GW - 32

REPORTS

YEAR(S):

1993 - GW REPORT

Analytical **Technologies,** Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **304357**

May 5, 1993

Giant Refining
P.O. Box 256
Farmington, NM 87499

Project Name/Number: OCD QTR SPLG

Attention: Lynn Shelton

On **04/14/93**, Analytical Technologies, Inc. received a request to analyze **aqueous** samples. The samples 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.

Total Organic Carbon analyses were performed by ATI, San Diego.

Biochemical Oxygen Demand analyses were performed by Aquatic Consulting & Testing, Inc.

All other analyses were performed by ATI, Phoenix.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski
Assistant Project Manager

E. Proffitt for:
Gregory R. Jordan
Laboratory Manager

GJ:td
Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 04/14/93
PROJECT # : (NONE)
PROJECT NAME : OCD QTR SPLG REPORT DATE : 05/05/93
ATI I.D. : 304357

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	API EFFLUENT	AQUEOUS	04/13/93
02	AERATION #2 EFF	AQUEOUS	04/13/93

----- 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. : 304357

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : OCD QTR SPLG

DATE RECEIVED : 04/14/93
REPORT DATE : 05/05/93

PARAMETER	UNITS	01	02
BIOCHEMICAL OXYGEN DEMAND	MG/L	580	375
CHEMICAL OXYGEN DEMAND	MG/L	630	560
PH (EPA 150.1)	UNITS	2.5	7.1
T. DISSOLVED SOLIDS (160.1)	MG/L	5000	5300
TOTAL ORGANIC CARBON	MG/L	110	97.0

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : OCD QTR SPLG ATI I.D. : 304357

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
BIOCHEMICAL OXYGEN DEM	MG/L	30470501	80	85	6	NA	NA	NA
CHEMICAL OXYGEN DEMAND	MG/L	30472901	450	460	2	720	300	90
PH	UNITS	30480103	7.5	7.4	1	NA	NA	NA
TOTAL DISSOLVED SOLIDS	MG/L	30475303	1100	1100	0	NA	NA	NA
TOTAL ORGANIC CARBON	MG/L	30415504	1.9	1.6	17	18.1	20.0	81

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

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

Analytical**Technologies,**Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 4-13-93 PAGE 1 OF 1

ATI LAB I.D. 30357

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER: LYNN SHELTON

COMPANY: GIANT REFINING CO.
ADDRESS: I40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 0227
FAX: (505) 722 0210

BILL TO: SAME
COMPANY: R+S BOX 7
ADDRESS: GALLUP, NM 87301

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	BOD	COD	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	pH	TDS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	TOC	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal			The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
API EFFLUENT	4-13-93	8:00	W	1					X	X				X	X						X												4
AERATION #2 EFF	4-13-93	8:20	W	2					X	X				X	X						X												4

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: OCD QTR SPLG
P.O. NO.: 997 9009 14
SHIPPED VIA: FEDEX

SAMPLE RECEIPT

NO. CONTAINERS	8
CUSTODY SEALS	(Y) N / NA
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments: 4/M Fed Ex 951 RT

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time: 11:00AM	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 4-13-93	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722 0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 951
Printed Name: Date:	Printed Name: Date:	Printed Name: Date:
Company:	Company:	Analytical Technologies, Inc. 4/14/93

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

Analytical Technologies, Inc.
Phoenix, Arizona

Ir rlab

Chain of Custody

DATE 4/14/93 PAGE 1 OF 1

10109

NETWORK PROJECT MANAGER: REBECCA TUBESZEWSKI

COMPANY: Analytical Technologies, Inc.
ADDRESS: 9830 S. 51st Street, Suite B-113
Phoenix, Arizona 85044

CLIENT PROJECT MANAGER:
mB

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
304357-1	4/13/93	800	AQ	596
-2	4/13/93	820	AQ	597

ANALYSIS REQUEST

TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE, CO, N_2	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
												X							1
												X							1

PROJECT INFORMATION

PROJECT NUMBER: 304357
PROJECT NAME:
QC LEVEL: STD. IV
TAT: STANDARD RUSH!
ATI WORKORDER #

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	2
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	93-0595, -0596

DUE DATE: 4/27
TIME:

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
AQUATIC	X

RELINQUISHED BY: 1.
Signature: R. Tubeszewski Time: 11:15
Printed Name: R. Tubeszewski Date: 4/14/93
Analytical Technologies, Inc.
Phoenix

RECEIVED BY: 1.
Signature: Harry Gilgert Time: 11:15
Printed Name: HARV GILGERT Date: 4-14-93
Company: TSD

RELINQUISHED BY: 2.
Signature: Harry Gilgert Time: 11:30
Printed Name: HARV GILGERT Date: 4-14-93
Company: TSD

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Date: 4/14/93
Company: ATI @1130

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001

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

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **306377**

July 12, 1993

Giant Refining
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: QTR OCD

Attention: Lynn Shelton

On **06/22/93**, Analytical Technologies, Inc. received a request to analyze **aqueous** samples. The samples 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.

Biochemical Oxygen Demand analysis was performed by Aquatic Consulting & Testing.

Total Organic Carbon analyses were performed by ATI, Fort Collins.

All other analyses were performed by ATI, Phoenix.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski
Assistant Project Manager

Gregory R. Jordan
Laboratory Manager

GJ:td

Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING
PROJECT # : (NONE)
PROJECT NAME: QTR OCD

DATE RECEIVED: 06/22/93
REPORT DATE : 07/12/93

ATI I.D.: 306377

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	API EFFLUENT	AQUEOUS	06/21/93
02	AER LAGOON EFF	AQUEOUS	06/21/93

----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

CLIENT : GIANT REFINING
PROJECT # : (NONE)
PROJECT NAME: QTR OCD

ATI I.D. : 306377
DATE RECEIVED: 06/22/93
REPORT DATE : 07/12/93

PARAMETER	UNITS	01	02
BIOCHEMICAL OXYGEN DEMAND	MG/L	392	490
CHEMICAL OXYGEN DEMAND	MG/L	690	650
PH (EPA 150.1)	UNITS	8.3	7.2
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	18000	5800
TOTAL ORGANIC CARBON	MG/L	130	200

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING
PROJECT # : (NONE) ATI I.D.: 306377
PROJECT NAME: QTR OCD

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
BIOCHEMICAL OXYGEN DEMAND	MG/L	30637701	392	383	2	NA	NA	NA
CHEMICAL OXYGEN DEMAND	MG/L	30698601	360	350	3	650	300	97
PH	UNITS	30637701	8.3	8.3	0	NA	NA	NA
TOTAL DISSOLVED SOLIDS	MG/L	30637701	18000	18000	0	NA	NA	NA
TOTAL ORGANIC CARBON	MG/L	30637701	130	130	0	NA	NA	NA
TOTAL ORGANIC CARBON	MG/L	30637702	200	200	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., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 6-21-93 PAGE 1 OF 1

ATI LAB I.D. 30a347

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER:

COMPANY: GIANT REFINING CO.
ADDRESS: I-40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 0227
FAX: (505) 722 0210

BILL TO:
COMPANY: SAME
ADDRESS: RT 3 BOX 7
GALLUP, NM 87301

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
API EFFLUENT	6-21		H_2O	01
AER LAGOON EFF	6-21		H_2O	02

ANALYSIS REQUEST

Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)		TOC	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.			Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)			SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal			The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
					X																						2
					X																						2

PROJECT INFORMATION

PROJ. NO.: —
PROJ. NAME: QTR OCD
P.O. NO.: 997 9009 14
SHIPPED VIA: FEDEX

SAMPLE RECEIPT

NO. CONTAINERS	4
CUSTODY SEALS	Y / N / (NA)
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments: Custody Seal on Cooler

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time: 3:00	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 6-21-93	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722 0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY:(LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 0940
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 6/22/93
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

Analytical Technologies, Inc., Albuquerque, NM

San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 6-21-93 PAGE 1 OF 1

ATI LAB I.D. 306377

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER:

COMPANY: GIANT REFINING CO.
ADDRESS: I40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 0227
FAX: (505) 722 0210

BILL TO: SAME
COMPANY: Rt 3 BOX 7
ADDRESS: GALLUP, NM 87301

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	pH, TDS	BOD	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)		SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal		The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
API EFFLUENT	6-21-93	1115	H2O	1					X	X				X															3
AER LAGOON EFF	6-21-93	1130	H2O	2					X	X				X															3

PROJECT INFORMATION

PROJ. NO.: —
PROJ. NAME: QTR OCD
P.O. NO.: 997 9009 14
SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS: 6
CUSTODY SEALS: Y / N / NA
RECEIVED INTACT: Y
RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments:

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time: 3:00	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 6-21-93	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722 0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 950
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 6/22/93
Company:	Company:	Analytical Technologies, Inc.

Analytical Technologies, Inc.
Phoenix, Arizona

Interlab

Chain of Custody

DATE 6/22/93 PAGE 1 OF 1

NETWORK PROJECT MANAGER: REBECCA TUBESZEWSKI

COMPANY: Analytical Technologies, Inc.
ADDRESS: 9830 S. 51st Street, Suite B-113
Phoenix, Arizona 85044

CLIENT PROJECT MANAGER:
JMT

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE, CO, N2	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
306377-1	6/21/93	1115	AQ	1320													X							1
-2	6/21/93	1130	AQ	1321													X							1

PROJECT INFORMATION	
PROJECT NUMBER:	306377
PROJECT NAME:	
QC LEVEL:	(STD) IV
TAT:	STANDARD RUSH!
ATI WORKORDER #	

DUE DATE: 7/6
TIME:

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	2
CHAIN OF CUSTODY SEALS	NA
INTACT?	—
RECEIVED GOOD COND./COLD	✓
LAB NUMBER	1320-1321

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
AQUATIC	X

RELINQUISHED BY: 1.
Signature: R. Tubesgewski Time: 13:05
Printed Name: R. Tubeszewski Date: 6/22/93
Analytical Technologies, Inc.
Phoenix

RECEIVED BY: 1.
Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date
Company:

RECEIVED BY: (LAB) 2.
Signature: Time: 13:05
Printed Name: Christian Date: 6/22/93
Company: ACT

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001

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

Analytical**Technologies,**Inc. Albuquerque, NM

Chain of Custody

DATE 6/22/93 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: **Analytical Technologies, Inc.**
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 /TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
306377-1	6/21/93		AQ	01		X																			2 TOX
-2	6/21/93		AQ	02		X																			2 TOX

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	306377	TOTAL NUMBER OF CONTAINERS	4
PROJECT NAME:	GRC	CHAIN OF CUSTODY SEALS	
QC LEVEL:	SID. IV	INTACT?	NA
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	Yes
TAT:	STANDARD RUSH!	LAB NUMBER	93-06-212

DUE DATE: 7-7-93
RUSH SURCHARGE: ____
CLIENT DISCOUNT: ____ %

W.O.# 2K501

SAMPLES SENT TO:
SAN DIEGO
FT. COLLINS X
RENTON
PENSACOLA
PHOENIX
BARRINGER
FIBERQUANT

RELINQUISHED BY: 1.
Signature: [signature] Time: 1730
Printed Name: Terri Dettre Date: 6/22/93
Analytical Technologies, Inc. Albuquerque
RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company: AIRBORNE

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date
Company: AIRBORNE
RECEIVED BY: (LAB) 2.
Signature: Debi Burdick Time: 9:45 a
Printed Name: DEBI BURDICK Date: 6/23/93
Company: ATI

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **309368**

October 13, 1993

Giant Refining Co.
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: QTR OCD

Attention: Lynn Shelton

On **09/24/93**, Analytical Technologies, Inc., (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples 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.

Biochemical Oxygen Demand analyses were performed by Aquatic Consulting & Testing, Inc., 1555 W. University Drive, Suite 103, Tempe, AZ.

Total Organic Carbon analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

All other analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Adela M. Cantu
Senior Organic Chemist

Letitia Krakowski
Acting Laboratory Manager

LAK:jd

Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 09/24/93
PROJECT # : (NONE)
PROJECT NAME : QTR OCD REPORT DATE : 10/13/93

ATI I.D. : 309368

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	API EFFLUENT	AQUEOUS	09/23/93
02	AERATED LAGOON EFFLUENT	AQUEOUS	09/23/93

----- 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

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 309368
PROJECT #	: (NONE)	DATE RECEIVED:	09/24/93
PROJECT NAME:	QTR OCD	DATE ANALYZED:	10/06/93

PARAMETER	UNITS	01	02
TOTAL ORGANIC CARBON	MG/L	148	376

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE) ATI I.D.: 309368
PROJECT NAME: QTR OCD

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
TOTAL ORGANIC CARBON	MG/L	30936801	148	143	3	NA	NA	NA
TOTAL ORGANIC CARBON	MG/L	30936802	376	377	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.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 309368

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

DATE RECEIVED : 09/24/9
REPORT DATE : 10/13/9

PARAMETER	UNITS	01	02
BIOCHEMICAL OXYGEN DEMAND	MG/L	407	1020
CHEMICAL OXYGEN DEMAND	MG/L	1100	1200
PH (EPA 150.1)	UNITS	8.9	8.1
T. DISSOLVED SOLIDS (160.1)	MG/L	26000	8900

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : QTR OCD ATI I.D. : 309368

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
BIOCHEMICAL OXYGEN DEM	MG/L	30936301	<6	<6	NA	NA	NA	NA
CHEMICAL OXYGEN DEMAND	MG/L	30936802	1200	1300	8	1500	300	100
PH	UNITS	30992102	7.6	7.7	1	NA	NA	NA
TOTAL DISSOLVED SOLIDS	MG/L	30937001	480	480	0	NA	NA	NA

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

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 10$$

AnalyticalTechnologies, Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 9-23-93 PAGE 1 OF 1

ATI LAB I.D. 309368

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

PROJECT MANAGER:

COMPANY: GIANT REFINING CO.
ADDRESS: I40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 0227
FAX: (505) 722 0210

BILL TO:
COMPANY: GIANT REFINING CO.
ADDRESS: RT 3 BOX 7
GALLUP, NM 87301

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	300, 310, 405, TOC, [illegible]	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.		Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)		SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal		The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
API EFFLUENT	9-23	2:00	H_2O	01					X																				2
AERATED LAGOON EFFLUENT	9-23	1:45	H_2O	02					X																				2

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: QTR OCD
P.O. NO.: 997 9023 94
SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS: 4
CUSTODY SEALS: Y / N (NA)
RECEIVED INTACT: Y
RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments:

TOC

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time:	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 9-23-93	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722 0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY:(LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 1030
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 9/24/93
Company:	Company:	Analytical Technologies, Inc.

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777 DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

93-09-232

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 9/24/93 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: **Analytical Technologies, Inc.**

ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)		632/632 MOD	619/619 MOD	610/8310		8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)		NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228		AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
309368-1	9/23/93	1400	AQ	01		X																						2	TOX
-2	9/23/93	1345	AQ	02		X																						2	

PROJECT INFORMATION

PROJECT NUMBER: 309368
PROJECT NAME: GRC
QC LEVEL: STD. IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	4
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	
LAB NUMBER	93-09-232

DUE DATE: 10/8/93
RUSH SURCHARGE:
CLIENT DISCOUNT: %

W.O.# KK667

SAMPLES SENT TO:
SAN DIEGO
FT. COLLINS X
RENTON
PENSACOLA
PHOENIX
BARRINGER
FIBERQUANT

RELINQUISHED BY: 1.
Signature: Terri Dettre Time: 1715
Printed Name: Terri Dettre Date: 9/24/93
Analytical Technologies, Inc. Albuquerque

RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company: Airborne

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date
Company: Airborne

RECEIVED BY: (LAB) 2.
Signature: Val Robins Time: 11:30 A
Printed Name: VAL ROBINS Date: 9/25
Company: ATI

Analytical Technologies, Inc.
Phoenix, Arizona

Ir. rlab

Chain of Custody

DATE 9/24/93 PAGE 1 OF 1

NETWORK PROJECT MANAGER: REBECCA TUBESZEWSKI

COMPANY: Analytical Technologies, Inc.
ADDRESS: 9830 S. 51st Street, Suite B-113
Phoenix, Arizona 85044

CLIENT PROJECT MANAGER:
MT

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE, CO, N2	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
309368-1	9/23/93	2:00	AQ	-2218													X							1
-2	9/23/93	1:45	AQ	-2219													X							1

PROJECT INFORMATION	
PROJECT NUMBER:	309368
PROJECT NAME:	
QC LEVEL:	STD. IV
TAT:	STANDARD RUSH!
ATI WORKORDER #	

DUE DATE: 10/7
TIME:

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	2
CHAIN OF CUSTODY SEALS	N
INTACT?	—
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	L93-2218, -2219

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
AQUATIC	X

RELINQUISHED BY: 1.
Signature: R. Tubeszewski Time: 1115
Printed Name: R. Tubeszewski Date: 9/24/93
Analytical Technologies, Inc.
Phoenix

RECEIVED BY: 1.
Signature: R D Gilbert Time: 1115
Printed Name: R D Gilbert Date: 9/24/93
Company: Tetra Spread

RELINQUISHED BY: 2.
Signature: R D Gilbert Time: 1140
Printed Name: R D Gilbert Date: 9/24/93
Company: Tetra Spread

RECEIVED BY: (LAB) 2.
Signature: Time: 1140
Printed Name: Atkinson Date: 9/24/93
Company: ATI

OW-1 Giant Refining Gallup, New Mexico

TCL Volatile Organics
Method 8240

Parameter	28 APR 93 Result	4 JUN 93 Result*	14 JUL 93 Result	29 OCT 93 Result	Units
Benzene	ND	0.9	ND	ND	ug/L
Toluene	2.3	1.9	1.4	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	1.6	0.6	ND	ug/L

* Resampled OW-1 on June 4, 1993 to verify toluene.

0W-1 Giant Refining Co. Gallup, NM

Metals
Dissolved Metals

Parameter	23 APR 92 Result	28 APR 93 Result	Units
Calcium	2.6	3.6	mg/L
Magnesium	1.5	4.5	mg/L
Potassium	1.2	2.1	mg/L
Sodium	83	326	mg/L

OW-1 Giant Refining Gallup, New Mexico

General Inorganics

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	376	410	387	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	12	60	22	mg/L
Chloride	41	58	41	mg/L
pH	8.47	8.8	8.7	units
pH	---	---	---	units
pH	---	---	---	units
pH	---	---	---	units
Sulfate	220	210	210	mg/L
Specific Conductance at 25 deg.C	1290	1300	1260	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Dissolved Solids	830	2800	870	mg/L

OW-2 Giant Refining Gallup, New Mexico

TCL Volatile Organics
Method 8240

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Benzene	<.5	ND	ND	ug/L
Toluene	<.5	ND	ND	ug/L
Ethylbenzene	<.5	ND	ND	ug/L
Xylenes (total)	<.5	ND	ND	ug/L

OW-2 Giant Refining Gallup, New Mexico

Metals
Dissolved Metals

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 99 Result	Units
Calcium	10.5	6.8	8.7	mg/L
Magnesium	4.8	2.5	3.7	mg/L
Potassium	1.9	ND	ND	mg/L
Sodium	338	88	336	mg/L

OW-2 Giant Refining Gallup, New Mexico

General Inorganics

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	656	670	662	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	<1	ND	ND	mg/L
Chloride	45	72	42	mg/L
pH	7.97	8.0	8.1	units
pH	---	---	---	units
pH	---	---	---	units
pH	---	---	---	units
Sulfate	---	15	19	mg/L
Specific Conductance at 25 deg.C	1220	1300	1220	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Dissolved Solids	910	1800	1100	mg/L

OW-3 Giant Refining Gallup, New Mexico

TCL Volatile Organics
Method 8240

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Benzene	<.5	ND	ND	ug/L
Toluene	<.5	ND	ND	ug/L
Ethylbenzene	<.5	ND	ND	ug/L
Xylenes (total)	<.5	ND	ND	ug/L

OW-3 Giant Refining Gallup, New Mexico

Metals
Dissolved Metals

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Calcium	11.0	9.5	9.5	mg/L
Magnesium	4.4	3.0	3.6	mg/L
Potassium	1.1	ND	ND	mg/L
Sodium	332	82	340	mg/L

OW-3 Giant Refining Gallup, New Mexico

General Inorganics

Parameter	07 MAR 91 Result	23 APR 92 Result	28 APR 93 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	624	580	660	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	<1	ND	ND	mg/L
Chloride	41	39	41	mg/L
pH	8.06	7.9	8.2	units
pH	---	---	---	units
pH	---	---	---	units
pH	---	---	---	units
Sulfate	---	34	16	mg/L
Specific Conductance at 25 deg.C	1280	1200	1260	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Specific Conductance at 25 deg.C	---	---	---	umhos/cm
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Carbon	---	---	---	mg/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	ug/L
Total Dissolved Solids	840	1100	840	mg/L

Analytical Technologies, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87107
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. **304451**

May 20, 1993

Giant Refining
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: ANNUAL GROUNDWATER

Attention: Lynn Shelton

On **04/29/93**, Analytical Technologies, Inc. received a request to analyze **aqueous** samples. The samples 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.

EPA Method 8020 analyses were performed by ATI, Albuquerque.

Total Organic Carbon and Total Organic Halides analyses were performed by ATI, Fort Collins.

All other analyses were performed by ATI, Phoenix.

J indicates the value is estimated and below the reporting limit. Methylene Chlorite was detected by EPA Method 8240 in the Trip Blank. It was not detected in any of the client's samples.

If you have any questions or comments, please do not hesitate to contact us at (505) 344-3777.

Letitia Krakowski
Assistant Project Manager

Gregory R. Jordan
Laboratory Manager

GJ:td

Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 04/29/93
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER REPORT DATE : 05/20/93
ATI I.D. : 304451

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-11	AQUEOUS	04/28/93
02	MW-1	AQUEOUS	04/28/93
03	MW-2	AQUEOUS	04/28/93
04	MW-4	AQUEOUS	04/28/93
05	MW-5	AQUEOUS	04/28/93
06	OW-1	AQUEOUS	04/28/93
07	OW-2	AQUEOUS	04/28/93
08	OW-3	AQUEOUS	04/28/93
09	TRIP BLANK	AQUEOUS	04/05/93

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	9

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. : 304451

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

DATE RECEIVED : 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	01	02	03	04	05
CARBONATE (CACO3)	MG/L	<1	26	33	26	29
BICARBONATE (CACO3)	MG/L	485	322	303	426	295
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	485	348	336	452	324
CHLORIDE (EPA 325.2)	MG/L	160	49	57	18	66
CONDUCTIVITY, (UMHOS/CM)		1800	1110	1120	1160	1130
PH (EPA 150.1)	UNITS	8.3	8.8	8.9	8.7	8.9
PHENOLICS, TOTAL (EPA 420.1)	MG/L	<0.005	<0.005	<0.005	<0.005	<0.005
SULFATE (EPA 375.2)	MG/L	200	150	160	140	160
T. DISSOLVED SOLIDS (160.1)	MG/L	1100	690	680	730	700

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 304451

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

DATE RECEIVED : 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	06	07	08
CARBONATE (CACO3)	MG/L	22	<1	<1
BICARBONATE (CACO3)	MG/L	387	662	660
HYDROXIDE (CACO3)	MG/L	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	409	662	660
CHLORIDE (EPA 325.2)	MG/L	41	42	41
CONDUCTIVITY, (UMHOS/CM)		1260	1220	1260
PH (EPA 150.1)	UNITS	8.7	8.1	8.2
SULFATE (EPA 375.2)	MG/L	210	19	16
T. DISSOLVED SOLIDS (160.1)	MG/L	870	1100	840

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER ATI I.D. : 304451

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	30401101	<1	<1	NA	NA	NA	NA
BICARBONATE	MG/L		212	210	0.9	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		212	210	0.9	NA	NA	NA
CARBONATE	MG/L	30445105	29	29	0	NA	NA	NA
BICARBONATE	MG/L		295	297	0.7	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		324	326	0.6	NA	NA	NA
CHLORIDE	MG/L	30445104	18	18	0	44	25	104
CONDUCTIVITY(UMHOS/CM)		30403301	1260	1270	0.8	NA	NA	NA
PH	UNITS	30401101	7.7	7.7	0	NA	NA	NA
PH	UNITS	30445105	8.9	8.9	0	NA	NA	NA
PHENOLICS, TOTAL	MG/L	30549904	<0.005	<0.005	NA	0.025	0.025	100
SULFATE	MG/L	30549909	38	38	0	76	38	100
SULFATE	MG/L	30549905	190	180	5	410	200	110
TOTAL DISSOLVED SOLIDS	MG/L	30444401	390	390	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.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING
PROJECT # : (NONE)
PROJECT NAME: ANNUAL GROUNDWATER

ATI I.D. : 304451
DATE RECEIVED: 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	01	02	03	04	05
TOTAL ORGANIC CARBON	MG/L	4	<1.0	1	1	1

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING
PROJECT # : (NONE) ATI I.D.: 304451
PROJECT NAME: ANNUAL GROUNDWATER

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
TOTAL ORGANIC CARBON	MG/L	30445101	4	4	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.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING
PROJECT # : (NONE)
PROJECT NAME: ANNUAL GROUNDWATER

ATI I.D. : 304451
DATE RECEIVED: 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	01	02	03	04	05
TOTAL ORGANIC HALIDES	MG/L	30	<20	<20	<20	50

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING
PROJECT # : (NONE) ATI I.D.: 304451
PROJECT NAME: ANNUAL GROUNDWATER

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
TOTAL ORGANIC HALIDES	MG/L	30445102	<20	NA	NA	400	400	100

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

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

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 304451

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

DATE RECEIVED : 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	01	02	03	04	05
SILVER (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010
ARSENIC (200.7/6010)	MG/L	<0.1	<0.1	<0.1	<0.1	<0.1
BARIUM (EPA 200.7/6010)	MG/L	<0.010	<0.010	0.015	0.016	0.015
CALCIUM (EPA 200.7/6010)	MG/L	4.8	1.1	0.9	1.5	1.4
CADMIUM (200.7/6010)	MG/L	<0.005	<0.005	<0.005	<0.005	<0.005
CHROMIUM (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010
MERCURY (EPA 245.1/7470)	MG/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002
POTASSIUM (EPA 200.7/6010)	MG/L	1.1	<1.0	<1.0	<1.0	1.5
MAGNESIUM (EPA 200.7/6010)	MG/L	0.6	0.2	0.1	0.3	0.2
MANGANESE (EPA 200.7/6010)	MG/L	<0.010	<0.010	<0.010	<0.010	<0.010
SODIUM (EPA 200.7/6010)	MG/L	421	260	275	295	279
LEAD (200.7/6010)	MG/L	<0.10	<0.10	<0.10	<0.10	<0.10
SELENIUM (200.7/6010)	MG/L	<0.1	<0.1	<0.1	<0.1	<0.1

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 304451

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

DATE RECEIVED : 04/29/93
REPORT DATE : 05/20/93

PARAMETER	UNITS	06	07	08
CALCIUM (EPA 200.7/6010)	MG/L	3.6	8.7	9.5
POTASSIUM (EPA 200.7/6010)	MG/L	2.1	<1.0	<1.0
MAGNESIUM (EPA 200.7/6010)	MG/L	4.5	3.7	3.6
SODIUM (EPA 200.7/6010)	MG/L	326	336	340

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER ATI I.D. : 304451

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	30445105	<0.010	<0.010	NA	1.02	1.00	102
ARSENIC (ICAP)	MG/L	30445105	<0.1	<0.1	NA	1.0	1.0	100
BARIUM	MG/L	30445105	0.015	0.015	0	1.04	1.00	102
CALCIUM	MG/L	30445103	0.9	0.9	0	48.7	50.0	96
CALCIUM	MG/L	30496402	67.0	69.2	3	117	50.0	100
CADMIUM	MG/L	30445105	<0.005	<0.005	NA	0.996	1.00	100
CHROMIUM	MG/L	30445105	<0.010	<0.010	NA	0.982	1.00	98
MERCURY	MG/L	30550701	<0.0002	<0.0002	NA	0.0049	0.0050	98
POTASSIUM	MG/L	30445103	<1.0	<1.0	NA	48.2	50.0	96
MAGNESIUM	MG/L	30445103	0.1	0.1	0	23.4	25.0	93
MANGANESE	MG/L	30445105	<0.010	<0.010	NA	1.02	1.00	102
SODIUM	MG/L	30445103	275	277	0.7	364	100	89
LEAD	MG/L	30445105	<0.10	<0.10	NA	1.01	1.00	101
SELENIUM (ICAP)	MG/L	30445105	<0.1	<0.1	NA	1.1	1.00	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.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
CLIENT : GIANT REFINING ATI I.D.: 304451
PROJECT # : (NONE)
PROJECT NAME: ANNUAL GROUNDWATER

SAMPLE I.D. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
06	OW-1	AQUEOUS	04/28/93	NA	05/03/93	1
07	OW-2	AQUEOUS	04/28/93	NA	05/03/93	1
08	OW-3	AQUEOUS	04/28/93	NA	05/03/93	1

PARAMETER	UNITS	06	07	08
BENZENE	UG/L	<0.5	<0.5	<0.5
TOLUENE	UG/L	2.3	<0.5	<0.5
ETHYLBENZENE	UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	<0.5	<0.5	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5	<2.5	<2.5
BROMOFLUOROBENZENE (%)		95	91	92

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 304451
BLANK I.D.	: 050393	DATE EXTRACTED	: NA
CLIENT	: GIANT REFINING	DATE ANALYZED	: 05/03/93
PROJECT #	: (NONE)	DILUTION FACTOR:	1
PROJECT NAME:	ANNUAL GROUNDWATER		

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
BROMOFLUOROBENZENE (%)		91

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 304451
MSMSD #	: 30444511	DATE EXTRACTED	: NA
CLIENT	: GIANT REFINING	DATE ANALYZED	: 05/03/93
		SAMPLE MATRIX	: AQUEOUS
PROJECT #	: (NONE)	REF. I.D.	: 30444511
PROJECT NAME	: ANNUAL GROUNDWATER	UNITS	: UG/L

PARAMETERS	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	9.8	98	9.7	97	1
TOLUENE	<0.5	10	10	100	10	100	0
ETHYL BENZENE	<0.5	10	10	100	10	100	0
TOTAL XYLENES	<0.5	30	30	100	30	100	0
METHYL-t-BUTYL ETHER	<2.5	20	22	110	21	105	5

PLEASE FILL THIS FORM IN COMPLETELY. SHADED AREAS ARE FOR LAB USE ONLY.

Analytical**Technologies,**Inc., Albuquerque, NM
San Diego • Phoenix • Seattle • Pensacola • Ft. Collins • Portland • Albuquerque

CHAIN OF CUSTODY

DATE: 11-30-93 PAGE 1 OF 1

ATI LAB I.D. 312200

PROJECT MANAGER:

COMPANY: GIANT REFINING CO.
ADDRESS: I40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 0227
FAX: (505) 722 0210

BILL TO: GIANT
COMPANY: RT3 BOX 7
ADDRESS: GALLUP, NM 87301

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	pH, CONDUCTIVITY **	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	TOC, TOX ***	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240) *	Polynuclear Aromatics (610/8310)	Cr, Pb (DISSOLVED)	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal	The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)	NUMBER OF CONTAINERS
SMW-3	11-30	1:20	H_2O	01					X				X				X		X								11
SMW-4	11-30	1:50	H_2O	02					X				X				X		X								11
SMW-5	11-30	2:20	H_2O	03					X				X				X		X								11
SMW-6	11-30	2:50	H_2O	04					X				X				X		X								11

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO.:		NO. CONTAINERS	4
PROJ. NAME:	SEMI-ANNUAL	CUSTODY SEALS	Y / N / (NA)
P.O. NO.:	997 9023 94	RECEIVED INTACT	Y
SHIPPED VIA:	FEDEX	RECEIVED COLD	①

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK

Comments:
* SEE ATTACHED LIST
** 4 REPLICATES
*** 2 REPLICATES
12.3°C

① - C.O.C. seal intact on outside cooler ② no ice or blue ice

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time: 3:20	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 11-30-93	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722-0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 0945
Printed Name: Date:	Printed Name: Date:	Printed Name: Terri Date: 12/1/93
Company:	Company:	Analytical Technologies, Inc.

AnalyticalTechnologies, Inc. Albuquerque, NM

Chain of Custody

DATE 4/29/93 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: Analytical Technologies, Inc.
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87106

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	Phenolics (420.1)	8240 /TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GCMS (624/8240)	NACE	ASBESTOS	~~BOD~~	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
304451-01	4/28		Aq	1					X				X			X										9
02				2					X				X			X										9
03				3					X				X			X										9
04				4					X				X			X										9
05				5					X				X			X										8
06				6					X																	2
07				7					X																	2
08				8					X																	2
09	4/5			9												X										1

Volatile Organics GCMS (624/8240): Total Metals See List attached

ASBESTOS: Dissolved metals see attached list

PROJECT INFORMATION	
PROJECT NUMBER:	304451
PROJECT NAME:	GIANT
QC LEVEL:	~~STD.~~ IV
QC REQUIRED:	~~MS~~ MSD BLANK
TAT:	STANDARD ~~RUSH!~~

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	51
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	304451

DUE DATE: 13 May 93 WO 4404
RUSH SURCHARGE:
CLIENT DISCOUNT: ___ %

Del Gote

SAMPLES SENT TO:	
SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PHOENIX	X
BARRINGER	
FIBERQUANT	

RELINQUISHED BY: 1.
Signature: [signature] Time: 1:15
Printed Name: [illegible] Date: 4/29/93
Analytical Technologies, Inc. Albuquerque

RECEIVED BY: (LAB) 1.
Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.
Signature: Time:
Printed Name: Date
Company:

RECEIVED BY: (LAB) 2.
Signature: R. Tubesewski 1125 Time:
Printed Name: R. Tubesewski 4/30/93 Date:
Company: ATI - Phx