500	96
CHROMIUM	MG/L	10489603	<0.010	<0.010	NA	0.876	1.00	88
MANGANESE	MG/L	10489603	2.32	2.33	0.4	3.26	1.00	94
SODIUM	MG/L	10491401	34.1	35.5	4	85.4	50.0	103
LEAD	MG/L	10490101	0.009	0.009	0	0.057	0.050	96
SELENIUM	MG/L	10490101	<0.005	<0.005	NA	0.030	0.050	60

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 100$$

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10490201

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-25	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	1.4
1,2-DICHLOROETHANE	21.5
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	35.8
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	106
BROMOFLUOROBENZENE (%)	100

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

		ATI I.D.	: 104902
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/09/91
PROJECT #	: 997-9008-28	DATE ANALYZED	: 05/09/91
PROJECT NAME	: OCD PLAN	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.2
BROMOFORM	<0.2
BROMOMETHANE	<0.2
CARBON TETRACHLORIDE	<0.2
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.2
CHLOROFORM	<0.2
CHLOROMETHANE	<0.2
DIBROMOCHLOROMETHANE	<0.2
1,3-DICHLOROBENZENE	<0.5
2-CHLOROETHLYL VINYL ETHER	<0.5
1,2 & 1,4-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.2
1,1-DICHLOROETHANE	<0.2
1,2-DICHLOROETHANE	<0.2
1,1-DICHLOROETHENE	<0.2
1,2-DICHLOROETHENE (TOTAL)	<0.2
1,2-DICHLOROPROPANE	<0.2
CIS-1,3-DICHLOROPROPENE	<0.2
TRANS-1,3-DICHLOROPROPENE	<0.2
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<0.2
TETRACHLOROETHENE	<0.2
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.2
1,1,2-TRICHLOROETHANE	<0.2
TRICHLOROETHENE	<0.2
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.2
TOTAL XYLENES	<0.5
TRICHLOROFLUOROMETHANE	<0.2

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	106
BROMOFLUOROBENZENE (%)	98

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104902

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 8010/8020)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10489901

DATE ANALYZED : 05/10/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<0.2	20	20	100	21	105	5
TRICHLOROETHENE	<0.2	20	19	95	20	100	5
TETRACHLOROETHENE	<0.2	20	18	90	19	95	5
BENZENE	<0.5	20	18	90	19	95	5
BROMODICHLOROMETHANE	<0.2	20	19	95	19	95	0
CHLOROFORM	<0.2	20	19	95	19	95	0
1,1,1-TRICHLOROETHANE	<0.2	20	19	95	19	95	0
TOLUENE	<0.5	20	19	95	18	90	5
CHLOROBENZENE	<0.5	20	18	90	18	90	0
M-XYLENE	<0.5	20	18	90	18	90	0

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490201

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-25	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490201

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	<10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	66
2-FLUOROBIPHENYL (%)	60
TERPHENYL (%)	114
PHENOL-D6 (%)	52
2-FLUOROPHENOL (%)	60
2,4,6-TRIBROMOPHENOL (%)	61

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490201

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10
o-TOLUIDINE	<10
1,3,5-TRINITROBENZENE	<10
PYRIDINE	<10

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 10490201

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/91
PROJECT #	: 997-9008-28	DATE RECEIVED	: 04/30/91
PROJECT NAME	: OCD PLAN	DATE EXTRACTED	: 05/01/91
CLIENT I.D.	: OW-25	DATE ANALYZED	: 05/11/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	<10
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	<50
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	<10
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	<10
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10

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Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 104902
PROJECT #	: 997-9008-28	DATE EXTRACTED	: 05/01/91
PROJECT NAME	: OCD PLAN	DATE ANALYZED	: 05/10/91
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
ACETOPHENONE	<10
2-ACETYLAMINOFLUORENE	<10
a,a-DIMETHYLPHENETHYLAMINE	<10
4-AMINOBIPHENYL	<10
ARAMITE	<50
CHLOROBENZILATE	<10
DIALLATE	<10
2,6-DICHLOROPHENOL	<10
DIMETHOATE	<10
p-(DIMETHYLAMINO)AZOBENZENE	<10
7,12-DIMETHYLBENZO(a)ANTHRACENE	<10
3,3'-DIMETHYLBENZIDINE	<10
m-DINITROBENZENE	<10
DIPHENYLAMINE	<10
ETHYL METHANESULFONATE	<10
HEXACHLOROPHENE	<10
HEXACHLOROPROPENE	<10
ISOSAFROLE	<10
METHAPYRILENE	<10
3-METHYLCHOLANTHRENE	<10
METHYL METHANESULFONATE	<10
3-METHYLPHENOL (m-CRESOL)	<10
1,4-NAPHTHOQUINONE	<10
1-NAPHTHYLAMINE	<10
2-NAPHTHYLAMINE	<10
5-NITRO-O-TOLUIDINE	<10
4-NITROQUINOLINE-1-OXIDE	<10
N-NITROSODIETHYLAMINE	<10
N-NITROSODI-BUTYLAMINE	<10
N-NITROSOMETHYLETHYLAMINE	<200
N-NITROSOMORPHOLINE	<10
N-NITROSOPIPERIDINE	<10
N-NITROSOPYRROLIDINE	<10
PENTACHLOROBENZENE	<10
PENTACHLORONITROBENZENE	<10
PENTACHLOROETHANE	<10
PHENACETIN	<10
p-PHENYLENEDIAMINE	<10
2-PICOLINE	<10
PRONAMIDE	<10
SAFROLE	<10
1,2,4,5-TETRACHLOROBENZENE	<10
2,3,4,6-TETRACHLOROPHENOL	<10

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 104902

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
FLUORENE	<10
4-NITROANILINE	<50
4,6-DINITRO-2-METHYLPHENOL	<50
N-NITROSODIPHENYLAMINE	<10
4-BROMOPHENYL-PHENYLETHER	<10
HEXACHLOROBENZENE	<10
PENTACHLOROPHENOL	<50
PHENANTHRENE	<10
ANTHRACENE	<10
DI-N-BUTYLPHTHALATE	<10
FLUORANTHENE	<10
BENZIDINE	<100
PYRENE	<10
BUTYLBENZYLPHTHALATE	<10
3,3'-DICHLOROBENZIDINE	<20
BENZO(a)ANTHRACENE	<10
BIS(2-ETHYLHEXYL)PHTHALATE	<10
CHRYSENE	<10
DI-N-OCTYLPHTHALATE	<10
BENZO(b)FLUORANTHENE	<10
BENZO(k)FLUORANTHENE	<10
BENZO(a)PYRENE	<10
INDENO(1,2,3-cd)PYRENE	<10
DIBENZO(a,h)ANTHRACENE	<10
BENZO(g,h,i)PERYLENE	<10

SURROGATE PERCENT RECOVERIES

NITROBENZENE-D5 (%)	41
2-FLUOROBIPHENYL (%)	49
TERPHENYL (%)	96
PHENOL-D6 (%)	57
2-FLUOROPHENOL (%)	71
2,4,6-TRIBROMOPHENOL (%)	40

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 104902

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

COMPOUNDS	RESULTS
o-TOLUIDINE	<10
1,3,5-TRINITROBENZENE	<10
PYRIDINE	<10

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

		ATI I.D.	: 104902
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/01/91
PROJECT #	: 997-9008-28	DATE ANALYZED	: 05/10/91
PROJECT NAME	: OCD PLAN	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
N-NITROSODIMETHYLAMINE	<10
PHENOL	<10
ANILINE	<10
BIS(2-CHLOROETHYL)ETHER	<10
2-CHLOROPHENOL	<10
1,3-DICHLOROBENZENE	<10
1,4-DICHLOROBENZENE	<10
BENZYL ALCOHOL	<10
1,2-DICHLOROBENZENE	<10
2-METHYLPHENOL	<10
BIS(2-CHLOROISOPROPYL)ETHER	<10
4-METHYLPHENOL	<10
N-NITROSO-DI-N-PROPYLAMINE	<10
HEXACHLOROETHANE	<10
NITROBENZENE	<10
ISOPHORONE	<10
2-NITROPHENOL	<10
2,4-DIMETHYLPHENOL	<10
BENZOIC ACID	<50
BIS(2-CHLOROETHOXY)METHANE	<10
2,4-DICHLOROPHENOL	<10
1,2,4-TRICHLOROBENZENE	<10
NAPHTHALENE	<10
4-CHLOROANILINE	<10
HEXACHLOROBUTADIENE	<10
4-CHLORO-3-METHYLPHENOL	<10
2-METHYLNAPHTHALENE	<10
HEXACHLOROCYCLOPENTADIENE	<10
2,4,6-TRICHLOROPHENOL	<10
2,4,5-TRICHLOROPHENOL	<50
2-CHLORONAPHTHALENE	<10
2-NITROANILINE	<50
DIMETHYLPHTHALATE	<10
ACENAPHTHYLENE	<10
3-NITROANINLINE	<50
ACENAPHTHENE	<10
2,4-DINITROPHENOL	<50
4-NITROPHENOL	<50
DIBENZOFURAN	<10
2,4-DINITROTOLUENE	<10
2,6-DINITROTOLUENE	<10
DIETHYLPHTHALATE	<10
4-CHLOROPHENYL-PHENYLETHER	<10

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Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 104902

TEST : SEMI-VOLATILE ORGANICS (EPA 8270)

CLIENT : GIANT REFINING CO.
PROJECT # : 997-9008-28
PROJECT NAME : OCD PLAN
REF I.D. : 10599911

DATE ANALYZED : 05/09/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,2,4-TRICHLOROBENZENE	<10	50	37	74	34	68	8
ACENAPHTHENE	<10	50	36	72	41	82	13
2,4-DINITROTOLUENE	<10	50	31	62	34	68	9
PYRENE	<10	56	63	126	57	114	10
N-NITROSO-DI-N-PROPYL AMINE	<10	50	38	76	43	86	12
1,4-DICHLOROBENZENE	<10	50	42	84	41	82	2
PENTACHLOROPHENOL	<50	100	88	88	89	89	1
PHENOL	<10	100	77	77	79	79	3
2-CHLOROPHENOL	<10	100	84	84	82	82	2
4-CHLORO-3-METHYLPHENOL	<10	100	80	80	75	75	6
4-NITROPHENOL	<50	100	40	40	47	47	16

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 4-29-91 PAGE 1 OF 1

PROJECT MANAGER: Beth Griffith

COMPANY: Giant Refining Co.
ADDRESS: Rt 3 Box 7
Gallup, NM 87301

BILL TO:
COMPANY: Same
ADDRESS:

Clark Bendo
SAMPLERS: (Signature)

(505) 722-0217
PHONE NUMBER

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	Alkalinity, Cl, pH, EC	Diesel/Gasoline/BTXE (MOD 8015/8020) (MOD 8015) Gas/Diesel	BTXE (8020)	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	EDS 504	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Metals	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Aggenalix TX 8270 SPP Stand	SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)	The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)	10 Total Metals Sr Analyzed	NUMBER OF CONTAINERS
OW-25	4-29-91	1000	Water	1		X			X	X		X			X			X									X	9

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:	—	TOTAL NO. OF CONTAINERS	9
PROJECT NAME:	OCD Plan	CHAIN OF CUSTODY SEALS	Y
P.O. NO.	997-9008-28	INTACT?	Y
SHIPPED VIA:	Fed Ex	RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	104902
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments: See Attachments for specific analytical parameters

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Clark Bendo Time: 11:00	Signature: Time:	Signature: Time:
Printed Name: Clark Bendo Date: 4-29-91	Printed Name: Date:	Printed Name: Date:
Company: Giant Refining	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Linda Eshelman Time: 10:55
Printed Name: Date:	Printed Name: Date:	Printed Name: Linda Eshelman Date: 4/30/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001

DISTRIBUTION: White, Canary - ANALYTICAL TECHNOLOGIES, INC. • Pink - ORIGINATOR

Table 9

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
Acenaphthene	ug/L	10
Acenaphthylene	ug/L	10
Acetophenone	ug/L	10
2-Acetylaminofluorene	ug/L	10
4-Aminobiphenyl	ug/L	10
Aniline	ug/L	10
Anthracene	ug/L	10
Aramite	ug/L	10
Benzo(a)anthracene	ug/L	10
Benzo(b)fluoranthene	ug/L	10
Benzo(k)flouranthene	ug/L	10
Benzo(g,h,i)perylene	ug/L	10
Benzo(a)pyrene	ug/L	10
Benzyl alcohol	ug/L	10
bis(2-Chloroethoxy)-methane	ug/L	10
bis(2-Chloroethyl)ether	ug/L	10
bis(2-Chloroisopropyl) ether	ug/L	10
bis(2-Ethylhexyl) phthalate	ug/L	10
4-Bromophenyl phenyl ether	ug/L	10
Butyl benzyl phthalate	ug/L	10
2sec-Butyl-4,6-dinitro-phenol (Dinoseb)	ug/L	10
4-Chloroaniline	ug/L	10
4-Chloro-3-methylphenol	ug/L	10
2-Chloronaphthalene	ug/L	10
2-Chlorophenol	ug/L	10
4-Chlorophenyl phenyl ether	ug/L	10
o-Cresol ok 2-methylphenol	ug/L	10
m & p-Cresol(s)	ug/L	10
Chrysene	ug/L	10
Dibenz(a,h)anthracene	ug/L	10
Dibenzofuran	ug/L	10
Di-n-butyl phthalate	ug/L	10
1,2-Dichlorobenzene	ug/L	10
1,3-Dichlorobenzene	ug/L	10
1,4-Dichlorobenzene	ug/L	10

Table 9 cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter		Units	Reporting Limit
3,3'-Dichlorobenzidine		ug/L	20
2,4-Dichlorophenol		ug/L	10
2,6-Dichlorophenol		ug/L	10
Diethyl phthalate		ug/L	10
Dimethoate		ug/L	10
p-Dimethylaminoazobenzene		ug/L	10
7,12-Dimethylbenz-anthracene		ug/L	10
3,3'-Dimethylbenzidine		ug/L	10
a,a-Dimethylphen-ethylamine		ug/L	10
2,4-Dimethylphenol		ug/L	10
Dimethyl phthalate		ug/L	10
1,3-Dinitrobenzene		ug/L	10
4,6-Dinitro-2-methylphenol	4,6 Dinitro-2-methylphenol	ug/L	10
4,6-Dinitro-o-cresol		ug/L	50
2,4-Dinitrophenol		ug/L	50
2,4-Dinitrotoluene		ug/L	10
2,6-Dinitrotoluene		ug/L	10
Di-n-octyl phthalate		ug/L	10
Diphenylamine		ug/L	10
Disulfoton	X	ug/L	50
Bis(2-Ethylhexyl) phthalate		ug/L	10
Ethyl methanesulfonate		ug/L	10
Famphur		ug/L	--
Flouranthene	X	ug/L	10
Flourene		ug/L	10
Hexachlorobenzene		ug/L	10
Hexachlorobutadiene		ug/L	10
Hexachlorocyclopentadiene		ug/L	10
Hexachloroethane			
Hexachlorophene		ug/L	--
Hexachloropropene		ug/L	10
Indeno(1,2,3-c,d)pyrene		ug/L	10
Isophorone		ug/L	10
Isosafrole		ug/L	20
Methapyrilene		ug/L	10
3-Methylcholanthrene		ug/L	10
Methyl methanesulfonate		ug/L	10
2-Methylnaphthalen		ug/L	10
Methyl parathion	X	ug/L	50
2-Methylphenol		ug/L	10
3/4-Methylphenol		ug/L	10
Methyl methacrylate. VOA		ug/L	10
Napthalene		ug/L	10

Table 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
1,4-Naphthaquinone	ug/L	10
1-Naphthylamine	ug/L	10
2-Naphthylamine	ug/L	10
2-Nitroaniline	ug/L	50
3-Nitroaniline	ug/L	50
4-Nitroaniline	ug/L	50
Nitrobenzene	ug/L	10
2-Nitrophenol	ug/L	10
4-Nitrophenol ✓ OK	ug/L	50
4-Nitroquinoline-1-oxide	ug/L	--
N-Nitroso-di-n-butylamine	ug/L	10
N-Nitrosodiethylamine	ug/L	10
N-Nitrosodimethylamine	ug/L	10
N-Nitrosodiphenylamine	ug/L	10
N-Nitroso-di-n-propylamine	ug/L	10
N-Nitrosomethylethylamine	ug/L	10
N-Nitrosomorpholine	ug/L	10
N-Nitrosopiperidine	ug/L	10
5-Nitro-o-toluidine	ug/L	10
N-Nitrosopyrrolidine	ug/L	10
Parathion	ug/L	50
Pentachlorobenzene	ug/L	10
Pentachloroethane	ug/L	10
Pentachloronitrobenzene	ug/L	50
Pentachlorophenol	ug/L	50
Phenacetin	ug/L	10
Phenanthrene	ug/L	10
Phenol	ug/L	10
4-Phenylenediamine	ug/L	--
Phorate	ug/L	100
2-Picoline	ug/L	10
Pronamide	ug/L	10
Pyrene	ug/L	10
Pyridine - OK ✓ - OK 5 ppb	ug/L	20
Safrole	ug/L	10
Sulfotepp — Thiophosphoric acid tetraethyl ester	ug/L	50
1,2,4,5-Tetrachlorobenzene	ug/L	10
2,3,4,6-Tetrachlorophenol	ug/L	50
Thionazin 0,0-Diethyl O-2-pyrazinyl phosphorothioate	ug/L	50

these 2 compounds are part of App IX 8140 list in the library

Table 9 Cont.

GIANT REFINING GALLUP, NEW MEXICO

APPENDIX IX SEMIVOLATILE ORGANICS

Parameter	Units	Reporting Limit
sym-Trinitrobenzene	ug/L	10
2-Toluidine	ug/L	10
1,2,4-Trichlorobenzene	ug/L	10
2,4,5-Trichlorophenol	ug/L	50
O,O,O-Triethylphosphorothioate	ug/L	10
2,4,6-Trichlorophenol	ug/L	10
1,3,5-Trinitrobenzene	ug/L	10
Ethyl methacrylate VOA	ug/L	10

Analytical Technologies, Inc. 9830 S. 51st Street Suite B-113 Phoenix, AZ 85044 (602) 496-4400

ATI I.D. 105575

May 14, 1991

Giant Refining Company
Route 3, P.O. Box 7
Gallup, NM 87301

Project Name/Number: OCD

Attention: Claud Rosendale

On 05/04/91, Analytical Technologies, Inc. received a request to analyze aqueous sample(s). The sample(s) were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

If you have any questions or comments, please do not hesitate to contact us at (602) 496-4400.

Elizabeth Proffitt
Senior Project Manager

M. Barry for
Robert V. Woods
Laboratory Manager

RVW:clf
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 05/04/91
PROJECT # : (NONE)
PROJECT NAME : OCD REPORT DATE : 05/13/91

ATI I.D. : 105575

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	AER. LAGOON #1 EFF	AQUEOUS	05/03/91
02	AER. LAGOON #2 EFF	AQUEOUS	05/03/91

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	2

ATI STANDARD DISPOSAL PRACTICE

The samples from this project will be disposed of in thirty (30) days from the date of this report. If an extended storage period is required, please contact our sample control department before the scheduled disposal date.

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10557501

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/03/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: AER. LAGOON #1 EFF	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 5

COMPOUNDS	RESULTS
BENZENE	200
TOLUENE	320
ETHYLBENZENE	31
TOTAL XYLENES	200
METHYL-t-BUTYL ETHER	<12.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	93

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 10557502

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 05/03/91
PROJECT #	: (NONE)	DATE RECEIVED	: 05/04/91
PROJECT NAME	: OCD	DATE EXTRACTED	: N/A
CLIENT I.D.	: AER. LAGOON #2 EFF	DATE ANALYZED	: 05/09/91
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 5

COMPOUNDS	RESULTS
BENZENE	26
TOLUENE	40
ETHYLBENZENE	5.2
TOTAL XYLENES	40
METHYL-t-BUTYL ETHER	<12.5
SURROGATE PERCENT RECOVERIES	
BROMOFLUOROBENZENE (%)	86

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : BTEX & MTBE (EPA METHOD 602)

		ATI I.D.	: 105575
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/09/91
PROJECT #	: (NONE)	DATE ANALYZED	: 05/09/91
PROJECT NAME	: OCD	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
TOLUENE	<0.5
ETHYLBENZENE	<0.5
TOTAL XYLENES	<0.5
METHYL-t-BUTYL ETHER	<2.5

SURROGATE PERCENT RECOVERIES

BROMOFLUOROBENZENE (%)	100

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 105575

TEST : BTEX & MTBE (EPA METHOD 602)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : OCD
REF I.D. : 10599905

DATE ANALYZED : 05/06/91
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
BENZENE	<0.5	20	20	100	19	95	5
TOLUENE	<0.5	20	20	100	19	95	5
ETHYLBENZENE	<0.5	20	20	100	18	90	11
TOTAL XYLENES	<0.5	60	59	98	54	92	9
METHYL-t-BUTYL ETHER	<2.5	40	41	103	38	95	8

$$\% \text{ Recovery} = \frac{(\text{Spike Sample Result} - \text{Sample Result})}{\text{Spike Concentration}} \times 100$$

$$\text{RPD (Relative \% Difference)} = \frac{(\text{Spiked Sample Result} - \text{Duplicate Spike Sample Result})}{\text{Average of Spiked Sample}} \times 100$$

Analytical Technologies, Inc.
Phoenix, Arizona

Chain of Custody

DATE 5-3-91 PAGE 1 OF 1

PROJECT MANAGER: Beth Proffitt

COMPANY: Giant Refining Co.
ADDRESS: Rt 3 Box 7
Gallup, N.M. 87301

BILL TO:
COMPANY: Same
ADDRESS:

Lynn Shelton
SAMPLERS: (Signature)

505 722-0227
PHONE NUMBER

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
Aer Lagoon #1 Eff	5-3-91	0815	water	1
Aer Lagoon #2 Eff	5-3-91	0830	water	2

ANALYSIS REQUEST

	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE (MOD 8015/8020)	BTXE (8020) TCLP	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	MTBE	Pesticides/PCB (608/8080)	Herbicides (615/8150)		Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)			SDWA Primary Standards	SDWA Secondary Standards	SDWA Volatiles (502.1/503.1)		The 13 Priority Pollutant Metals	The 8 EP Tox Metals by EP Tox Prep. (1310)	The 8 EP Tox Metals by Total Digestion	The 8 EP Tox Metals by TCLP (1311)			NUMBER OF CONTAINERS
Aer Lagoon #1 Eff				X																					2
Aer Lagoon #2 Eff				X																					2

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NO:	—	TOTAL NO. OF CONTAINERS	4
PROJECT NAME:	CCD	CHAIN OF CUSTODY SEALS	N
P.O. NO.	01413	INTACT?	Y
SHIPPED VIA:	Fed. Exp.	RECEIVED GOOD COND./COLD	Y
SAMPLE DISPOSAL INSTRUCTIONS		LAB NUMBER	105575
☒ ATI ☐ RETURN			

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

TAT: (NORMAL) X (RUSH) ☐ 24 ☐ 48 ☐ 72 ☐ 1 WEEK

Comments:

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 0930	Signature: Time:	Signature: Time:
Printed Name: Date 5-3-91	Printed Name: Date	Printed Name: Date
Company: Giant Refining	Company:	Company:
RECEIVED BY: 1.	**RECEIVED BY: 2.**	**RECEIVED BY: (LAB) 3.**
Signature: Time:	Signature: Time:	Signature: Time: 9:30
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 5/4/91
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619)458-9141 • Phoenix (602)438-1530 • Seattle (206)228-8335 • Pensacola (904)474-1001

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