

GW - 32

6 / 96

INSPECTIONS & DATA



June 26, 1996

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

Mr. Patricio W. Sanchez
Petroleum Engineer
New Mexico Energy, Minerals and Natural Resources Department
Oil Conservation Division
2040 South Pacheco
Santa Fe, New Mexico 87505

RECEIVED

JUL 02 1996

Environmental Bureau
Oil Conservation Division

Dear Mr. Sanchez:

***SUBJECT: RESPONSE TO NMOCD'S GW-32 PERMIT RENEWAL INSPECTION
DATED DECEMBER, 1995, ADDITIONAL GROUND WATER
ANALYTICAL RESULTS..***

As per our telephone conversation of June 25, 1996, concerning the captioned subject, attached you will find two copies of the analytical results for ground water samples taken from the following Observation Wells (OW).

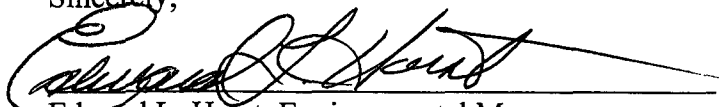
OBSERVATION WELL NUMBER	ATI'S IDENTIFICATION NUMBER
OW-13	510425-01
OW-20	510425-02
OW-12	602315-01
OW-09	602315-02
OW-14	602315-03
OW-10	602315-04

If you recall, some time back, you and I spoke about some of these analytical results and more particularly about OW-14. At the time we spoke, Giant was switching analytical labs and I indicated that Giant would re-sample this well, have another laboratory perform the analytical work and submit the results in Giant's response for re-permitting. In reviewing OW-14 analytical results, it appears as though some halocarbons/aromatics have been detected in both samples. Therefore, Giant is proposing to replace OW-14 with another Observation Well to be completed in the same zone. Location of the replacement Observation Well shall be agreed upon by OCD and Giant and will be down gradient from OW-14..

I must apologize for not including this information in Giant's original response packet and want to assure OCD that it was truly an oversight on my part.

If, after reviewing the attached, you have any questions or concerns, please immediately contact me at (505)722-0227.

Sincerely,



Edward L. Horst, Environmental Manager
Giant Refining Company
Ciniza Refinery

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JUL 02 1996

Environmental Bureau
Oil Conservation Division

cc: Denny Foust, NMOCD
Dick Platt, General Manager, Giant Refining Company
David Pavlich, HSE Manager, Giant Refining Company
Steve Morris, Environmental Specialist, Giant Refining Company
Kim Bullerdick, Legal, Giant Industries of Arizona

GROUND WATER ANALYTICAL RESULTS

ADDITIONAL INFORMATION

FOR GIANT REFINING

COMPANY'S 1996 GW-32

PERMIT RENEWAL

APPLICATION

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JUL 02 1996

Environmental Bureau
Oil Conservation Division



Analytical Technologies, Inc.

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

ATI I.D. 510425

November 22, 1995

Giant Refining Co.
I-40, Exit 39
Jamestown, NM 87347

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JUL 02 1996

Environmental Bureau
Oil Conservation Division

Project Name/Number: OCD PERMIT RENEWAL

Attention: Dave Pavlich

On 10/28/95, 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.

EPA method 601/602 vial submitted for sample "OW-20" was marked as "OW-24".

Cation/anion balance requires nitrate; however, this analysis was not done because it was not ordered.

EPA method 601/602, Bromide and EPA method 300.0 analyses were performed by Analytical Technologies, Inc., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

Silicon by EPA method 6010 analyses were performed by Analytical Technologies, Inc., 5550 Morehouse Drive, San Diego, CA.

All other analyses were performed by Analytical Technologies, Inc., 11 East Olive Road, Pensacola, FL.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.

DATE RECEIVED : 10/28/95

PROJECT # : (NONE)

PROJECT NAME : OCD PERMIT RENEWAL

REPORT DATE : 11/22/95

ATI ID: 510425

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	510425-01	OW-13	AQUEOUS	10/26/95
02	510425-02	OW-20	AQUEOUS	10/26/95
03	510425-03	TRIP BLANK	AQUEOUS	10/26/95

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
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.

DATE: 11-17-95

ION BALANCE

ATI ACCESSION NUMBER: 510425
SAMPLE IDENTIFICATION: 510425-01
CLIENT: GIANT REFINING

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	450.000	0.02000	9.00000
CHLORIDE	20.000	0.02821	0.56420
FLUORIDE	0.300	0.05264	0.01579
NITRATE AS N	<0.06	0.01613	0.00000
SULFATE	200.000	0.02082	4.16400
TOTAL ANIONS			13.74399

CATIONS	RESULT	FACTOR	TOTAL
ALUMINUM	2	0.11119	0.22238
CALCIUM	75.000	0.04990	3.7425
POTASSIUM	17.000	0.02558	0.43486
MAGNESIUM	<0.2	0.08229	0.00000
SODIUM	310.000	0.04350	13.48500
COPPER	0.020	0.03147	0.00063
IRON	0.040	0.05372	0.00215
MANGANESE	<0.2	0.03640	0.00000
ZINC	0.040	0.03059	0.00122
TOTAL CATIONS			17.88874

		%RPD (<10%)	-26.21
TOTAL ANIONS/CATIONS	(CALCULATED)	894.400	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	790	%RPD (<15%) 12.40
ELECTRICAL COND.		1200	TDS/EC RATIO (0.65+/-0.1) 0.65833



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 510030

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM

DATE RECEIVED : 10/31/95

PROJECT # : 510425

PROJECT NAME : OCD PERMIT

REPORT DATE : 11/22/95

PARAMETER	UNITS	01	02
BROMIDE (EPA 300.0)	MG/L	<0.3	0.4



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM
PROJECT # : 510425
PROJECT NAME : OCD PERMIT

ATI I.D. : 510030

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
BROMIDE	MG/L	51097501	<0.3	<0.3	NA	2.0	2.0	100

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

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



"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: TOTAL ALKALINITY
Matrix: WATER
QC Level: II

Lab ID: 001
Client Sample Id: 510425-01

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
ALKALINITY, TOTAL (2320B)	MG/L	450	1		ASW056	AB
PH (150.1)	UNITS	8.1	NA		PHW228	SG
BICARBONATE, CaCO ₃ (2330B)	MG/L	450	1		NONE	DPH
CARBONATE, CaCO ₃ (2330B)	MG/L	5	1		NONE	DPH
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	7	1		NONE	DPH
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1		NONE	DPH

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: TOTAL ALKALINITY
Matrix: WATER
QC Level: II

Lab ID: 002
Client Sample Id: 510425-02

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
ALKALINITY, TOTAL						
(2320B)	MG/L	730	1		ASW056	AB
PH (150.1)	UNITS	12.3	NA		PHW228	SG
BICARBONATE, CACO3						
(2330B)	MG/L	ND	1		NONE	DPH
CARBONATE, CACO3 (2330B)	MG/L	ND	1		NONE	DPH
CARBON DIOXIDE, FREE AS						
CACO3	MG/L	ND	1		NONE	DPH
HYDROXIDE (2330B) AS						
CACO3	MG/L	1000	1		NONE	DPH

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: TOTAL ALKALINITY

Client Sample Id:	Parameter:	Unit:	Result:
510425-01	ALKALINITY, TOTAL (2320B)	MG/L	450
	PH (150.1)	UNITS	8.1
	BICARBONATE, CaCO_3 (2330B)	MG/L	450
	CARBONATE, CaCO_3 (2330B)	MG/L	5
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	7
510425-02	ALKALINITY, TOTAL (2320B)	MG/L	730
	PH (150.1)	UNITS	12.3
	HYDROXIDE (2330B) AS CaCO_3	MG/L	1000



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	ALKALINITY	PH
Batch Id:	ASW056	PHW228
Blank Result:	<1	N/A
Anal. Method:	2320B	150.1
Prep. Method:	N/A	N/A
Analysis Date:	06-NOV-95	31-OCT-95
Prep. Date:	06-NOV-95	31-OCT-95

Sample Duplication

Sample Dup:	511041-1	511032-1
Rept Limit:	<1	N/A
Sample Result:	448	7.62
Dup Result:	450	7.62
Sample RPD:	0	0.00
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	511041-1	N/A
Rept Limit:	<1	N/A
Sample Result:	448	
Spiked Result:	471	
Spike Added:	25F	
% Recovery:	92	
% Rec Limits:	80-113	
Dry Weight%	N/A	

ICV

ICV Result:	248	9.87
True Result:	250	10.00
% Recovery:	99	99
% Rec Limits:	90-110	90-110

LCS

LCS Result:		6.86
True Result:		6.87
% Recovery:		100
% Rec Limits:		97-103



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Wetchem
Matrix: WATER
QC Level: II

Lab ID: 001
Client Sample Id: 510425-01

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
CHLORIDE (325.3)	MG/L	20	1		CIW045	ED
CONDUCTIVITY (120.1)	UMH/CM	1200	1		CDW060	ED
FLUORIDE (340.2)	MG/L	0.3	0.2		FLW073	ED
PH (150.1)	UNITS	8.1	NA		PHW228	SG
SULFATE (375.4)	MG/L	200	50	+	SEW099	SG
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790	5		TDW079	ED

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Wetchem
Matrix: WATER
QC Level: II

Lab ID: 002
Client Sample Id: 510425-02

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
CHLORIDE (325.3)	MG/L	77	1		CIW045	ED
CONDUCTIVITY (120.1)	UMH/CM	3800	1		CDW060	ED
FLUORIDE (340.2)	MG/L	0.8	0.2		FLW073	ED
PH (150.1)	UNITS	12.3	NA		PHW228	SG
SULFATE (375.4)	MG/L	16	10		SEW099	SG
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	980	5		TDW079	ED

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
510425-01	CHLORIDE (325.3)	MG/L	20
	CONDUCTIVITY (120.1)	UMH/CM	1200
	FLUORIDE (340.2)	MG/L	0.3
	PH (150.1)	UNITS	8.1
	SULFATE (375.4)	MG/L	200
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790
510425-02	CHLORIDE (325.3)	MG/L	77
	CONDUCTIVITY (120.1)	UMH/CM	3800
	FLUORIDE (340.2)	MG/L	0.8
	PH (150.1)	UNITS	12.3
	SULFATE (375.4)	MG/L	16
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	980



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CONDUCT'Y	FLUORIDE	PH	SULFATE	TDS
Batch Id:	CIW045	CDW060	FLW073	PHW228	SEW099	TDW079
Blank Result:	<1	<1	<0.2	N/A	<10	<5
Anal. Method:	325.3	120.1	340.2	150.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	06-NOV-95	03-NOV-95	01-NOV-95	31-OCT-95	10-NOV-95	02-NOV-95
Prep. Date:	06-NOV-95	03-NOV-95	01-NOV-95	31-OCT-95	10-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511080-3	511032-1	511007-1	511032-1	511041-2	511041-1
Rept Limit:	<1	<1	<0.8+	N/A	<10	<5
Sample Result:	64.8	2930	5.8	7.62	16.3	793
Dup Result:	68.7	2970	5.8	7.62	16.0	797
Sample RPD:	6	1	0	0.00	0.3G	1
Max RPD:	6	4	8	0.12	10	16
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	511080-3	N/A	511007-1	N/A	511041-2	N/A
Rept Limit:	<1	N/A	<1.0+	N/A	<10	N/A
Sample Result:	64.8		5.3		16.3	
Spiked Result:	116.7		9.8		56.4	
Spike Added:	55.0		4.0		40.0	
% Recovery:	94		113		100	
% Rec Limits:	89-110		70-129		51-151	
Dry Weight%	N/A		N/A		N/A	

ICV

ICV Result:	92.7	1394	1.17	9.87	18	
True Result:	100.0	1413	1.20	10.00	20	
% Recovery:	93	99	98	99	90	
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	

LCS

LCS Result:		276		6.86		328
True Result:		303		6.87		293
% Recovery:		91		100		112
% Rec Limits:		84-110		97-103		66-122



"Quality Control Comments"

Batch Id: Comments:

CIW045	TIME ON: 11/6/95 @ 1113
CIW045	TIME OFF: 11/6/95 @ 1330
CIW045	ANALYST: ED



Analytical Technologies, Inc.

----- Common Footnotes Wet Chem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
ND = NOT DETECTED ABOVE REPORTING LIMIT.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO THE MATRIX (PRE-DIGESTION) SPIKE BEING OUTSIDE ACCEPTANCE LIMITS.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE.
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX (DILUTION PRIOR TO PREPARATION).
P = ANALYTICAL (POST-DIGESTION) SPIKE
I = DUPLICATE INJECTION
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE IS BELOW 5 X ATI REPORTING LIMIT AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW REPORTING LIMIT. HOWEVER, THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH = SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE RESULTS EXCEED THE ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL" SAMPLE IS NON-HOMOGENOUS.
(*) = DETECTION LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.

SW-846, 3RD EDITION, SEPTEMBER 1986 AND REVISION 1, JULY 1992.
EPA 600/4-79-020, REVISED MARCH 1983.
STANDARD METHODS, 17TH ED., 1989
NIOSH MANUAL OF ANALYTICAL METHODS, 3RD EDITION.
ANNUAL BOOK OF ASTM STANDARDS, VOLUME 11.01, 1991.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND THE DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE ANALYSIS. IF FLASHPOINT IS LESS THAN 25 DEGREES CELSIUS, THE DETECTION LIMIT BECOMES THE INITIAL STARTING TEMPERATURE.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG	SG = SCOTT GRESHAM	RB = REBECCA BROWN
TT = TONY TINEO	NSB = NANCY S. BUTLER	FB = FREDDIE BROWN
MM = MARY MOLONEY	CF = CHRISTINE FOSTER	HN = HONG NGUYEN
GJ = GARY JACOBS	ED = ESTHER DANTIN	AB = ANDY BROTHERTON



Analytical Technologies, Inc.

METALS RESULTS

Client : ANALYTICAL TECHNOLOGIES, INC.
Project # : 510425
Project Name: OCD PERMIT RENEWAL-GIANT

ATI I.D.: 510375

Sample #	Client ID	Matrix	Date Sampled	Date Received
1	510425-01	WATER	26-OCT-95	31-OCT-95
2	510425-02	WATER	26-OCT-95	31-OCT-95

Parameter	Units	1	2
SILICON	MG/L	3.52	2.92



Analytical Technologies, Inc.

METALS - QUALITY CONTROL

DUP/MS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510425

ATI I.D. : 510375

Project Name: OCD PERMIT RENEWAL-GIANT

Parameters	REF I.D.	Units	Sample Result	Dup Result	RPD	Spiked Sample	Spike Conc	% Rec
SILICON	510341-02	MG/L	4.14	4.18	1	4.84	0.50	N/A*V

% Recovery = (Spike Sample Result - Sample Result)*100/Spike Concentration

RPD (Relative % Difference) = (Sample Result - Duplicate Result)*100/Average Result



Analytical Technologies, Inc.

METALS - QUALITY CONTROL

BLANK SPIKE

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510425

ATI I.D. : 510375

Project Name: OCD PERMIT RENEWAL-GIANT

Parameters	Blank Spike ID#	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
SILICON	59907	MG/L	<0.05	0.51	0.50	102

% Recovery = (Spike Sample Result - Sample Result)*100/Spike Concentration

RPD (Relative % Difference) = (Sample Result - Duplicate Result)*100/Average Result



DATE LISTING FOR INORGANICS FOR PROJECT ID ANATEC01 10-NOV-95
Analytical Technologies, Inc. FOR ACCESSIONS RECEIVED WITHIN THE LAST 90 DAYS
ACCESSION # 510375

Project Id: ANATEC01
Proj Num : 510425

Proj Name : OCD PERMIT RENEWAL-GIANT
Accession : 510375

Test: EPA 6010 (SILICON)

ATI #	Matrix	Client ID	Sampled	Received	Analyzed	Prep Date
1	WATER	510425-01	26-OCT-95	31-OCT-95	09-NOV-95	01-NOV-95
2	WATER	510425-02	26-OCT-95	31-OCT-95	09-NOV-95	01-NOV-95

ANALYTICAL TECHNOLOGIES, INC.
SAN DIEGO
FLAGS



Analytical Technologies, Inc.

INORGANICS

FLAG MESSAGE DESCRIPTION

B ABSOLUTE VALUE OF ANALYTE CONCENTRATION IS $< \text{CRDL}$ BUT $\geq$ THE IDL
BB RESULT BETWEEN IDL AND LOQ
D POST DIGESTION SPIKE FOR GFAA OUTSIDE LIMITS AFTER 1:25 DILUTION. SAMPLE REPORTED AT ORIGINAL CONCENTRATION.
E ESTIMATED VALUE DUE TO INTERFERENCE
M DUPLICATE INJECTION PRECISION NOT MET
N SPIKED SAMPLE RECOVERY NOT WITHIN CONTROL LIMITS
S REPORTED VALUE WAS DETERMINED BY METHOD OF STANDARD ADDITIONS
U COMPOUND WAS ANALYZED FOR BUT NOT DETECTED
W POST DIGESTION SPIKE OUT OF CONTROL LIMITS; SAMPLE ABSORBANCE $< 50\%$ OF SPIKE ABSORBANCE FOR GF/AA
X ABSOLUTE VALUE OF ANALYTE CONCENTRATION IS LESS THAN 3 TIMES THE MDL
* DUPLICATE ANALYSIS NOT WITHIN CONTROL LIMITS
+ CORRELATION COEFFICIENT FOR MSA IS LESS THAN 0.995
*H RESULTS OUTSIDE OF LIMITS DUE TO SAMPLE MATRIX INTERFERENCE
*Q INSUFFICIENT SAMPLE FOR ANALYSIS
*R DATA IS NOT USABLE
*V SAMPLE RESULT IS $> 4X$ SPIKED CONCENTRATION, THEREFORE SPIKE IS NOT DETECTABLE
*Y RESULT NOT ATTAINABLE DUE TO SAMPLE MATRIX INTERFERENCE
@C VARIABLE MESSAGE
@H DETECTION LIMIT ELEVATED DUE TO MATRIX INTERFERENCE
@Q DETECTION LIMIT ELEVATED DUE TO LIMITED SAMPLE FOR ANALYSIS
@R RPD LIMIT IS 67% FOR INORGANIC RESULTS LESS THAN TEN TIMES THE REPORTING DETECTION LIMIT
@S RPD: ONE RESULT ABOVE AND ONE RESULT BELOW REPORTING LIMIT (RL). RESULT ABOVE SHOULD BE < 5 TIMES RL TO BE IN CONTROL.
@V PRE-DIGEST SPIKE OUT OF LIMITS. POST DIGESTION SPIKE YIELDED ACCEPTABLE RESULTS
@W DETECTION LIMIT ELEVATED DUE TO REDUCED SAMPLE WEIGHT
@Y ION BALANCE OUTSIDE OF ATT'S ACCEPTANCE LIMITS; REANALYSIS CONFIRMED ORIGINAL RESULT
@X RESULTS VERIFIED BY REDIGESTION AND REANALYSIS



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Metals
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 510425-01

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
SILVER (6010)	MG/L	ND	0.01		A6W237	JR
ALUMINUM (6010)	MG/L	ND	0.06		L6W237	JR
ARSENIC (6010)	MG/L	ND	0.05		R6W237	JR
BORON (6010)	MG/L	0.33	0.09		O6W237	JR
BARIUM (6010)	MG/L	0.02	0.01		B6W237	JR
BERYLLIUM (6010)	MG/L	ND	0.004		Y6W237	JR
CALCIUM (6010)	MG/L	9	1		I6W237	JR
CADMIUM (6010)	MG/L	ND	0.005		C6W237	JR
COBALT (6010)	MG/L	ND	0.01		T6W237	JR
CHROMIUM (6010)	MG/L	ND	0.01		H6W237	JR
COPPER (6010)	MG/L	ND	0.01		F6W237	JR
IRON (6010)	MG/L	ND	0.02		N6W237	JR
POTASSIUM (6010)	MG/L	ND	2		X6W237	JR
MAGNESIUM (6010)	MG/L	1.3	0.2		J6W237	JR
MANGANESE (6010)	MG/L	0.03	0.01		G6W237	JR
MOLYBDENUM (6010)	MG/L	0.01	0.01		D6W237	JR
SODIUM (6010)	MG/L	290	0.2		16W237	JR
NICKEL (6010)	MG/L	ND	0.02		E6W237	JR
LEAD (6010)	MG/L	ND	0.05		P6W237	JR
ANTIMONY (6010)	MG/L	ND	0.06		36W237	JR
SELENIUM (6010)	MG/L	ND	0.1		S6W237	JR
THALLIUM (6010)	MG/L	ND	0.1		46W237	JR
VANADIUM (6010)	MG/L	ND	0.01		V6W237	JR
ZINC (6010)	MG/L	ND	0.02		56W237	JR

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Metals
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 510425-02

Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95

Parameters:	Units:	Results:	Rpt Lmts:	Q:	Batch:	Analyst:
SILVER (6010)	MG/L	ND	0.01		A6W237	JR
ALUMINUM (6010)	MG/L	2.0	0.06		L6W237	JR
ARSENIC (6010)	MG/L	ND	0.05		R6W237	JR
BORON (6010)	MG/L	ND	0.09		O6W237	JR
BARIUM (6010)	MG/L	0.30	0.01		B6W237	JR
BERYLLIUM (6010)	MG/L	ND	0.004		Y6W237	JR
CALCIUM (6010)	MG/L	75	1		I6W237	JR
CADMIUM (6010)	MG/L	ND	0.005		C6W237	JR
COBALT (6010)	MG/L	ND	0.01		T6W237	JR
CHROMIUM (6010)	MG/L	0.18	0.01		H6W237	JR
COPPER (6010)	MG/L	0.02	0.01		F6W237	JR
IRON (6010)	MG/L	0.04	0.02		N6W237	JR
POTASSIUM (6010)	MG/L	17	2		X6W237	JR
MAGNESIUM (6010)	MG/L	ND	0.2		J6W237	JR
MANGANESE (6010)	MG/L	ND	0.01		G6W237	JR
MOLYBDENUM (6010)	MG/L	0.01	0.01		D6W237	JR
SODIUM (6010)	MG/L	310			16W237	JR
NICKEL (6010)	MG/L	0.02			E6W237	JR
LEAD (6010)	MG/L	ND			P6W237	JR
ANTIMONY (6010)	MG/L	ND			36W237	JR
SELENIUM (6010)	MG/L	ND			S6W237	JR
THALLIUM (6010)	MG/L	ND			16W237	JR
VANADIUM (6010)	MG/L	ND			7237	JR
ZINC (6010)	MG/L	0.04			7	JR

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
510425-01	BORON (6010)	MG/L	0.33
	BARIUM (6010)	MG/L	0.02
	CALCIUM (6010)	MG/L	9
	MAGNESIUM (6010)	MG/L	1.3
	MANGANESE (6010)	MG/L	0.03
	MOLYBDENUM (6010)	MG/L	0.01
	SODIUM (6010)	MG/L	290
510425-02	ALUMINUM (6010)	MG/L	2.0
	BARIUM (6010)	MG/L	0.30
	CALCIUM (6010)	MG/L	75
	CHROMIUM (6010)	MG/L	0.18
	COPPER (6010)	MG/L	0.02
	IRON (6010)	MG/L	0.04
	POTASSIUM (6010)	MG/L	17
	MOLYBDENUM (6010)	MG/L	0.01
	SODIUM (6010)	MG/L	310
	NICKEL (6010)	MG/L	0.02
	ZINC (6010)	MG/L	0.04



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	SILVER	ALUMINUM	ARSENIC	BORON	BARIUM	BERYLLIUM
Batch Id:	A6W237	L6W237	R6W237	O6W237	B6W237	Y6W237
Blank Result:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95
Prep. Date:	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	2.0	3.1	2.0	2.0	2.4	1.9
Dup Result:	2.0	3.1	2.0	2.1	2.4	1.9
Sample RPD:	0	0	0	5	0	0
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<0.01	<0.06	<0.05	<0.09	<0.01	<0.004
Sample Result:	<0.01	1.2	<0.05	<0.09	0.48	<0.004
Spiked Result:	2.0	3.1	2.0	2.0	2.4	1.9
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	95	100	100	96	95
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	4.7	4.9	4.8	4.9	4.8	4.9
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	94	98	96	98	96	98
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	2.0	2.0	2.0	2.0	1.9	1.9
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	100	100	100	95	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	CALCIUM	CADMIUM	COBALT	CHROMIUM	COPPER	IRON
Batch Id:	I6W237	C6W237	T6W237	H6W237	F6W237	N6W237
Blank Result:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95
Prep. Date:	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Sample Result:	48	1.9	1.9	1.9	1.9	140
Dup Result:	50	1.9	1.9	2.0	2.0	150
Sample RPD:	4	0	0	5	5	7
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<1	<0.005	<0.01	<0.01	<0.01	<0.02
Sample Result:	30	<0.005	<0.01	<0.01	<0.01	140
Spiked Result:	48	1.9	1.9	1.9	1.9	140
Spike Added:	20	2.0	2.0	2.0	2.0	2.0F
% Recovery:	90	95	95	95	95	0
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	10	4.7	4.8	4.7	4.8	5.2
True Result:	10	5.0	5.0	5.0	5.0	5.0
% Recovery:	100	94	96	94	96	104
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	20	1.9	1.9	2.0	1.9	2.0
True Result:	20	2.0	2.0	2.0	2.0	2.0
% Recovery:	100	95	95	100	95	100
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	POTASSIUM	MAGNESIUM	MANGANESE	MOLYBDENUM	SODIUM	NICKEL
Batch Id:	X6W237	J6W237	G6W237	D6W237	16W237	E6W237
Blank Result:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95
Prep. Date:	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	26	41	3.2	2.0	54	1.9
Dup Result:	26	41	3.2	2.0	55	2.0
Sample RPD:	0	0	0	0	2	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<2	<0.2	<0.01	<0.01	<0.2	<0.02
Sample Result:	6	22	1.2	0.03	32	<0.02
Spiked Result:	26	41	3.2	2.0	54	1.9
Spike Added:	20	20	2.0	2.0	20	2.0
% Recovery:	100	95	100	99	110	95
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	47	5.0	4.8	4.7	9.7	4.7
True Result:	50	5.0	5.0	5.0	10	5.0
% Recovery:	94	100	96	94	97	94
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	19	19	2.0	2.0	23	1.9
True Result:	20	20	2.0	2.0	20	2.0
% Recovery:	95	95	100	100	115	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	LEAD	ANTIMONY	SELENIUM	THALLIUM	VANADIUM	ZINC
Batch Id:	P6W237	36W237	S6W237	46W237	V6W237	56W237
Blank Result:	<0.05	<0.06	<0.1	<0.1	<0.01	<0.02
Anal. Method:	6010	6010	6010	6010	6010	6010
Prep. Method:	3010	3010	3010	3010	3010	3010
Analysis Date:	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95	06-NOV-95
Prep. Date:	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.01	<0.02
Sample Result:	1.9	1.9	1.9	1.9	2.0	2.1
Dup Result:	1.9	1.9	1.9	1.9	2.0	2.2
Sample RPD:	0	0	0	0	0	5
Max RPD:	20	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	511006-4	511006-4	511006-4	511006-4	511006-4	511006-4
Rept Limit:	<0.05	<0.06	<0.1	<0.1	<0.01	<0.02
Sample Result:	<0.05	<0.06	<0.1	<0.1	<0.01	0.21
Spiked Result:	1.9	1.9	1.9	1.9	2.0	2.1
Spike Added:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	95	95	95	100	95
% Rec Limits:	75-125	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	4.8	5.0	4.9	4.7	4.7	4.9
True Result:	5.0	5.0	5.0	5.0	5.0	5.0
% Recovery:	96	100	98	94	94	98
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	1.9	1.9	1.9	1.9	2.0	1.9
True Result:	2.0	2.0	2.0	2.0	2.0	2.0
% Recovery:	95	95	95	95	100	95
% Rec Limits:	80-120	80-120	80-120	80-120	80-120	80-120



Analytical Technologies, Inc.

"Quality Control Comments"

Batch Id: Comments:

Batch Id	Comments
A6W237	ANALYST: JR
A6W237	The results reported under "Sample Duplication" are the MS/MSD.
L6W237	ANALYST: JR
L6W237	The results reported under "Sample Duplication" are the MS/MSD.
R6W237	ANALYST: JR
R6W237	The results reported under "Sample Duplication" are the MS/MSD.
O6W237	ANALYST: JR
O6W237	The results reported under "Sample Duplication" are the MS/MSD.
B6W237	ANALYST: JR
B6W237	The results reported under "Sample Duplication" are the MS/MSD.
Y6W237	ANALYST: JR
Y6W237	The results reported under "Sample Duplication" are the MS/MSD.
I6W237	ANALYST: JR
I6W237	The results reported under "Sample Duplication" are the MS/MSD.
C6W237	ANALYST: JR
C6W237	The results reported under "Sample Duplication" are the MS/MSD.
T6W237	ANALYST: JR
T6W237	The results reported under "Sample Duplication" are the MS/MSD.
H6W237	ANALYST: JR
H6W237	The results reported under "Sample Duplication" are the MS/MSD.
F6W237	ANALYST: JR
F6W237	The results reported under "Sample Duplication" are the MS/MSD.
N6W237	ANALYST: JR
N6W237	The results reported under "Sample Duplication" are the MS/MSD.
X6W237	ANALYST: JR
X6W237	The results reported under "Sample Duplication" are the MS/MSD.
J6W237	ANALYST: JR
J6W237	The results reported under "Sample Duplication" are the MS/MSD.
G6W237	ANALYST: JR
G6W237	The results reported under "Sample Duplication" are the MS/MSD.
D6W237	ANALYST: JR
D6W237	The results reported under "Sample Duplication" are the MS/MSD.
16W237	ANALYST: JR
16W237	The results reported under "Sample Duplication" are the MS/MSD.
E6W237	ANALYST: JR
E6W237	The results reported under "Sample Duplication" are the MS/MSD.
P6W237	ANALYST: JR
P6W237	The results reported under "Sample Duplication" are the MS/MSD.
36W237	ANALYST: JR
36W237	The results reported under "Sample Duplication" are the MS/MSD.
S6W237	ANALYST: JR
S6W237	The results reported under "Sample Duplication" are the MS/MSD.
46W237	ANALYST: JR
46W237	The results reported under "Sample Duplication" are the MS/MSD.
V6W237	ANALYST: JR
V6W237	The results reported under "Sample Duplication" are the MS/MSD.
56W237	ANALYST: JR
56W237	The results reported under "Sample Duplication" are the MS/MSD.



----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT;
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND
THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT
OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY
BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR
TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO
DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE
ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING
LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER,
THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT
AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI
REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
SAMPLE IS NON-HOMOGENEOUS.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF
THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM ANALYSIS REPORT:

RL= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

Q= QUALIFIER (FOOTNOTE)

FROM QUALITY CONTROL REPORT:

RPD= RELATIVE PERCENT DEVIATION.

RPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS
RUN BASIS.

SW-846, 3rd Edition, September 1986 and Revision 1, July 1992.

EPA 600/4-79-020, Revised March 1983.

NIOSH Manual of Analytical Methods, 3rd Edition.

GJ = GARY JACOBS
JLH = JAMES L. HERED

JR = JOHN REED
LV = LASSANDRA VON APPEN



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 51003001

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 601/602)

CLIENT	: ANALYTICAL TECHNOLOGIES, INC-NM	DATE SAMPLED	: 10/26/95
PROJECT #	: 510425	DATE RECEIVED	: 10/31/95
PROJECT NAME	: OCD PERMIT	DATE EXTRACTED	: N/A
CLIENT I.D.	: 510425-01	DATE ANALYZED	: 11/09/95
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
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BENZENE	<0.5
BROMODICHLOROMETHANE	<0.5
BROMOFORM	<0.5
BROMOMETHANE	<0.5
CARBON TETRACHLORIDE	<0.5
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.5
CHLOROFORM	<0.5
CHLOROMETHANE	<0.5
DIBROMOCHLOROMETHANE	<0.5
2-CHLOROETHYL VINYL ETHER	ND
1,3-DICHLOROBENZENE	<0.5
1,4-DICHLOROBENZENE	<0.5
1,2-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.5
1,1-DICHLOROETHANE	<0.5
1,2-DICHLOROETHANE	<0.5
1,1-DICHLOROETHENE	<0.5
CIS-1,2-DICHLOROETHENE	<0.5
1,2-DICHLOROPROPANE	<0.5
CIS-1,3-DICHLOROPROPENE	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<1.0
TETRACHLOROETHENE	<0.5
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.5
1,1,2-TRICHLOROETHANE	<0.5
TRICHLOROETHENE	<0.5
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.5
TOTAL XYLENES	<0.5
TRICHLOROTRIFLUOROETHANE	<2.0
TRANS-1,2-DICHLOROETHENE	<0.5

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	75
BROMOFLUOROBENZENE (%)	106



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 51003002

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 601/602)

CLIENT	: ANALYTICAL TECHNOLOGIES, INC-NM	DATE SAMPLED	: 10/26/95
PROJECT #	: 510425	DATE RECEIVED	: 10/31/95
PROJECT NAME	: OCD PERMIT	DATE EXTRACTED	: N/A
CLIENT I.D.	: 510425-02	DATE ANALYZED	: 11/09/95
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
-----------	---------

BENZENE	<0.5
BROMODICHLOROMETHANE	<0.5
BROMOFORM	<0.5
BROMOMETHANE	<0.5
CARBON TETRACHLORIDE	<0.5
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.5
CHLOROFORM	<0.5
CHLOROMETHANE	<0.5
DIBROMOCHLOROMETHANE	<0.5
2-CHLOROETHYL VINYL ETHER	ND
1,3-DICHLOROBENZENE	<0.5
1,4-DICHLOROBENZENE	<0.5
1,2-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.5
1,1-DICHLOROETHANE	<0.5
1,2-DICHLOROETHANE	<0.5
1,1-DICHLOROETHENE	<0.5
CIS-1,2-DICHLOROETHENE	<0.5
1,2-DICHLOROPROPANE	<0.5
CIS-1,3-DICHLOROPROPENE	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<1.0
TETRACHLOROETHENE	<0.5
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.5
1,1,2-TRICHLOROETHANE	<0.5
TRICHLOROETHENE	<0.5
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.5
TOTAL XYLENES	<0.5
TRICHLOROTRIFLUOROETHANE	<2.0
TRANS-1,2-DICHLOROETHENE	<0.5

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	72
BROMOFLUOROBENZENE (%)	107



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

ATI I.D. : 51003003

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 601/602)

CLIENT	: ANALYTICAL TECHNOLOGIES, INC-NM	DATE SAMPLED	: 10/26/95
PROJECT #	: 510425	DATE RECEIVED	: 10/31/95
PROJECT NAME	: OCD PERMIT	DATE EXTRACTED	: N/A
CLIENT I.D.	: 510425-03 (TRIP BLANK)	DATE ANALYZED	: 11/09/95
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS

RESULTS

BENZENE	<0.5
BROMODICHLOROMETHANE	<0.5
BROMOFORM	<0.5
BROMOMETHANE	<0.5
CARBON TETRACHLORIDE	<0.5
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.5
CHLOROFORM	<0.5
CHLOROMETHANE	<0.5
DIBROMOCHLOROMETHANE	<0.5
2-CHLOROETHYL VINYL ETHER	ND
1,3-DICHLOROBENZENE	<0.5
1,4-DICHLOROBENZENE	<0.5
1,2-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.5
1,1-DICHLOROETHANE	<0.5
1,2-DICHLOROETHANE	<0.5
1,1-DICHLOROETHENE	<0.5
CIS-1,2-DICHLOROETHENE	<0.5
1,2-DICHLOROPROPANE	<0.5
CIS-1,3-DICHLOROPROPENE	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<1.0
TETRACHLOROETHENE	<0.5
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.5
1,1,2-TRICHLOROETHANE	<0.5
TRICHLOROETHENE	<0.5
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.5
TOTAL XYLENES	<0.5
TRICHLOROTRIFLUOROETHANE	<2.0
TRANS-1,2-DICHLOROETHENE	<0.5

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	82
BROMOFLUOROBENZENE (%)	104



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - RESULTS

REAGENT BLANK

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 601/602)

CLIENT	: ANALYTICAL TECHNOLOGIES, INC-NM	ATI I.D.	: 510030
PROJECT #	: 510425	DATE EXTRACTED	: 11/09/95
PROJECT NAME	: OCD PERMIT	DATE ANALYZED	: 11/09/95
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
BENZENE	<0.5
BROMODICHLOROMETHANE	<0.5
BROMOFORM	<0.5
BROMOMETHANE	<0.5
CARBON TETRACHLORIDE	<0.5
CHLOROBENZENE	<0.5
CHLOROETHANE	<0.5
CHLOROFORM	<0.5
CHLOROMETHANE	<0.5
DIBROMOCHLOROMETHANE	<0.5
2-CHLOROETHYL VINYL ETHER	ND
1,3-DICHLOROBENZENE	<0.5
1,4-DICHLOROBENZENE	<0.5
1,2-DICHLOROBENZENE	<0.5
DICHLORODIFLUOROMETHANE	<0.5
1,1-DICHLOROETHANE	<0.5
1,2-DICHLOROETHANE	<0.5
1,1-DICHLOROETHENE	<0.5
CIS-1,2-DICHLOROETHENE	<0.5
1,2-DICHLOROPROPANE	<0.5
CIS-1,3-DICHLOROPROPENE	<0.5
TRANS-1,3-DICHLOROPROPENE	<0.5
ETHYLBENZENE	<0.5
METHYLENE CHLORIDE	<2.0
1,1,2,2-TETRACHLOROETHANE	<1.0
TETRACHLOROETHENE	<0.5
TOLUENE	<0.5
1,1,1-TRICHLOROETHANE	<0.5
1,1,2-TRICHLOROETHANE	<0.5
TRICHLOROETHENE	<0.5
TRICHLOROFLUOROMETHANE	<0.5
VINYL CHLORIDE	<0.5
TOTAL XYLENES	<0.5
TRICHLOROTRIFLUOROETHANE	<2.0
TRANS-1,2-DICHLOROETHENE	<0.5

SURROGATE PERCENT RECOVERIES

BROMOCHLOROMETHANE (%)	84
BROMOFLUOROBENZENE (%)	105



Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 510030

TEST : VOLATILE HALOCARBONS/AROMATICS (EPA 601/602)

CLIENT : ANALYTICAL TECHNOLOGIES, INC-NM

PROJECT # : 510425

DATE ANALYZED : 11/08/95

PROJECT NAME : OCD PERMIT

SAMPLE MATRIX : AQUEOUS

REF I.D. : 51003002

UNITS : UG/L

COMPOUNDS	SAMPLE CONC.		SPIKED	% SPIKED	DUP.		RPD
	RESULT	SPIKED			SAMPLE	REC.	
1,1-DICHLOROETHENE	<0.5	20	21	105	21	105	0
TRICHLOROETHENE	<0.5	20	20	100	22	110	10
TETRACHLOROETHENE	<0.5	20	22	110	22	110	0
BENZENE	<0.5	20	21	105	21	105	0
BROMODICHLOROMETHANE	<0.5	20	22	110	22	110	0
CHLOROFORM	<0.5	20	20	100	21	105	5
1,1,1-TRICHLOROETHANE	<0.5	20	20	100	21	105	5
TOLUENE	<0.5	20	20	100	21	105	5
CHLOROBENZENE	<0.5	20	21	105	22	110	5
O-XYLENE	<0.5	20	20	100	22	110	10

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

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



"FINAL REPORT FORMAT - SINGLE"

Accession: 511041
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510452
Project Name: GIANT
Project Location: OCD PERMIT RENEWAL
Test: POLYNUCLEAR AROMATICS BY 610
Analysis Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992
Extraction Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 26-OCT-95 N/S
Client Sample Id: 510425-01 Received Date: 31-OCT-95
Batch: PAW237 Extraction Date: 31-OCT-95
Blank: A Dry Weight %: N/A Analysis Date: 04-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACENAPHTHENE	UG/L	ND	1	
ACENAPHTHYLENE	UG/L	ND	1	
ANTHRACENE	UG/L	ND	1	
BENZO (a) ANTHRACENE	UG/L	ND	1	
BENZO (a) PYRENE	UG/L	ND	1	
BENZO (b) FLUORANTHENE	UG/L	ND	1	
BENZO (g, h, i) PERYLENE	UG/L	ND	1	
BENZO (k) FLUORANTHENE	UG/L	ND	1	
CHRYSENE	UG/L	ND	1	
DIBENZO (a, h) ANTHRACENE	UG/L	ND	1	
FLUORANTHENE	UG/L	ND	1	
FLUORENE	UG/L	ND	1	
INDENO (1, 2, 3-cd) PYRENE	UG/L	ND	1	
NAPHTHALENE	UG/L	ND	1	
PHENANTHRENE	UG/L	ND	1	
PYRENE	UG/L	ND	1	
1-METHYLNAPHTHALENE	UG/L	ND	1	
2-METHYLNAPHTHALENE	UG/L	ND	1	
2-CHLOROANTHRACENE	%REC/SURR	61	28-138	
ANALYST	INITIALS	LJT		

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: PAW237
Analysis Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992
Extraction Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992

Blank Id: A Date Analyzed: 02-NOV-95 Date Extracted: 31-OCT-95

Parameters:	Units:	Results:	Reporting Limits:
ACENAPHTHENE	UG/L	ND	1
ACENAPHTHYLENE	UG/L	ND	1
ANTHRACENE	UG/L	ND	1
BENZO (a) ANTHRACENE	UG/L	ND	1
BENZO (a) PYRENE	UG/L	ND	1
BENZO (b) FLUORANTHENE	UG/L	ND	1
BENZO (g, h, i) PERYLENE	UG/L	ND	1
BENZO (k) FLUORANTHENE	UG/L	ND	1
CHRYSENE	UG/L	ND	1
DIBENZO (a, h) ANTHRACENE	UG/L	ND	1
FLUORANTHENE	UG/L	ND	1
FLUORENE	UG/L	ND	1
INDENO (1, 2, 3-cd) PYRENE	UG/L	ND	1
NAPHTHALENE	UG/L	ND	1
PHENANTHRENE	UG/L	ND	1
PYRENE	UG/L	ND	1
1-METHYLNAPHTHALENE	UG/L	ND	1
2-METHYLNAPHTHALENE	UG/L	ND	1
2-CHLOROANTHRACENE	%REC/SURR	81	28-138
ANALYST	INITIALS	LJT	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: PAW237
Analysis Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992
Extraction Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992

RS Date Analyzed: 02-NOV-95
RSD Date Analyzed: 02-NOV-95

RS Date Extracted: 31-OCT-95
RSD Date Extracted: 31-OCT-95

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
ACENAPHTHYLENE	80.0	<1	63	79	52	65	19	46	46-110
BENZO (k) FLUORANTHENE	4.0	<1	3.7	93	4.1	103	10	30	58-128
CHRYSENE	4.0	<1	3.8	95	4.3	108	13	29	62-129
PHENANTHRENE	4.0	<1	3.6	90	3.4	85	6	28	61-116
PYRENE	4.0	<1	3.5	88	4.1	103	16	26	62-120
Surrogates:									
2-CHLOROANTHRACENE				101		117			28-138

Comments:

Notes:

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE
PROGRAM AND REFERENCED METHOD.



Analytical Technologies, Inc.

"QC Report"

Title: Water Matrix
Batch: PAW237
Analysis Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992
Extraction Method: 610 / Federal Register, 40 CFR, Part 136, July 1, 1992

Dry Weight %: N/A
Sample Spiked: 511034-1

MS Date Analyzed: 02-NOV-95
MSD Date Analyzed: 02-NOV-95

MS Date Extracted: 31-OCT-95
MSD Date Extracted: 31-OCT-95

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
ACENAPHTHYLENE	80.0	120	94	-32*	101	-24*	29 42	14-135
BENZO (k) FLUORANTHENE	4.0	<1	3.1	78	2.5	63	21 58	25-142
CHRYSENE	4.0	8	3.5	-112*	8.2	5	219*51	3-176
PHENANTHRENE	4.0	80	45	-875*	41	-975*	11 55	27-146
PYRENE	4.0	4	8.0	100	6.2	55	58* 47	15-157

Surrogates:
2-CHLOROANTHRACENE 116 89 28-138

Comments:
MATRIX SPIKE/MATRIX SPIKE DUPLICATE HAD RECOVERY(S) AND/OR
RPD(S) OUTSIDE ACCEPTANCE LIMITS DUE TO MATRIX INTERFERENCE.
REFER TO REAGENT SPIKE/REAGENT SPIKE DUPLICATE DATA.

Notes:
N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT
UG/L = PARTS PER BILLION. < = LESS THAN REPORTING LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.
SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE
PROGRAM AND REFERENCED METHOD.



Analytical **Technologies**, Inc.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG = MICROGRAMS
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/M3 = MILLIGRAM PER CUBIC METER.
PPMV = PART PER MILLION BY VOLUME.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS

SOURCES FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE PROGRAM AND REFERENCED METHOD.

ORGANIC SOILS ARE REPORTED ON A DRYWEIGHT BASIS.

ND = NOT DETECTED ABOVE REPORTING LIMIT.

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

ATI/GC/FID

ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME IONIZATION DETECTOR (FID).

ATI/GC/FIX

ATI GAS CHROMATOGRAPHIC METHOD FOR ANALYSIS OF FIXED GASES EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD) AND FLAME IONIZATION DETECTOR (FID).

ATI/GC/FPD

ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH FLAME PHOTOMETRIC DETECTOR (FPD) IN SULFUR-SPECIFIC MODE.

ATI/GC/PID

ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH PHOTOIONIZATION DETECTOR (PID).

ATI/GC/TCD

ATI GAS CHROMATOGRAPHIC METHOD EMPLOYING DIRECT INJECTION ON COLUMN WITH THERMAL CONDUCTIVITY DETECTOR (TCD).

LJT = LISA THOMASON
SW = STEVE WILHITE
PL = PAUL LESCHENSKY
RW = ROBERT WOLFE
BV = BEN VAUGHN
KS = KENDALL SMITH
KK = KERRY KUST
DWB = DAVID W. BOWERS
RP = ROB PEREZ

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

PROJECT MANAGER: Kim McNeill
COMPANY: ALB-ATI
ADDRESS:
PHONE:
FAX:
BILL TO:
COMPANY:
ADDRESS:

[illegible]

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO.:	510475	NO. CONTAINERS	
PROJ. NAME:	OD Permit, Rengas : Giant	CUSTODY SEALS	Y/N / NA
P.O. NO.:		RECEIVED INTACT	
SHIPPED VIA:		RECEIVED COLD	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Due: 11/9 Discount: quote Two #1059

Route only to (circle one):

LAB
USE
ONLY

Portland
Renton
San Diego
Fl. Collins
Pensacola

	ANALYSIS REQUEST	NUMBER OF CONTAINERS
Petroleum Hydrocarbons (418.1)		
(MOD 8015) Gas/Diesel		
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)		
BTEX/MTBE (8020)		
Chlorinated Hydrocarbons (601/8010)		
Aromatic Hydrocarbons (602/8020)		
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	X X	
ben chem.: FI, AIB, G, 504, TP3, PH, EC		
Pesticides/PCB (608/8080)		
Herbicides (615/8150)		
Base/Neutral/Acid Compounds GC/MS (625/8270)		
Volatile Organics GC/MS (624/8240)	X	
Polynuclear Aromatics (610/8100)	X	
6010(A), B, C, D, E, F, G, H, I, J, K, L, M, N, O, P, Q, R, S, T, U, V, W, X, Y, Z		
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)		

SAMPLED & RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.	
Signature:	Time:	Signature:	Time:	Signature:	Time:
<i>Andrew Parker</i>	1700				
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Andrew Parker	10/30				
Company:	Phone:	Company:		Company:	
ATI-ALB					

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

ATI Labs; San Diego (619) 458-9141 • Phoenix (602) 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

ATI LAB I.D.

510030

DATE: 10/30 PAGE 1 OF 1

PROJECT MANAGER: Kim McNeill
COMPANY: AT-B-ATI
ADDRESS: _____
PHONE: _____
FAX: _____
BILL TO: _____
COMPANY: _____
ADDRESS: _____

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
510425-01	10/26	✓	AQ	1
-02	10/26	✓	↓	2
-03	10/26	✓	AQ	3

ANALYSIS REQUEST										NUMBER OF CONTAINERS	
Petroleum Hydrocarbons (418.1)											
(MOD 8015) Gas/Diesel											
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)											
BTXE/MTBE (8020)											
Chlorinated Hydrocarbons (601/8020)	X	X	X	X						4	
Aromatic Hydrocarbons (602/8020)	X	X	X	X						4	
SDWA Volatiles (502.1/503.1, 502.2 Reg. & Unreg.)	X	X	X	X						4	
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)											

PROJECT INFORMATION

PROJ. NO.: 510425

PROJ. NAME: 099 Permit Renewal - 61901

P.O. NO.: _____

SHIPPED VIA: _____

NO. CONTAINERS: 98

CUSTODY SEALS: Y/N/INA

RECEIVED INTACT: Y

RECEIVED COLD: B/V

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Lab: 11/9 Discont: 9056 Two #1: 1058

Route only to (circle one):

Portland San Diego Ft. Collins

Renton Pensacola PHX

LAB USE ONLY

SAMPLED & RELINQUISHED BY: 1. RELINQUISHED BY: 2. RELINQUISHED BY: 3.

Signature: Andrew Parker Time: 1700 Signature: _____ Time: _____

Printed Name: Andrew Parker Date: 10/30 Printed Name: _____ Date: _____

Company: _____ Company: _____

RECEIVED BY: 1. RECEIVED BY: 2. RECEIVED BY: 3.

Signature: _____ Time: _____ Signature: Andrew Parker Time: 1700

Printed Name: _____ Date: _____ Printed Name: Andrew Parker Date: 10/30

Company: _____ Company: _____ Company: Analytical Technologies, Inc.

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



ATILAB I.D.

DATE: 10-27-95 PAGE 1 OF 1

B.I.D. School

ANALYSIS REQUEST

COMPANY: GIANT REFINING CO
ADDRESS: 140 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 3833
FAX: (505) 722 0210

BILL TO: DAVE PAVLICH
COMPANY: GIANT REFINING CO
ADDRESS: Rte Box 7
GALLUP, NM 87301

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
1	2010-01-01	10:00	100	100
2	2010-01-01	10:00	100	100
3	2010-01-01	10:00	100	100
4	2010-01-01	10:00	100	100
5	2010-01-01	10:00	100	100
6	2010-01-01	10:00	100	100
7	2010-01-01	10:00	100	100
8	2010-01-01	10:00	100	100
9	2010-01-01	10:00	100	100
10	2010-01-01	10:00	100	100
11	2010-01-01	10:00	100	100
12	2010-01-01	10:00	100	100
13	2010-01-01	10:00	100	100
14	2010-01-01	10:00	100	100
15	2010-01-01	10:00	100	100
16	2010-01-01	10:00	100	100
17	2010-01-01	10:00	100	100
18	2010-01-01	10:00	100	100
19	2010-01-01	10:00	100	100
20	2010-01-01	10:00	100	100
21	2010-01-01	10:00	100	100
22	2010-01-01	10:00	100	100
23	2010-01-01	10:00	100	100
24	2010-01-01	10:00	100	100
25	2010-01-01	10:00	100	100
26	2010-01-01	10:00	100	100
27	2010-01-01	10:00	100	100
28	2010-01-01	10:00	100	100
29	2010-01-01	10:00	100	100
30	2010-01-01	10:00	100	100
31	2010-01-01	10:00	100	100
32	2010-01-01	10:00	100	100
33	2010-01-01	10:00	100	100
34	2010-01-01	10:00	100	100
35	2010-01-01	10:00	100	100
36	2010-01-01	10:00	100	100
37	2010-01-01	10:00	100	100
38	2010-01-01	10:00	100	100
39	2010-01-01	10:00	100	100
40	2010-01-01	10:00	100	100
41	2010-01-01	10:00	100	100
42	2010-01-01	10:00	100	100
43	2010-01-01	10:00	100	100
44	2010-01-01	10:00	100	100
45	2010-01-01	10:00	100	100
46	2010-01-01	10:00	100	100
47	2010-01-01	10:00	100	100
48	2010-01-01	10:00	100	100
49	2010-01-01	10:00	100	100
50	2010-01-01	10:00	100	100
51	2010-01-01	10:00	100	100
52	2010-01-01	10:00	100	100
53	2010-01-01	10:00	100	100
54	2010-01-01	10:00	100	100
55	2010-01-01	10:00	100	100
56	2010-01-01	10:00	100	100
57	2010-01-01	10:00	100	100
58	2010-01-01	10:00	100	100
59	2010-01-01	10:00	100	100
60	2010-01-01	10:00	100	100
61	2010-01-01	10:00	100	100
62	2010-01-01	10:00	100	100
63	2010-01-01	10:00	100	100
64	2010-01-01	10:00	100	100
65	2010-01-01	10:00	100	100
66	2010-01-01	10:00	100	100
67	2010-01-01	10:00	100	100
68	2010-01-01			

0 W - 13	10-24	H20	-01
0 W - 20	10-26	H20	-02
TRAP	10/26		-03

PROJECT INFORMATION

SAMPLE RECEIPT

PROJ. NO.:		NO. CONTAINERS	12
PROJ. NAME:	OLD PERMIT REVIEW	ADDITIONAL SEAL	Y/N/NA
P.O. NO.:		RECEIVED INTACT	Y
SHIPPED VIA:	FEDEX	RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

SAME AS OLD LIST
 0W13 = 6 BATHS
 0W20 = 15

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 487-2222

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

DISTRIBUTION: White, Canary - ATJ • Pink - ORIGINATOR

04) 474-1001 • Portland (503) 684-0447 • Albuquerque (505) 344-3777

ATI Labs: San Diego (619) 458-9141 • Phoenix (602) 496-4400 • Seattle (206) 228-8335 • Pensacola (904) 487-2222





Analytical**Technologies**, Inc.

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

ATI I.D. 602315

March 21, 1996

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

Project Name/Number: OCD-RE-PERMIT RE-PERMIT SAMP.

Attention: Edward Horst

On 02/08/96, Analytical Technologies, of New Mexico 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.

The bromide results contained in this report were analyzed within EPA method 300.0 holding and met method criteria; however, it did not meet American Environmental Network (AZ), Inc. criteria (the closing CCV was low). The samples were reanalyzed as follows:

<u>Sample</u>	<u>Result (mg/L)</u>	<u>Date of Analysis</u>
602315-01	<0.3	03/05/96
602315-02	0.6	03/08/96
602315-03	<6	03/06/96
602315-04	0.7	03/06/96

The result of the original analysis are considered valid because they met method criteria.

EPA method 601/602 analyses were performed by American Environmental Network (NM) Inc., (formerly Analytical Technologies, Inc), Albuquerque, NM.

EPA method 300.0 (Bromide) and 200.7/6010 (Silica) analyses were performed by American Environmental Network (AZ), Inc., (formerly Analytical Technologies, Inc), 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

EPA method 6010 and 8240 analyses were performed by Analytical Technologies, Inc., 225 Commerce Drive, Fort Collins, CO.

Corporate Offices: 5550 Morehouse Drive San Diego, CA 92121 (619) 458-9141



Analytical**Technologies**, Inc.

All other analyses were performed by American Environmental Network (FL) Inc., (formerly Analytical Technologies, Inc), 11 East Olive Road, Pensacola, FL.

EPA method 610 analyses were cancelled on 02/08/96 for sample "012996-01" per Ed Horst.

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

Kimberly D. McNeill
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 02/08/96
PROJECT # : RE-PERMIT SAMP.
PROJECT NAME : OCD-RE-PERMIT REPORT DATE : 03/21/96

ATI ID: 602315

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	602315-01	020796-01 OW-12	AQUEOUS	02/07/96
02	602315-02	012996-01 OW-9	AQUEOUS	01/29/96
03	602315-03	020696-01 OW-14	AQUEOUS	02/06/96
04	602315-04	020196-01 OW-10	AQUEOUS	02/01/96

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
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.

DATE: 03-21-96

ION BALANCE

ATI ACCESSION NUMBER: 602315-01
 SAMPLE IDENTIFICATION: 020796-01 (OW-12)
 CLIENT: GIANT

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	360.000	0.02000	7.20000
CHLORIDE	22.000	0.02821	0.62062
FLUORIDE	0.800	0.05264	0.04211
NITRATE AS N	NA	0.01613	0.00000
SULFATE	180.000	0.02082	3.74760

TOTAL ANIONS 11.61033

CATIONS	RESULT	FACTOR	TOTAL
ALUMINUM	<0.2	0.11119	0.00000
CALCIUM	3.000	0.04990	0.1497
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	<1.0	0.08229	0.00000
SODIUM	250.000	0.04350	10.87500
COPPER	<0.010	0.03147	0.00000
IRON	<0.1	0.05372	0.00000
MANGANESE	<0.010	0.03640	0.00000
ZINC	<0.02	0.03059	0.00000

TOTAL CATIONS 11.0247

%RPD (<10%) 5.17

TOTAL ANIONS/CATIONS	(CALCULATED)	671.800		
TOTAL DISSOLVED SOLIDS	(ANALYZED)	690	%RPD (<15%)	-2.67
ELECTRICAL COND.		1100	TDS/EC RATIO (0.65+/-0.1)	0.62727

DATE: 03-21-96

ION BALANCE

ATI ACCESSION NUMBER: 602315-02
 SAMPLE IDENTIFICATION: 012996-01 (ow-9)
 CLIENT: GIANT

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	440.000	0.02000	8.80000
CHLORIDE	220.000	0.02821	6.20620
FLUORIDE	0.600	0.05264	0.03158
NITRATE AS N	NA	0.01613	0.00000
SULFATE	130.000	0.02082	2.70660

TOTAL ANIONS 17.74438

CATIONS	RESULT	FACTOR	TOTAL
ALUMINUM	<0.2	0.11119	0.00000
CALCIUM	16.000	0.04990	0.7984
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	2.000	0.08229	0.16458
SODIUM	370.000	0.04350	16.09500
COPPER	<0.010	0.03147	0.00000
IRON	<0.1	0.05372	0.00000
MANGANESE	<0.010	0.03640	0.00000
ZINC	<0.02	0.03059	0.00000

TOTAL CATIONS 17.05798

%RPD (<10%) 3.94

TOTAL ANIONS/CATIONS	(CALCULATED)	1002.600		
TOTAL DISSOLVED SOLIDS	(ANALYZED)	1000	%RPD (<15%)	0.26
ELECTRICAL COND.		1800	TDS/EC RATIO (0.65+/-0.1)	0.55556



Analytical Technologies, Inc.

DATE: 03-21-96

ION BALANCE

ATI ACCESSION NUMBER:
SAMPLE IDENTIFICATION:
CLIENT:

602315-03
020696-01 (OW-14)
GIANT

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	630.000	0.02000	12.60000
CHLORIDE	190.000	0.02821	5.35990
FLUORIDE	0.500	0.05264	0.02632
NITRATE AS N	NA	0.01613	0.00000
SULFATE	27.000	0.02082	0.56214
TOTAL ANIONS			18.54836

CATIONS	RESULT	FACTOR	TOTAL
ALUMINUM	<0.2	0.11119	0.00000
CALCIUM	41.000	0.04990	2.0459
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	11.000	0.08229	0.90519
SODIUM	340.000	0.04350	14.79000
COPPER	<0.010	0.03147	0.00000
IRON	0.100	0.05372	0.00537
MANGANESE	1.100	0.03640	0.04004
ZINC	<0.02	0.03059	0.00000
TOTAL CATIONS			17.7865

		%RPD (<10%)	4.19
TOTAL ANIONS/CATIONS	(CALCULATED)	988.700	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	1000	%RPD (<15%) -1.14
ELECTRICAL COND.		1800	TDS/EC RATIO (0.65+/-0.1) 0.55556

DATE: 03-21-96

ION BALANCE

ATI ACCESSION NUMBER: 602315-04
 SAMPLE IDENTIFICATION: 020196-01 (OW-10)
 CLIENT: GIANT

ANIONS	RESULT MG/L	FACTOR ME/L	TOTAL
ALKALINITY (AS CaCO ₃)	450.000	0.02000	9.00000
CHLORIDE	200.000	0.02821	5.64200
FLUORIDE	0.500	0.05264	0.02632
NITRATE AS N	NA	0.01613	0.00000
SULFATE	180.000	0.02082	3.74760
TOTAL ANIONS			18.41592

CATIONS	RESULT	FACTOR	TOTAL
ALUMINUM	<0.2	0.11119	0.00000
CALCIUM	22.000	0.04990	1.0978
POTASSIUM	<1.0	0.02558	0.00000
MAGNESIUM	3.000	0.08229	0.24687
SODIUM	380.000	0.04350	16.53000
COPPER	<0.010	0.03147	0.00000
IRON	<0.1	0.05372	0.00000
MANGANESE	<0.01	0.03640	0.00000
ZINC	<0.02	0.03059	0.00000
TOTAL CATIONS			17.87467

		%RPD (<10%)	2.98
TOTAL ANIONS/CATIONS	(CALCULATED)	1055.500	
TOTAL DISSOLVED SOLIDS	(ANALYZED)	1100	%RPD (<15%) -4.13
ELECTRICAL COND.		1900	TDS/EC RATIO (0.65+/-0.1) 0.57895



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 602315-01		Lab ID: 001			
ALKALINITY, TOTAL (2320B)	MG/L	360	1	ASW005	
PH (150.1)	UNITS	9.5	NA	PHW029	
BICARBONATE, CaCO ₃ (2330B)	MG/L	280	1	NONE	OW-12
CARBONATE, CaCO ₃ (2330B)	MG/L	82	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	ND	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	2	1	NONE	

Comments:

Client ID: 602315-02		Lab ID: 002			
ALKALINITY, TOTAL (2320B)	MG/L	440	1	ASW005	
PH (150.1)	UNITS	7.7	NA	PHW029	
BICARBONATE, CaCO ₃ (2330B)	MG/L	440	1	NONE	OW-9
CARBONATE, CaCO ₃ (2330B)	MG/L	2	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	17	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:

Client ID: 602315-03		Lab ID: 003			
ALKALINITY, TOTAL (2320B)	MG/L	630	1	ASW005	
PH (150.1)	UNITS	7.3	NA	PHW029	
BICARBONATE, CaCO ₃ (2330B)	MG/L	630	1	NONE	OW-14
CARBONATE, CaCO ₃ (2330B)	MG/L	1	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	63	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:



"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 602315-04		Lab ID: 004			
ALKALINITY, TOTAL (2320B)	MG/L	450	1	ASW005	
PH (150.1)	UNITS	7.6	NA	PHW029	
BICARBONATE, CaCO ₃ (2330B)	MG/L	450	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	2	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	23	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

OW-10

Comments:



"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: TOTAL ALKALINITY

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
602315-01	001 WATER	02-FEB-96 1103	09-FEB-96
602315-02	002 WATER	29-JAN-96 1420	09-FEB-96
602315-03	003 WATER	06-FEB-96 1512	09-FEB-96
602315-04	004 WATER	01-FEB-96 1032	09-FEB-96



"Method Report Summary"

Accession Number: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: TOTAL ALKALINITY

Client Sample Id:	Parameter:	Unit:	Result:
602315-01	ALKALINITY, TOTAL (2320B)	MG/L	360
OW-12	PH (150.1)	UNITS	9.5
	BICARBONATE, CaCO_3 (2330B)	MG/L	280
	CARBONATE, CaCO_3 (2330B)	MG/L	82
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	2
602315-02	ALKALINITY, TOTAL (2320B)	MG/L	440
OW-9	PH (150.1)	UNITS	7.7
	BICARBONATE, CaCO_3 (2330B)	MG/L	440
	CARBONATE, CaCO_3 (2330B)	MG/L	2
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	17
602315-03	ALKALINITY, TOTAL (2320B)	MG/L	630
OW-14	PH (150.1)	UNITS	7.3
	BICARBONATE, CaCO_3 (2330B)	MG/L	630
	CARBONATE, CaCO_3 (2330B)	MG/L	1
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	63
602315-04	ALKALINITY, TOTAL (2320B)	MG/L	450
OW-10	PH (150.1)	UNITS	7.6
	BICARBONATE, CaCO_3 (2330B)	MG/L	450
	CARBONATE, CaCO_3 (2330B)	MG/L	2
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	23



Analytical**Technologies**,Inc.

"WetChem Quality Control Report"

Parameter:	ALKALINITY	PH
Batch Id:	ASW005	PHW029
Blank Result:	<1	N/A
Anal. Method:	2320B	150.1
Prep. Method:	N/A	N/A
Analysis Date:	16-FEB-96	09-FEB-96
Prep. Date:	16-FEB-96	09-FEB-96

Sample Duplication

Sample Dup:	602274-1	602265-1
Rept Limit:	<1	N/A

Sample Result:	137	7.00
Dup Result:	137	6.97
Sample RPD:	0	0.03
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	602274-1	N/A
Rept Limit:	<1	N/A
Sample Result:	137	
Spiked Result:	163	
Spike Added:	25F	
% Recovery:	104	
% Rec Limits:	80-113	
Dry Weight%	N/A	

ICV

ICV Result:	245	9.82
True Result:	250	10.00
% Recovery:	98	98
% Rec Limits:	90-110	90-110

LCS

LCS Result:		6.87
True Result:		6.87
% Recovery:		100
% Rec Limits:		97-103



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Wetchem
QcLevel: II

Parameter: Unit: Result: R.L: Batch: Q:

Client ID: 602315-01 Lab ID: 001

CHLORIDE (325.3) MG/L 22 1 CIW008
CONDUCTIVITY (120.1) UMH/CM 1100 1 CDW004
FLUORIDE (340.2) MG/L 0.8 0.2 FLW006
PH (150.1) UNITS 9.5 NA PHW029
SULFATE (375.4) MG/L 180 50 SEW009 +
TOTAL DISSOLVED SOLIDS (160.1) MG/L 690 5 TDW013

Comments:

Client ID: 602315-02 Lab ID: 002

CHLORIDE (325.3) MG/L 220 10 CIW008 +
CONDUCTIVITY (120.1) UMH/CM 1800 1 CDW004
FLUORIDE (340.2) MG/L 0.6 0.2 FLW006
PH (150.1) UNITS 7.7 NA PHW029
SULFATE (375.4) MG/L 130 50 SEW009 +
TOTAL DISSOLVED SOLIDS (160.1) MG/L 1000 5 TDW013

Comments:

Client ID: 602315-03 Lab ID: 003

CHLORIDE (325.3) MG/L 190 10 CIW008 +
CONDUCTIVITY (120.1) UMH/CM 1800 1 CDW004
FLUORIDE (340.2) MG/L 0.5 0.2 FLW006
PH (150.1) UNITS 7.3 NA PHW029
SULFATE (375.4) MG/L 27 10 SEW009
TOTAL DISSOLVED SOLIDS (160.1) MG/L 1000 5 TDW013

Comments:

Client ID: 602315-04 Lab ID: 004

CHLORIDE (325.3) MG/L 200 10 CIW008 +
CONDUCTIVITY (120.1) UMH/CM 1900 1 CDW004
FLUORIDE (340.2) MG/L 0.5 0.2 FLW006
PH (150.1) UNITS 7.6 NA PHW029
SULFATE (375.4) MG/L 180 130 SEW009 +
TOTAL DISSOLVED SOLIDS (160.1) MG/L 1100 5 TDW013

Comments:



"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
602315-01	001 WATER	02-FEB-96 1103	09-FEB-96
602315-02	002 WATER	29-JAN-96 1420	09-FEB-96
602315-03	003 WATER	06-FEB-96 1512	09-FEB-96
602315-04	004 WATER	01-FEB-96 1032	09-FEB-96



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
602315-01 DW-12	CHLORIDE (325.3)	MG/L	22
	CONDUCTIVITY (120.1)	UMH/CM	1100
	FLUORIDE (340.2)	MG/L	0.8
	PH (150.1)	UNITS	9.5
	SULFATE (375.4)	MG/L	180
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	690
602315-02 DW-9	CHLORIDE (325.3)	MG/L	220
	CONDUCTIVITY (120.1)	UMH/CM	1800
	FLUORIDE (340.2)	MG/L	0.6
	PH (150.1)	UNITS	7.7
	SULFATE (375.4)	MG/L	130
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000
602315-03 DW-14	CHLORIDE (325.3)	MG/L	190
	CONDUCTIVITY (120.1)	UMH/CM	1800
	FLUORIDE (340.2)	MG/L	0.5
	PH (150.1)	UNITS	7.3
	SULFATE (375.4)	MG/L	27
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1000
602315-04 DW-10	CHLORIDE (325.3)	MG/L	200
	CONDUCTIVITY (120.1)	UMH/CM	1900
	FLUORIDE (340.2)	MG/L	0.5
	PH (150.1)	UNITS	7.6
	SULFATE (375.4)	MG/L	180
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1100



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CONDUCT'Y	FLUORIDE	PH	SULFATE	TDS
Batch Id:	CIW008	CDW004	FLW006	PHW029	SEW009	TDW013
Blank Result:	<1	<1	<0.2	N/A	<10	<5
Anal. Method:	325.3	120.1	340.2	150.1	375.4	160.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	12-FEB-96	12-FEB-96	14-FEB-96	09-FEB-96	16-FEB-96	15-FEB-96
Prep. Date:	12-FEB-96	12-FEB-96	14-FEB-96	09-FEB-96	16-FEB-96	12-FEB-96

Sample Duplication

Sample Dup:	602236-3	602095-1	602264-1	602265-1	602273-1	602273-1
Rept Limit:	<2#	<1	<0.2	N/A	<130+	<5
Sample Result:	19	48	0.80	7.00	418	1640
Dup Result:	19	48	0.79	6.97	432	1652
Sample RPD:	0	0	0.01G	0.03	14	1
Max RPD:	6	4	0.2	0.12	130	16
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	602236-4	N/A	602264-1	N/A	602273-1	N/A
Rept Limit:	<10+	N/A	<0.2	N/A	<250+	N/A
Sample Result:	119		0.80		418	
Spiked Result:	692		1.61		800	
Spike Added:	550		0.80		500	
% Recovery:	104		101		76	
% Rec Limits:	89-110		70-129		51-151	
Dry Weight%	N/A		N/A		N/A	

ICV

ICV Result:	97	1402	1.14	9.82	18	
True Result:	100	1413	1.20	10.00	20	
% Recovery:	97	99	95	98	90	
% Rec Limits:	90-110	90-110	90-110	90-110	90-110	

LCS

LCS Result:		312		6.87		286
True Result:		303		6.87		293
% Recovery:		103		100		98
% Rec Limits:		84-110		97-103		66-122



Analytical**Technologies**, Inc.

"Quality Control Comments"

Batch Id: Comments:

TDW013

602340-1,2; 602341-1,2; 602352-1 WERE ADDED TO BATCH ON 2/14/96.



----- Common Footnotes WetChem -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT;
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND
THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT
OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY
BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR
TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO
DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE
ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING
LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER,
THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH = SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT
AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI
REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
SAMPLE IS NON-HOMOGENEOUS.
(*) = DETECTION LIMITS RAISED DUE TO CLP METHOD NOT REQUIRING A CONCENTRATION STEP FOR CN.
(CA) = SEE CORRECTIVE ACTIONS FORM.

SW-846, 3rd Edition, September 1986 and Revision 1, July 1992.

EPA 600/4-79-020, Revised March 1983.

STANDARD METHODS, 17TH ED., 1989

NIOSH Manual of Analytical Methods, 3rd Edition.

ANNUAL BOOK OF ASTM STANDARDS, VOLUME 11.01, 1991.

1. COLIFORM. COLIFORM PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN
THE LOGARITHM OF COLONIES PER 100 MLS OF SAMPLE ON DUPLICATE PLATES.
2. PH. PH PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN THE
SAMPLE AND DUPLICATE ANALYSIS.
3. FLASHPOINT. FLASHPOINT PRECISION IS MEASURED BY THE ABSOLUTE DIFFERENCE BETWEEN
THE SAMPLE AND DUPLICATE ANALYSIS. IF FLASHPOINT IS LESS THAN 25
DEGREES CELSIUS, THE DETECTION LIMIT BECOMES THE INITIAL STARTING
TEMPERATURE.

RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION).

RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.

DPH = DOLLY P. HWANG	SG = SCOTT GRESHAM	RB = REBECCA BROWN
NC = NICOLE CALL	NSB = NANCY S. BUTLER	MM = MARY MOLONEY
CF = CHRISTINE FOSTER	ED = ESTHER DANTIN	AB = ANDY BROTHERTON
AMC = A. MICKEY CROW		



Analytical**Technologies**, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 602666

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

DATE RECEIVED : 02/09/96

PROJECT # : 602315

PROJECT NAME : OCD-RE-PERMIT

REPORT DATE : 03/21/96

PARAMETER	UNITS	01	02	03	04
BROMIDE (EPA 300.0)	MG/L	<0.3	0.6	<6	0.7
		(OW-12)	(OW-9)	(OW-14)	(OW-10)



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

PROJECT # : 602315

PROJECT NAME : OCD-RE-PERMIT

ATI I.D. : 602666

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
BROMIDE	MG/L	60266604	0.7	0.7	0	2.6	2.0	95

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

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



Analytical**Technologies**, Inc.

METALS RESULTS

ATI I.D. : 602666

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.
PROJECT # : 602315
PROJECT NAME : OCD-RE-PERMIT

DATE RECEIVED : 02/09/96

REPORT DATE : 03/21/96

PARAMETER	UNITS	01	02	03	04
SILICA (EPA 200.7/6010)	MG/L	40.2	9.8	13.0	9.8
		OW-12	OW-9	OW-14	OW-10



Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : AMERICAN ENV. NETWORK OF NM, INC.

PROJECT # : 602315

PROJECT NAME : OCD-RE-PERMIT

ATI I.D. : 602666

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE CONC	SPIKE CONC	% REC
SILICA	MG/L	60149902	34.4	34.7	0.9	56.7	21.4	104

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

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Metals
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 602315-01 (OW-12)		Lab ID:001			
CALCIUM (200.7)	MG/L	3	1	IOW030	
POTASSIUM (200.7)	MG/L	ND	2	XOW030	
MAGNESIUM (200.7)	MG/L	0.2	0.2	JOW030	
SODIUM (200.7)	MG/L	220	0.2	IOW030	
SILICA	MG/L	39	0.2	6OW030	

Comments:

Client ID: 602315-02 (OW-9)		Lab ID:002			
CALCIUM (200.7)	MG/L	17	1	IOW030	
POTASSIUM (200.7)	MG/L	ND	2	XOW030	
MAGNESIUM (200.7)	MG/L	2.1	0.2	JOW030	
SODIUM (200.7)	MG/L	360	0.2	IOW030	
SILICA	MG/L	9.6	0.2	6OW030	

Comments:

Client ID: 602315-03 (OW-14)		Lab ID:003			
CALCIUM (200.7)	MG/L	43	1	IOW030	
POTASSIUM (200.7)	MG/L	ND	2	XOW030	
MAGNESIUM (200.7)	MG/L	12	0.2	JOW030	
SODIUM (200.7)	MG/L	340	0.2	IOW030	
SILICA	MG/L	13	0.2	6OW030	

Comments:

Client ID: 602315-04 (OW-10)		Lab ID:004			
CALCIUM (200.7)	MG/L	23	1	IOW030	
POTASSIUM (200.7)	MG/L	ND	2	XOW030	
MAGNESIUM (200.7)	MG/L	3.0	0.2	JOW030	
SODIUM (200.7)	MG/L	380	0.2	IOW030	
SILICA	MG/L	9.7	0.2	6OW030	

Comments:



Analytical**Technologies**, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Metals

Client Id:	Lab Matrix: Id:	Date/Time Sampled:	Date Received:
602315-01	001 WATER	02-FEB-96 1103	09-FEB-96
602315-02	002 WATER	29-JAN-96 1420	09-FEB-96
602315-03	003 WATER	06-FEB-96 1512	09-FEB-96
602315-04	004 WATER	01-FEB-96 1032	09-FEB-96



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 602264
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 602315
Project Name: GIANT
Project Location: OCD-RE-PERMIT
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
602315-01	CALCIUM (200.7)	MG/L	3
OW-12	MAGNESIUM (200.7)	MG/L	0.2
	SODIUM (200.7)	MG/L	220
	SILICA	MG/L	39
602315-02	CALCIUM (200.7)	MG/L	17
OW-9	MAGNESIUM (200.7)	MG/L	2.1
	SODIUM (200.7)	MG/L	360
	SILICA	MG/L	9.6
602315-03	CALCIUM (200.7)	MG/L	43
OW-14	MAGNESIUM (200.7)	MG/L	12
	SODIUM (200.7)	MG/L	340
	SILICA	MG/L	13
602315-04	CALCIUM (200.7)	MG/L	23
OW-10	MAGNESIUM (200.7)	MG/L	3.0
	SODIUM (200.7)	MG/L	380
	SILICA	MG/L	9.7



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	CALCIUM	POTASSIUM	MAGNESIUM	SODIUM	SILICA
Batch Id:	I0W030	X0W030	J0W030	10W030	60W030
Blank Result:	<1	<2	<0.2	<0.2	<0.1
Anal. Method:	200.7	200.7	200.7	200.7	200.7
Prep. Method:	EPA 600	EPA 600	EPA 600	EPA 600	EPA 600
Analysis Date:	16-FEB-96	16-FEB-96	16-FEB-96	16-FEB-96	16-FEB-96
Prep. Date:	15-FEB-96	15-FEB-96	15-FEB-96	15-FEB-96	15-FEB-96

Sample Duplication

Sample Dup:	602259-1	602259-1	602259-1	602259-1	602259-1
Rept Limit:	<1	<2	<0.2	<0.2	<0.1
Sample Result:	87	23	55	120	42
Dup Result:	86	23	55	120	42
Sample RPD:	1	0	0	0	0
Max RPD:	20	20	20	20	20
Dry Weight%	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	602259-1	602259-1	602259-1	602259-1	602259-1
Rept Limit:	<1	<2	<0.2	<0.2	<0.1
Sample Result:	66	3	35	120	41
Spiked Result:	87	23	55	120	42
Spike Added:	20	20	20	20F	4.3F
% Recovery:	105	100	100	0	23
% Rec Limits:	75-125	75-125	75-125	75-125	75-125
Dry Weight%	N/A	N/A	N/A	N/A	N/A

ICV

ICV Result:	10.1	49	5.1	10.2	4.0
True Result:	10	50	5.0	10	4.3
% Recovery:	101	98	102	102	93
% Rec Limits:	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	21	21	20	23	9.6
True Result:	20	20	20	20	10.7
% Recovery:	105	105	100	115	90
% Rec Limits:	80-120	80-120	80-120	80-120	80-120



Analytical**Technologies**, Inc.

"Quality Control Comments"

Batch Id: Comments:

I0W030	ANALYST: JR
I0W030	The results reported under "Sample Duplication" are the MS/MSD.
X0W030	ANALYST: JR
X0W030	The results reported under "Sample Duplication" are the MS/MSD.
J0W030	ANALYST: JR
J0W030	The results reported under "Sample Duplication" are the MS/MSD.
10W030	ANALYST: JR
10W030	The results reported under "Sample Duplication" are the MS/MSD.
60W030	ANALYST: JR
60W030	The results reported under "Sample Duplication" are the MS/MSD.



Analytical Technologies, Inc.

----- Common Footnotes Metals -----

N/A = NOT APPLICABLE.
N/S = NOT SUBMITTED.
N/C = SAMPLE AND DUPLICATE RESULTS ARE AT OR BELOW ATI REPORTING LIMIT;
THEREFORE, THE RPD IS "NOT CALCULABLE" AND NO CONTROL LIMITS APPLY.
N/D = NOT DETECTED.
DISS. OR D = DISSOLVED
T & D = TOTAL AND DISSOLVED
R = REACTIVE
T = TOTAL
G = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND
THE ABSOLUTE DIFFERENCE BETWEEN THE SAMPLE AND DUPLICATE RESULT IS AT
OR BELOW ATI REPORTING LIMIT; THEREFORE, THE RESULTS ARE "IN CONTROL".
Q = THE ANALYTICAL (POST-DIGESTION) SPIKE IS REPORTED DUE TO PERCENT RECOVERY
BEING OUTSIDE ACCEPTANCE LIMITS ON THE MATRIX (PRE-DIGESTION) SPIKE.
= ELEVATED REPORTING LIMIT DUE TO INSUFFICIENT SAMPLE.
+ = ELEVATED REPORTING LIMIT DUE TO DILUTION INTO CALIBRATION RANGE.
* = ELEVATED REPORTING LIMIT DUE TO MATRIX INTERFERENCE. (DILUTION PRIOR
TO ANALYSIS)
@ = ADJUSTED REPORTING LIMIT DUE TO SAMPLE MATRIX. (DILUTION PRIOR TO
DIGESTION)
P = ANALYTICAL (POST DIGESTION) SPIKE.
I = DUPLICATE INJECTION.
& = AUTOMATED
F = SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
N/C+ = NOT CALCULABLE
N/C* = NOT CALCULABLE; SAMPLE SPIKED > 4 X SPIKE CONCENTRATION.
H = SAMPLE AND/OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT AND THE
ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI REPORTING
LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
A = SAMPLE AND DUPLICATE RESULTS ARE "OUT OF CONTROL".
Z = THE SAMPLE RESULT FOR THE SPIKE IS BELOW THE REPORTING LIMIT. HOWEVER,
THIS RESULT IS REPORTED FOR ACCURATE QC CALCULATIONS.
NH= SAMPLE AND / OR DUPLICATE RESULT IS BELOW 5 X ATI REPORTING LIMIT
AND THE ABSOLUTE DIFFERENCE BETWEEN THE RESULTS EXCEEDS THE ATI
REPORTING LIMIT; THEREFORE, THE RESULTS ARE "OUT OF CONTROL".
SAMPLE IS NON-HOMOGENEOUS.
J = (FLORIDA DEP 'J' FLAG) - MATRIX SPIKE AND POST SPIKE RECOVERY IS OUT OF
THE ACCEPTABLE RANGE. SEE OUT OF CONTROL EVENTS FORM.
U = (FLORIDA DEP 'U' FLAG) - THE COMPOUND WAS ANALYZED FOR, BUT NOT DETECTED.
S = METHOD OF STANDARD ADDITIONS (MSA) WAS PERFORMED ON THIS SAMPLE.

FROM ANALYSIS REPORT:

RL= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

Q= QUALIFIER (FOOTNOTE)

FROM QUALITY CONTROL REPORT:

RPD= RELATIVE PERCENT DEVIATION.

RPT LIMIT= REPORTING LIMIT BASED ON METHOD DETECTION LIMIT STUDIES.

NOTE: THE UNITS REPORTED ON THE QUALITY CONTROL REPORT ARE REPORTED ON AN AS
RUN BASIS.

SW-846, 3rd Edition, September 1986 and Revision 1, July 1992.

EPA 600/4-79-020, Revised March 1983.

NIOSH Manual of Analytical Methods, 3rd Edition.

GJ = GARY JACOBS
JLH = JAMES L. HERED

JR = JOHN REED
LV = LASSANDRA VON APPEN

TOTAL METALS



Analytical Technologies, Inc.

OW-12

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI - NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: 96-02-072-01

Sample Matrix: Aqueous

Sample ID

020796 - 01

Date Collected: 02/07/96

Prep Date: 02/13/96

Date Analyzed: 02/13,14/96

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Aluminum	6010	ND	0.2
Antimony	6010	ND	0.02
Arsenic	6010	ND	0.01
Barium	6010	ND	0.1
Beryllium	6010	ND	0.005
Boron	6010	0.5	0.1
Cadmium	6010	ND	0.005
Calcium	6010	3	1
Chromium	6010	0.01	0.01
Cobalt	6010	ND	0.01
Copper	6010	ND	0.01
Iron	6010	ND	0.1
Lead	6010	ND	0.003
Magnesium	6010	ND	1
Manganese	6010	ND	0.01
Molybdenum	6010	0.01	0.01
Nickel	6010	ND	0.02
Potassium	6010	ND	1
Selenium	6010	ND	0.005
Silicon	6010	17	0.05
Silver	6010	ND	0.01
Sodium	6010	250	1
Thallium	6010	ND	0.01
Vanadium	6010	0.03	0.01
Zinc	6010	ND	0.02

ND = Not Detected



Analytical Technologies, Inc.

TOTAL METALS

OW-9

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI - NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: 96-02-072-02

Sample Matrix: Aqueous

Sample ID

012996 - 01

Date Collected: 01/29/96

Prep Date: 02/13/96

Date Analyzed: 02/13,14/96

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Aluminum	6010	ND	0.2
Antimony	6010	ND	0.02
Arsenic	6010	ND	0.01
Barium	6010	ND	0.1
Beryllium	6010	ND	0.005
Boron	6010	0.5	0.1
Cadmium	6010	ND	0.005
Calcium	6010	16	1
Chromium	6010	ND	0.01
Cobalt	6010	ND	0.01
Copper	6010	ND	0.01
Iron	6010	ND	0.1
Lead	6010	ND	0.003
Magnesium	6010	2	1
Manganese	6010	ND	0.01
Molybdenum	6010	0.01	0.01
Nickel	6010	ND	0.02
Potassium	6010	ND	1
Selenium	6010	0.006	0.005
Silicon	6010	4.4	0.05
Silver	6010	ND	0.01
Sodium	6010	370	1
Thallium	6010	ND	0.01
Vanadium	6010	ND	0.01
Zinc	6010	ND	0.02

ND = Not Detected

TOTAL METALS



Analytical**Technologies**,Inc.

OW-14

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI - NM
Client Project ID: OCD Re-Permit -- 602315
Lab Sample ID: 96-02-072-03

Sample ID

020696 - 01

Sample Matrix: Aqueous

Date Collected: 02/06/96
Prep Date: 02/13/96
Date Analyzed: 02/13,14/96

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Aluminum	6010	ND	0.2
Antimony	6010	ND	0.02
Arsenic	6010	ND	0.01
Barium	6010	0.1	0.1
Beryllium	6010	ND	0.005
Boron	6010	0.5	0.1
Cadmium	6010	ND	0.005
Calcium	6010	41	1
Chromium	6010	ND	0.01
Cobalt	6010	ND	0.01
Copper	6010	ND	0.01
Iron	6010	0.1	0.1
Lead	6010	ND	0.003
Magnesium	6010	11	1
Manganese	6010	1.1	0.01
Molybdenum	6010	0.03	0.01
Nickel	6010	ND	0.02
Potassium	6010	ND	1
Selenium	6010	ND	0.005
Silicon	6010	5.8	0.05
Silver	6010	ND	0.01
Sodium	6010	340	1
Thallium	6010	ND	0.01
Vanadium	6010	ND	0.01
Zinc	6010	ND	0.02

ND = Not Detected



Analytical **Technologies**, Inc.

TOTAL METALS

OW-10

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI - NM
Client Project ID: OCD Re-Permit -- 602315
Lab Sample ID: 96-02-072-04

Sample ID

020196 - 01

Sample Matrix: Aqueous

Date Collected: 02/01/96
Prep Date: 02/13/96
Date Analyzed: 02/13,14/96

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Aluminum	6010	ND	0.2
Antimony	6010	ND	0.02
Arsenic	6010	ND	0.01
Barium	6010	ND	0.1
Beryllium	6010	ND	0.005
Boron	6010	0.5	0.1
Cadmium	6010	ND	0.005
Calcium	6010	22	1
Chromium	6010	ND	0.01
Cobalt	6010	ND	0.01
Copper	6010	ND	0.01
Iron	6010	ND	0.1
Lead	6010	ND	0.003
Magnesium	6010	3	1
Manganese	6010	ND	0.01
Molybdenum	6010	ND	0.01
Nickel	6010	ND	0.02
Potassium	6010	ND	1
Selenium	6010	0.022	0.005
Silicon	6010	4.2	0.05
Silver	6010	ND	0.01
Sodium	6010	380	1
Thallium	6010	ND	0.01
Vanadium	6010	ND	0.01
Zinc	6010	ND	0.02

ND = Not Detected



Analytical**Technologies**, Inc.

TOTAL METALS

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI - NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: RB 96-02-072

Sample ID

Reagent Blank

Date Collected: N/A

Prep Date: 02/13/96

Date Analyzed: 02/13,14/96

Analyte	Modified Method	Concentration mg/L	Detection Limit mg/L
Aluminum	6010	ND	0.2
Antimony	6010	ND	0.02
Arsenic	6010	ND	0.01
Barium	6010	ND	0.1
Beryllium	6010	ND	0.005
Boron	6010	ND	0.1
Cadmium	6010	ND	0.005
Calcium	6010	ND	1
Chromium	6010	ND	0.01
Cobalt	6010	ND	0.01
Copper	6010	ND	0.01
Iron	6010	ND	0.1
Lead	6010	ND	0.003
Magnesium	6010	ND	1
Manganese	6010	ND	0.01
Molybdenum	6010	ND	0.01
Nickel	6010	ND	0.02
Potassium	6010	ND	1
Selenium	6010	ND	0.005
Silicon	6010	ND	0.05
Silver	6010	ND	0.01
Sodium	6010	ND	1
Thallium	6010	ND	0.01
Vanadium	6010	ND	0.01
Zinc	6010	ND	0.02

ND = Not Detected



Analytical Technologies, Inc.

TOTAL METALS MATRIX SPIKE

Lab Name: Analytical Technologies of Colorado, Inc.
Client Name: ATI - NM
Lab Sample ID: 96-02-079-01

Sample ID

In House

Sample Matrix: Aqueous

Prep Date: 02/13/96

Date Analyzed: 02/13,14/96

Analyte	Spike Added mg/L	Sample Conc. mg/L	MS Conc. mg/L	% Rec (limits 80-120%)	Flags
Aluminum	2.0	< 0.2	1.8	90	
Antimony	0.50	< 0.02	0.48	96	
Arsenic	2.0	0.02	2.0	99	
Barium	2.0	< 0.1	1.9	95	
Beryllium	0.050	< 0.005	0.048	96	
Boron	1.0	0.2	1.1	90	
Cadmium	0.050	< 0.005	0.045	90	
Calcium	40	80	120	100	
Chromium	0.20	0.03	0.21	90	
Cobalt	0.50	< 0.01	0.46	92	
Copper	0.25	< 0.01	0.24	96	
Iron	1.0	< 0.1	0.9	90	
Lead	0.50	< 0.003	0.45	90	
Magnesium	40	38	78	100	
Manganese	0.50	< 0.01	0.47	94	
Molybdenum	1.0	< 0.01	0.96	96	
Nickel	0.50	< 0.02	0.45	90	
Potassium	40	10	53	108	
Selenium	2.0	< 0.005	2.0	100	
Silicon	0.50	17	18	200	See note
Silver	0.20	< 0.01	0.19	95	
Sodium	40	400	440	100	See note
Thallium	2.0	< 0.01	1.9	95	
Vanadium	0.50	0.02	0.48	92	
Zinc	0.50	< 0.02	0.45	90	

Flags described on following page.



Analytical Technologies, Inc.

**TOTAL METALS
MATRIX SPIKE DUPLICATE**

Sample ID

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI - NM

Lab Sample ID: 96-02-079-01

In House

Sample Matrix: Aqueous

Prep Date: 02/13/96

Date Analyzed: 02/13,14/96

Analyte	MSD Conc. mg/L	MSD % Rec (limits 80-120%)	Relative % Difference (limits 0-20%)	Flags
Aluminum	1.8	90	0	
Antimony	0.48	96	0	
Arsenic	2.0	99	0	
Barium	1.9	95	0	
Beryllium	0.048	96	0	
Boron	1.1	90	0	
Cadmium	0.045	90	0	
Calcium	120	100	0	
Chromium	0.21	90	0	
Cobalt	0.46	92	0	
Copper	0.24	96	0	
Iron	0.9	90	0	
Lead	0.46	92	2	
Magnesium	79	103	1	
Manganese	0.47	94	0	
Molybdenum	0.96	96	0	
Nickel	0.45	90	0	
Potassium	54	110	2	
Selenium	2.0	100	0	
Silicon	18	200	0	See note
Silver	0.20	100	5	
Sodium	440	100	0	See note
Thallium	1.9	95	0	
Vanadium	0.48	92	0	
Zinc	0.46	92	2	

Note: Due to the large concentration of analyte in the sample, matrix spike recoveries may not be accurate. The Laboratory Control Sample (LCS) is included on a separate page to show that the digestion and analysis were in control.



Analytical**Technologies**, Inc.

**TOTAL METALS
LABORATORY CONTROL SAMPLE**

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI - NM

Client Project ID: OCD Re-Permit -- 602315

Work Order Number: 96-02-072

Date Analyzed: 02/14/96

Analyte	LCS Result mg/L	LCS True Value mg/L	LCS % Recovery	Limits
Silicon	0.50	0.50	100	80 - 120%
Sodium	11	11	100	80 - 120%



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
 CLIENT : GIANT REFINING CO. ATI I.D.: 602315
 PROJECT # : RE-PERMIT SAMP.
 PROJECT NAME : OCD-RE-PERMIT

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	020796-01	AQUEOUS	02/07/96	NA	02/08/96	1
02	012996-01	AQUEOUS	01/29/96	NA	02/08/96	1
03	020696-01	AQUEOUS	02/06/96	NA	02/08/96	1

PARAMETER	UNITS	01	02	03
BENZENE *	UG/L	<0.5	<0.5	25 >10 ppb
BROMODICHLOROMETHANE	UG/L	<0.2	<0.2	<0.2
BROMOFORM	UG/L	<0.5	<0.5	<0.5
BROMOMETHANE	UG/L	<1.0	<1.0	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2	<0.2	<0.2
CHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
CHLOROETHANE	UG/L	<0.5	<0.5	<0.5
CHLOROFORM	UG/L	<0.5	<0.5	<0.5
CHLOROMETHANE	UG/L	<1.0	<1.0	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2	<0.2	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2	<0.2	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5	<0.5	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3	<0.3	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5	<0.5	3.4 <10 ppb
1,1-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2	<0.2	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0	<1.0	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2	<0.2	0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2	<0.2	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2	<0.2	<0.2
ETHYLBENZENE	UG/L	<0.5	<0.5	2.8 <750 ppb
METHYL-t-BUTYL ETHER	UG/L	<2.5	<2.5	<2.5
METHYLENE CHLORIDE	UG/L	<2.0	<2.0	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2	<0.2	<0.2
TETRACHLOROETHENE	UG/L	<0.5	<0.5	<0.5
TOLUENE	UG/L	<0.5	<0.5	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0	<1.0	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2	<0.2	<0.2
TRICHLOROETHENE	UG/L	<0.3	<0.3	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2	<0.2	<0.2
VINYL CHLORIDE	UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES	UG/L	<0.5	<0.5	1.7 <620 ppb

SURROGATES:

BROMOCHLOROMETHANE (%)	111	104	101
TRIFLUOROTOLUENE (%)	108	97	109

U-12

U-9

W-14



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
CLIENT : GIANT REFINING CO. ATI I.D.: 602315
PROJECT # : RE-PERMIT SAMP.
PROJECT NAME : OCD-RE-PERMIT

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
04	020196-01	AQUEOUS	02/01/96	NA	02/08/96	1
PARAMETER		UNITS		04		
BENZENE		UG/L		<0.5		
BROMODICHLOROMETHANE		UG/L		<0.2		
BROMOFORM		UG/L		<0.5		
BROMOMETHANE		UG/L		<1.0		
CARBON TETRACHLORIDE		UG/L		<0.2		
CHLOROBENZENE		UG/L		<0.5		
CHLOROETHANE		UG/L		<0.5		
CHLOROFORM		UG/L		<0.5		
CHLOROMETHANE		UG/L		<1.0		
DIBROMOCHLOROMETHANE		UG/L		<0.2		
1,2-DIBROMOETHANE (EDB)		UG/L		<0.2		
1,2-DICHLOROBENZENE		UG/L		<0.5		
1,3-DICHLOROBENZENE		UG/L		<0.5		
1,4-DICHLOROBENZENE		UG/L		<0.5		
1,1-DICHLOROETHANE		UG/L		0.7		
1,2-DICHLOROETHANE (EDC)		UG/L		1.0		
1,1-DICHLOROETHENE		UG/L		0.5		
CIS-1,2-DICHLOROETHENE		UG/L		<0.2		
TRANS-1,2-DICHLOROETHENE		UG/L		<1.0		
1,2-DICHLOROPROPANE		UG/L		<0.2		
CIS-1,3-DICHLOROPROPENE		UG/L		<0.2		
TRANS-1,3-DICHLOROPROPENE		UG/L		<0.2		
ETHYLBENZENE		UG/L		<0.5		
METHYL-t-BUTYL ETHER		UG/L		<2.5		
METHYLENE CHLORIDE		UG/L		<2.0		
1,1,2,2-TETRACHLOROETHANE		UG/L		<0.2		
TETRACHLOROETHENE		UG/L		<0.5		
TOLUENE		UG/L		<0.5		
1,1,1-TRICHLOROETHANE		UG/L		<1.0		
1,1,2-TRICHLOROETHANE		UG/L		<0.2		
TRICHLOROETHENE		UG/L		<0.3		
TRICHLOROFLUOROMETHANE		UG/L		<0.2		
VINYL CHLORIDE		UG/L		<0.5		
TOTAL XYLENES		UG/L		<0.5		

SURROGATES:

BROMOCHLOROMETHANE (%) 107
TRIFLUOROTOLUENE (%) 102

Toxic Pollutants must be less
the 10⁻⁶ cancer
risk.



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 601/602	ATI I.D.	: 602315
BLANK ID	: 020896	MATRIX	: AQUEOUS
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: RE-PERMIT SAMP.	DATE ANALYZED	: 02/08/96
PROJECT NAME	: OCD-RE-PERMIT	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

BROMOCHLOROMETHANE	104
TRIFLUOROTOLUENE (%)	101



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 601/602	ATI I.D.	: 602315
BLANK I.D.	: 020996	MATRIX	: AQUEOUS
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: RE-PERMIT SAMP.	DATE ANALYZED	: 02/09/96
PROJECT NAME	: OCD-RE-PERMIT	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	108
TRIFLUOROTOLUENE (%)	102



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS - QUALITY CONTROL

REAGENT BLANK

TEST	: EPA 601/602	ATI I.D.	: 602315
BLANK I.D.	: 021296	MATRIX	: AQUEOUS
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: RE-PERMIT SAMP.	DATE ANALYZED	: 02/12/96
PROJECT NAME	: OCD-RE-PERMIT	DIL. FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
BROMODICHLOROMETHANE	UG/L	<0.2
BROMOFORM	UG/L	<0.5
BROMOMETHANE	UG/L	<1.0
CARBON TETRACHLORIDE	UG/L	<0.2
CHLOROBENZENE	UG/L	<0.5
CHLOROETHANE	UG/L	<0.5
CHLOROFORM	UG/L	<0.5
CHLOROMETHANE	UG/L	<1.0
DIBROMOCHLOROMETHANE	UG/L	<0.2
1,2-DIBROMOETHANE (EDB)	UG/L	<0.2
1,2-DICHLOROBENZENE	UG/L	<0.5
1,3-DICHLOROBENZENE	UG/L	<0.5
1,4-DICHLOROBENZENE	UG/L	<0.5
1,1-DICHLOROETHANE	UG/L	<0.3
1,2-DICHLOROETHANE (EDC)	UG/L	<0.5
1,1-DICHLOROETHENE	UG/L	<0.2
CIS-1,2-DICHLOROETHENE	UG/L	<0.2
TRANS-1,2-DICHLOROETHENE	UG/L	<1.0
1,2-DICHLOROPROPANE	UG/L	<0.2
CIS-1,3-DICHLOROPROPENE	UG/L	<0.2
TRANS-1,3-DICHLOROPROPENE	UG/L	<0.2
ETHYLBENZENE	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5
METHYLENE CHLORIDE	UG/L	<2.0
1,1,2,2-TETRACHLOROETHANE	UG/L	<0.2
TETRACHLOROETHENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
1,1,1-TRICHLOROETHANE	UG/L	<1.0
1,1,2-TRICHLOROETHANE	UG/L	<0.2
TRICHLOROETHENE	UG/L	<0.3
TRICHLOROFLUOROMETHANE	UG/L	<0.2
VINYL CHLORIDE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5

SURROGATES:

BROMOCHLOROMETHANE (%)	117
TRIFLUOROTOLUENE (%)	98



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST : PURGEABLE HALOCARBONS/AROMATICS (EPA 601/602)
MSMSD # : 60231801 ATI I.D. : 602315
CLIENT : GIANT REFINING CO. DATE EXTRACTED : NA
PROJECT # : RE-PERMIT SAMP. DATE ANALYZED : 02/13/96
02/09/96
PROJECT NAME : OCD-RE-PERMIT SAMPLE MATRIX : AQUEOUS
REF. I.D. : 60231801 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10.0	9.3	93	10.8	108	15
CHLOROBENZENE	<0.5	10.0	10.3	103	11.3	113	9
1,1-DICHLOROETHENE	<0.2	10.0	9.1	91	8.7	87	4
TOLUENE	<0.5	10.0	9.6	96	11.0	110	14
TRICHLOROETHENE	<0.3	10.0	10.2	102	11.6	116	13

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

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



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 610

OW-012

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: 96-02-072-01

Sample Matrix: Water

Cleanup: N/A

Sample ID

020796-01

Date Collected: 2-07-96

Date Extracted: 2-12-96

Date Analyzed: 2-16-96

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	91	15 - 117

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



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 610

OW-14

Sample ID

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: 96-02-072-03

020696-01

Date Collected: 2-06-96

Date Extracted: 2-12-96

Date Analyzed: 2-16-96

Sample Matrix: Water

Cleanup: N/A

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	0.10	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	67	15 - 117

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



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 610

OW-10

Sample ID

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: 96-02-072-04

020196-01

Date Collected: 2-01-96

Date Extracted: 2-12-96

Date Analyzed: 2-16-96

Sample Matrix: Water

Cleanup: N/A

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	88	15 - 117

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



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS

Method 610



Sample ID

Lab Name: Analytical Technologies of Colorado, Inc.

Client Name: ATI-NM

Client Project ID: OCD Re-Permit -- 602315

Lab Sample ID: WRB1 02/12/96

Reagent Blank

Date Collected: N/A

Date Extracted: 2-12-96

Date Analyzed: 2-16-96

Sample Matrix: Water

Cleanup: N/A

Sample Volume: 1000 mL

Final Volume: 1 mL

Analyte	Conc (ug/L)	Detection Limit (ug/L)
Naphthalene	ND	0.50
Acenaphthylene	ND	1.0
1-Methylnaphthalene	ND	1.0
2-Methylnaphthalene	ND	1.0
Acenaphthene	ND	1.0
Fluorene	ND	0.10
Phenanthrene	ND	0.050
Anthracene	ND	0.10
Flouranthrene	ND	0.10
Pyrene	ND	0.050
Benzo(a)anthracene	ND	0.050
Chrysene	ND	0.050
Benzo(b)fluoranthrene	ND	0.10
Benzo(k)fluoranthrene	ND	0.050
Benzo(a)pyrene	ND	0.050
Dibenzo(a,h)anthracene	ND	0.10
Benzo(g,h,i)perylene	ND	0.10
Indeno(1,2,3-c,d)pyrene	ND	0.10

SURROGATE RECOVERY

Analyte	% Recovery	% Rec Limits
2-Chloroanthracene	82	15 - 117

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



Analytical Technologies, Inc.

POLYNUCLEAR AROMATIC HYDROCARBONS BLANK SPIKE

Method 610

Lab Name: Analytical Technologies of Colorado, Inc.

Lab Sample ID: WBS1,2 02/12/96

Client Name: ATI-NM

Date Extracted: 2-12-96

Client Project ID: OCD Re-Permit -- 602315

Date Analyzed: 2-16-96

Sample Matrix: Water

Sample Volume: 1,000 mL

Cleanup: N/A

Final Volume: 1 mL

Analyte	Spike Added (ug/L)	BS Concentration (ug/L)	BS Percent Recovery	QC Limits % Rec
Acenaphthylene	10.0	6.05	61	23 - 122
Phenanthrene	1.00	0.767	77	34 - 112
Pyrene	1.00	0.674	67	35 - 116
Dibenzo(a,h)anthracene	1.00	0.750	75	33 - 123
Benzo(k)fluoranthene	0.250	0.223	89	39 - 119

Analyte	Spike Added (ug/L)	BSD Concentration (ug/L)	BSD Percent Recovery	RPD	QC Limits RPD
Acenaphthylene	10.0	6.40	64	6	20
Phenanthrene	1.00	0.785	79	2	20
Pyrene	1.00	0.695	69	3	20
Dibenzo(a,h)anthracene	1.00	0.795	80	6	20
Benzo(k)fluoranthene	0.250	0.234	93	5	20

SURROGATE RECOVERY BS/BSD

Analyte	% Recovery BS	% Recovery BSD	% Rec Limits
2-Chloroanthracene	86	88	15 - 117



ATI LAB I.D.

DATE: 8-7-96 PAGE: 1 OF 1

15709

ANALYSIS REQUEST

PROJECT MANAGER: EDWARD FORST

COMPANY: GIANT REFINING CO
ADDRESS: Route 3 Box 7
Gallup, NM 87301
PHONE: 505-722-0227
FAX:

BILL TO: DAVID PAULICH
COMPANY: CLAYT REFRIG- CO
ADDRESS: Route 3 Box 7
Chappaqua NY 10730

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.
020796-01	2-7-96	1103	AQU.	-01
012996-01	1-29-96	1420	AQU	-02
020696-01	2-6-96	1512	AQU	-03
020196-01	2-1-96	1032	AQU.	-04

SHADED AREAS ARE FOR LAB USE ONLY.

PLEASE FILL THIS FORM IN COMPLETELY.

	0	0	0	0	0	NUMBER OF CONTAINERS
Petroleum Hydrocarbons (418.1) TRPH	X	X	X			
(MOD.8015) Diesel/Direct/Inject						
BTEX & Chlorinated Aromatics (602/8020)	X	X	X			
BTX/MTBE (8020)						
Gasoline/BTEX & MTBE (M8015/8020)						
(M8015) Gas/Purge & Trap						
Chlorinated Hydrocarbons (601/8010)	X	X	X			
504 EDB □ / DBCP □						
SILIX	X	X	X			
Polynuclear Aromatics (610/8010)	X	X	X			
Volatile Organics (624/8240) GC/MS						
Volatile Organics (8260) GC/MS	X	X	X			
6010 acid neutral capacity						
Pesticides/PCB (608/8080)						
Herbicides (615/8150)						
Base/Neutral/Acid Compounds GC/MS (625/8270)						
General Chemistry	X	X	X			
Priority Pollutant Metals (13)						
Target Analyte List Metals (23)						
RCRA Metals (8)						
RCRA Metals by TCLP (Method 1311)						

PROJECT INFORMATION		PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS							
PROJ. NO.: RE-Permit Bump.		(RUSH) ☐ 24hr	☐ 48hr	☐ 72hr	☒ 1 WEEK	(NORMAL)	X 2 WEEK		
PROJ. NAME: OGD-RE-PERMIT		CERTIFICATION REQUIRED:		☐ NM	☐ OTHER	SEE BELOW.			
P.O. NO.:		METHANOL PRESERVATION		☐					
SHIPPED VIA: HAND DELIV		COMMENTS: ONE SET OF SAMPLES WERE TAKEN ON 1-29-86 UOA - must be completed WITHIN 14 days FROM THAT DATE							
SAMPLE RECEIPT									
NO. CONTAINERS		36							
CUSTODY SEALS		O/N/A							
RECEIVED INTACT		Y							
BLUE ICE/C		4°C							

NETWORK PROJECT MANAGER: KIMBERLY D. McNEILL

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

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
601315-01	2/7	1103	AQ	01
-02	1/29	1420		02
-03	2/6	1515		03
-04	2/1	1032		04

ANALYSIS REQUEST

Metals - TAL																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER: 602315	TOTAL NUMBER OF CONTAINERS 10	CHAIN OF CUSTODY SEALS	INTACT?
PROJECT NAME: ocd Re-Permit	RECEIVED GOOD COND/COLD	RECEIVED GOOD COND/COLD	LAB NUMBER
QC LEVEL: STD IV	MS MSD BLANK	RUSHI	
QC REQUIRED: STANDARD			

Two # km 1139

WATCH EXT. TIME

DUE DATE: 2/21

RUSH SURCHARGE: NO

CLIENT DISCOUNT: Quote

SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

RELINQUISHED BY:		RELINQUISHED BY:	
Signature: <i>Kimberly D. McNeill</i>	Time: 1700	Signature: <i>Andrew Parker</i>	Time: 2/8
Printed Name: Kimberly D. McNeill	Date: 2/8	Printed Name: Andrew Parker	Date: 2/8
Company: Analytical Technologies of New Mexico, Inc. Albuquerque		Company: Analytical Technologies of New Mexico, Inc. Albuquerque	
RECEIVED BY:		RECEIVED BY:	
Signature: <i>Andrew Parker</i>	Time: 930	Signature: <i>Andrew Parker</i>	Time: 930
Printed Name: Andrew Parker	Date: 2/8	Printed Name: Andrew Parker	Date: 2/8
Company: Analytical Technologies of New Mexico, Inc. Albuquerque		Company: Analytical Technologies of New Mexico, Inc. Albuquerque	



DATE: 2/8 PAGE: 1 OF 1

NETWORK PROJECT MANAGER:

KIMBERLY D. MCNEILL

COMPANY:

Analytical Technologies of New Mexico, Inc.

ADDRESS:

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

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID	DATE	TIME	MATRIX	LABID
60X315-01	2/7	1103	AQ	1
-02	1/29	1420		2
-03	2/6	1512		3
-04	2/1	1032	V	4
-04P				

ANALYSIS REQUEST

Tal Metals	P-P List Metals - RCRA	RCRA Metals by TCLP (1311)	Tox TOC	Gen Chemstry: 5.1% Bismide	Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Hericides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	TO-14	Gross Alpha/Beta	NUMBER OF CONTAINERS
				X													Z
				X													Z
				X													Z
				X													Z

PROJECT INFORMATION

PROJECT NUMBER:

60315

PROJECT NAME:

sod Re-permit

QC LEVEL:

(STD) IV

OC REQUIRED:

MS MSD BLANK

TAT:

STANDARD RUSH!

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	CHAIN OF CUSTODY SEALS	INTACT?	RECEIVED GOOD COND/COLD	LAB NUMBER
8	Y	Y	Blue	603666

Iwo # KM1143

DUE DATE:

2/21

RUSH SURCHARGE:

No

CLIENT DISCOUNT:

Quote

SPECIAL CERTIFICATION REQUIRED:

☐ YES☒ NO

RELINQUISHED BY:

Signature:
[Signature]
Printed Name:
Andrew Parker
Company:
Analytical Technologies of New Mexico, Inc.
Albuquerque

RELINQUISHED BY:

Signature:
[Signature]
Printed Name:
Sandra Smith
Company:

SAMPLES SENT TO:

SAN DIEGO

FT. COLLINS

NENTON

PENSACOLA

PORTLAND

PHOENIX

RECEIVED BY:

Signature:
[Signature]
Printed Name:
Date:
Time:

RECEIVED BY:

Signature:
[Signature]
Printed Name:
Date:
Time:

RECEIVED BY:

Signature:
[Signature]
Printed Name:
Date:
Time:

ORIGINAL SIGNATURE AND DATE

Date:
2/19/96

OW-14 (RE-SAMPLING)

**ANALYTICAL RESULTS FOR
SAMPLES TAKEN AS PART OF
THE 1996 GW-32 PERMIT
RENEWAL**



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

4 March 1996

Dave Pavlich
Giant Refining Co.
Rt. 3 Box 7
Gallup, NM 87301

Mr. Pavlich:

Enclosed please find the report for the samples received by our laboratory for analysis on February 14, 1996

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

Sincerely,

Anna Schaerer
Organic Analyst/IML-Farmington

Enclosure

xc: File



Inter-Mountain Laboratories, Inc.

Inorganics Laboratory
1100 SH 30 College Station, Texas 77845
Phone (409) 776-8945 Fax (409) 774-4705

Organics Laboratory
3304 Longmire Drive College Station, Texas 77845
Phone (409) 774-4999 Fax (409) 696-0962

EPA Method 8260 VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINERY**
Project: OW-14 Resample
Sample ID: 021496-OW14
Laboratory ID: 0696G00370
Sample Matrix: Water
Preservative: HgCl₂
Condition: Intact

Report Date: 02/26/96
Date Sampled: 02/14/96
Date Received: 02/20/96
Date Extracted: 02/23/96
Date Analyzed: 02/23/96
Time Analyzed: 5:12 PM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
Carbon tetrachloride	ND	0.005
Chloroethane	ND	0.005
Chloroform	ND	0.005
Chloromethane	ND	0.01
Dibromochloromethane	ND	0.005
1,2-Dibromoethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,2-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
cis-1,2-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Methylene chloride	ND	0.005
Methyl tert-Butyl Ether	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Trichlorofluoromethane	ND	0.005
Vinyl Chloride	ND	0.005

ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	102%	86 - 118%
Toluene-d8	100%	88 - 110%
Bromofluorobenzene	103%	86 - 115%

Reference: Method 8260: Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry: Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846, United States Environmental Protection Agency, Final Update II, September 1994.

Comments:

W. T. 7 m/ff
Analyst

Wanda M. Kog
Review



Inter-Mountain Laboratories, Inc.

Inorganics Laboratory
11183 SH 30 College Station, Texas 77845
Phone (409) 776-8945 Fax (409) 774-4705

Organics Laboratory
3304 Longmire Drive College Station, Texas 77845
Phone (409) 774-4999 Fax (409) 696-0962

EPA Method 8260 VOLATILE ORGANIC COMPOUNDS

Client: **GIANT REFINERY**
Project: **OW-14 Resample**
Sample ID: **Trip Blank**
Laboratory ID: **0696G00371**
Sample Matrix **Water**
Preservative: **HgCl₂**
Condition: **Intact**

Report Date: **02/26/96**
Date Sampled: **NA**
Date Received: **02/20/96**
Date Extracted: **02/23/96**
Date Analyzed: **02/23/96**
Time Analyzed: **4:30 PM**

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
Carbon tetrachloride	ND	0.005
Chloroethane	ND	0.005
Chloroform	ND	0.005
Chloromethane	ND	0.01
Dibromochloromethane	ND	0.005
1,2-Dibromoethane	ND	0.005
1,1-Dichloroethane	ND	0.005
1,2-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
cis-1,2-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloropropane	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005
Methylene chloride	ND	0.005
Methyl tert-Butyl Ether	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Trichlorofluoromethane	ND	0.005
Vinyl Chloride	ND	0.005

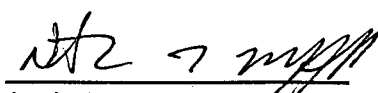
ND - Analyte not detected at stated limit of detection

Quality Control:

Surrogate	Percent Recovery	Acceptance Limits
Dibromofluoromethane	103%	86 - 118%
Toluene-d8	99%	88 - 110%
Bromofluorobenzene	100%	86 - 115%

Reference: Method 8260: Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry: Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846, United States Environmental Protection Agency, Final Update II, September 1994.

Comments:


Analyst


Review

VOLATILE AROMATIC HYDROCARBONS

Giant Refining Co.

Project ID:	OW-14 Resample	Report Date:	03/03/96
Sample ID:	021496 - OW 14	Date Sampled:	02/14/96
Lab ID:	0396G00210	Date Received:	02/16/96
Sample Matrix:	Water	Date Extracted:	NA
Condition:	Cool/Intact	Date Analyzed:	02/28/96

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	34.2	1.0
Toluene	ND	1.0
Chlorobenzene	ND	1.0
Ethylbenzene	28.6	1.0
m,p-Xylenes	ND	1.0
o-Xylene	ND	1.0
1,3-Dichlorobenzene	ND	1.0
1,4-Dichlorobenzene	ND	1.0
1,2-Dichlorobenzene	ND	1.0

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	124.0	75 -125%

Reference: Method 5030, Purge and Trap; Method 602, Purgeable Aromatics; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA, October 1984.

Comments:



Analyst

Review

QUALITY CONTROL REPORTS

- * *Duplicate Analyses*
- * *Matrix Spike Analyses*
- * *Method Blank Analyses*

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTDuplicate AnalysisLab ID: 0396G00210
Sample Matrix: Water
Condition: Cool/IntactReport Date: 03/03/96
Date Analyzed: 02/28/96

Target Analyte	Duplicate Concentration (ppb)	Original Concentration (ppb)	% Difference
Benzene	33.3	34.2	2.7
Toluene	ND	ND	NA
Chlorobenzene	ND	ND	NA
Ethylbenzene	29.8	28.6	4.1
m,p-Xylenes	ND	ND	NA
o-Xylene	ND	ND	NA
1,3-Dichlorobenzene	ND	ND	NA
1,4-Dichlorobenzene	ND	ND	NA
1,2-Dichlorobenzene	ND	ND	NA

ND - Analyte not detected at the stated detection limit.

NA - Not applicable or not calculated.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	124.5%	75 -125%

Reference: Method 5030, Purge and Trap; Method 602, Purgeable Aromatics; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA, October 1984.

Comments:

Analyst

Review

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTMatrix Spike AnalysisLab ID: 0396G00210
Sample Matrix: Water
Condition: Cool/IntactReport Date: 03/03/96
Date Analyzed: 02/28/96

Target Analyte	Spiked Sample Result in ng	Sample result in ng	Spike Added (ng)	% Recovery	Acceptance Limits (%)
Benzene	92.48	34.24	60	97.1%	70-130
Toluene	56.11	<1.0	60	93.5%	70-130
Chlorobenzene	69.95	<1.0	60	116.6%	70-130
Ethylbenzene	84.94	28.64	60	93.8%	70-130
Xylenes	121.32	<1.0	120	101.1%	70-130
o-Xylene	52.43	<1.0	60	87.4%	70-130
1,3-Dichlorobenzene	52.32	<1.0	60	87.2%	70-130
1,4-Dichlorobenzene	47.81	<1.0	60	79.7%	70-130
1,2-Dichlorobenzene	62.10	<1.0	60	103.5%	70-130

ND - Analyte not detected at the stated detection limit.

NA - Not applicable or not calculated.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	124.9%	75 -125%

Reference: Method 5030, Purge and Trap; Method 602, Purgeable Aromatics; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA, October 1984.

Comments:



Analyst

Review

VOLATILE AROMATIC HYDROCARBONS
QUALITY CONTROL REPORTMethod Blank AnalysisSample Matrix:
Lab ID:Water
Method BlankReport Date: 03/03/96
Date Analyzed: 02/28/96

Target Analyte	Concentration (ppb)	Detection Limit (ppb)
Benzene	0.2	0.2
Toluene	ND	0.2
Chlorobenzene	0.2	0.2
Ethylbenzene	ND	0.2
m,p-Xylenes	ND	0.2
o-Xylene	ND	0.2
1,3-Dichlorobenzene	ND	0.2
1,4-Dichlorobenzene	ND	0.2
1,2-Dichlorobenzene	ND	0.2

ND - Analyte not detected at the stated detection limit.

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	113.3	75-125%

Reference: Method 5030, Purge and Trap; Method 602, Purgeable Aromatics; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA, October 1984.

Comments:

Analyst

Review

Quality Control / Quality Assurance

Known Analysis Purgeable Aromatics

Client: Giant Refining Co.
Project: OW-14 Resample

Date Reported: 03/01/96
Date Analyzed: 02/28/96

Known Analysis

Parameter	Found Result (ppb)	Known Result (ppb)	Percent Recovery	Acceptance Limits
Benzene	14.1	12.0	117%	70-130%
Toluene	12.0	12.0	100%	70-130%
Chlorobenzene	13.9	12.0	115%	70-130%
Ethylbenzene	13.5	12.0	112%	70-130%
m+p-Xylene	27.5	24.0	114%	70-130%
o-Xylene	13.7	12.0	114%	70-130%
1,3-Dichlorobenzene	13.4	12.0	112%	70-130%
1,4-Dichlorobenzene	13.4	12.0	112%	70-130%
1,2-Dichlorobenzene	13.1	12.0	109%	70-130%

Quality Control:	<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
	Bromofluorobenzene	117.5	75-125%

Reference: Method 5030, Purge and Trap; Method 602, Purgeable Aromatics; Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater, USEPA, October 1984.

Comments:

Reported by df

Reviewed by JB



Inter-Mountain Laboratories, Inc.

Inorganics Laboratory
11183 SH 30 College Station, Texas 77845
Phone (409) 776-8945 Fax (409) 774-4705

Organics Laboratory
3304 Longmire Drive College Station, Texas 77845
Phone (409) 774-4999 Fax (409) 696-0962

QUALITY CONTROL REPORT - BLANK SPIKE / SPIKE DUPLICATE ANALYSIS EPA METHOD 8260 - VOLATILE ORGANICS

Laboratory ID: Blank Spike and Blank Spike Duplicate
Sample Matrix: Water
Preservative: NA
Condition: NA

Report Date: 02/26/96
Date Sampled: NA
Date Received: NA
Date Analyzed: 02/23/96
Time Analyzed: 3:06 PM / 3:49 PM

BLANK SPIKE ANALYSIS

Analyte	Spiked Sample Result (mg/L)	Sample Result (mg/L)	Spike Added (mg/L)	Percent Recovery	QC Limits Recovery
1,1 - Dichloroethene	0.052	ND	0.050	104%	61 - 145
Trichloroethene	0.050	ND	0.050	100%	71 - 120
Benzene	0.048	ND	0.050	96%	76 - 127
Toluene	0.047	ND	0.050	94%	76 - 125
Chlorobenzene	0.047	ND	0.050	94%	75 - 130

BLANK SPIKE DUPLICATE ANALYSIS

Analyte	Duplicate Result (mg/L)	Percent Recovery	Original Spike Result (%)	RPD	QC Limits RPD	Rec.
1,1 - Dichloroethene	0.053	106%	104%	2%	14%	61 - 145
Trichloroethene	0.051	102%	100%	2%	14%	71 - 120
Benzene	0.048	96%	96%	0%	11%	76 - 127
Toluene	0.047	94%	94%	0%	13%	76 - 125
Chlorobenzene	0.047	94%	94%	0%	13%	75 - 130

ND - Analyte not detected at stated limit of detection

Spike Recovery: 0 out of 10 outside QC Limits
RPD: 0 out of 5 outside QC Limits

Quality Control:	Surrogate	Spike Recovery	Duplicate Recovery	Recovery Limits
	Dibromofluoromethane	102%	103%	86 - 118%
	Toluene-d8	99%	100%	88 - 110%
	Bromofluorobenzene	100%	100%	86 - 115%

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

Comments:

Analyst

Review



Inter-Mountain Laboratories, Inc.

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Phone (409) 774-4999 Fax (409) 696-0962

QUALITY CONTROL REPORT - METHOD BLANK EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0223
Sample Matrix: Water

Report Date: 02/26/96
Date Extracted: 02/23/96
Date Analyzed: 02/23/96
Time Analyzed: 2:24 PM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Acetone	ND	0.03
Benzene	ND	0.005
Bromobenzene	ND	0.005
Bromochloromethane	ND	0.005
Bromodichloromethane	ND	0.005
Bromoform	ND	0.005
Bromomethane	ND	0.005
n-Butylbenzene	ND	0.005
sec-Butylbenzene	ND	0.005
tert-Butylbenzene	ND	0.005
2- Butanone	ND	0.04
Carbon Disulfide	ND	0.01
Carbon tetrachloride	ND	0.005
Chlorobenzene	ND	0.005
Chloroethane	ND	0.01
Chloroform	ND	0.005
Chloromethane	ND	0.01
2-Chlorotoluene	ND	0.005
4-Chlorotoluene	ND	0.005
Dibromochloromethane	ND	0.005
1,2-Dibromo-3-chloropropane	ND	0.01
1,2-Dibromoethane	ND	0.005
Dibromomethane	ND	0.005
1,2-Dichlorobenzene	ND	0.005
1,3-Dichlorobenzene	ND	0.005
1,4-Dichlorobenzene	ND	0.005
Dichlorodifluoromethane	ND	0.01
1,1-Dichloroethane	ND	0.005
1,2-Dichloroethane	ND	0.005
1,1-Dichloroethene	ND	0.005
cis-1,2-Dichloroethene	ND	0.005
trans-1,2-Dichloroethene	ND	0.005
1,2-Dichloropropane	ND	0.005
1,3-Dichloropropane	ND	0.005
2,2-Dichloropropane	ND	0.005
1,1-Dichloropropene	ND	0.005
cis-1,3-Dichloropropene	ND	0.005
trans-1,3-Dichloropropene	ND	0.005

ND - Analyte not detected at stated limit of detection



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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8260 - VOLATILE ORGANIC COMPOUND

Page 2

Sample ID: Method Blank
Laboratory ID: MB0223

Report Date: 02/26/96
Date Sampled: 02/23/96
Date Analyzed: 02/23/96
Time Analyzed: 2:24 PM

Analyte	Concentration (mg/L)	Detection Limit (mg/L)
Ethylbenzene	ND	0.005
Hexachlorobutadiene	ND	0.01
2 - Hexanone	ND	0.02
Isopropylbenzene	ND	0.005
p-Isopropyltoluene	ND	0.005
Methylene chloride	ND	0.005
4 - Methyl - 2 - Pentanone	ND	0.02
Naphthalene	ND	0.01
n-Propylbenzene	ND	0.005
Styrene	ND	0.005
1,1,1,2-Tetrachloroethane	ND	0.005
1,1,2,2-Tetrachloroethane	ND	0.005
Tetrachloroethene	ND	0.005
Toluene	ND	0.005
1,2,3-Trichlorobenzene	ND	0.01
1,2,4-Trichlorobenzene	ND	0.01
1,1,1-Trichloroethane	ND	0.005
1,1,2-Trichloroethane	ND	0.005
Trichloroethene	ND	0.005
Trichlorofluoromethane	ND	0.005
1,2,3-Trichloropropane	ND	0.005
1,2,4-Trimethylbenzene	ND	0.005
1,3,5-Trimethylbenzene	ND	0.005
Vinyl Acetate	ND	0.01
Vinyl Chloride	ND	0.005
Xylenes (total)	ND	0.005

ND - Analyte not detected at stated limit of detection

Quality Control:

<u>Surrogate</u>	<u>Percent Recovery</u>	<u>Acceptance Limits</u>
Dibromofluoromethane	102%	86 - 118%
Toluene-d8	98%	88 - 110%
Bromofluorobenzene	98%	86 - 115%



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QUALITY CONTROL REPORT - METHOD BLANK
EPA METHOD 8260 - VOLATILE ORGANIC COMPOUNDS Page 3
ADDITIONAL DETECTED COMPOUNDS

Sample ID: Method Blank
Laboratory ID: MB0223

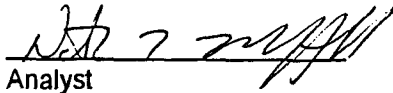
Report Date: 02/26/96
Date Sampled: 02/23/96
Date Analyzed: 02/23/96
Time Analyzed: 2:24 PM

Tentative Identification	Retention Time (Minutes)	Concentration * (mg/L)
None detected at reportable levels		

* - Concentration calculated using assumed Relative Response Factor = 1

Reference: Method 8260A: Volatile Organic Compounds by Gas Chromatography / Mass Spectrometry:
Capillary Column Technique. Test Methods for Evaluating Solid Waste, SW - 846,
United States Environmental Protection Agency, Final Update II, September 1994.

Comments:


Analyst


Review

PROJECT MANAGER:

COMPANY: GIANT Following
ADDRESS: Box 7 Route 7
Gallup, NM 87301
(505) 722-3933
PHONE: (505) 722-3933
FAX: (505) 722-3933

BILL TO: DAVID FAVLICH.
COMPANY: same as above
ADDRESS: same as above

SAMPLEID	DATE	TIME	MATRIX	LABID
1	2010-01-01	10:00	Water	101
2	2010-01-01	10:05	Water	101
3	2010-01-01	10:10	Water	101
4	2010-01-01	10:15	Water	101
5	2010-01-01	10:20	Water	101
6	2010-01-01	10:25	Water	101
7	2010-01-01	10:30	Water	101
8	2010-01-01	10:35	Water	101
9	2010-01-01	10:40	Water	101
10	2010-01-01	10:45	Water	101
11	2010-01-01	10:50	Water	101
12	2010-01-01	10:55	Water	101
13	2010-01-01	11:00	Water	101
14	2010-01-01	11:05	Water	101
15	2010-01-01	11:10	Water	101
16	2010-01-01	11:15	Water	101
17	2010-01-01	11:20	Water	101
18	2010-01-01	11:25	Water	101
19	2010-01-01	11:30	Water	101
20	2010-01-01	11:35	Water	101
21	2010-01-01	11:40	Water	101
22	2010-01-01	11:45	Water	101
23	2010-01-01	11:50	Water	101
24	2010-01-01	11:55	Water	101
25	2010-01-01	12:00	Water	101
26	2010-01-01	12:05	Water	101
27	2010-01-01	12:10	Water	101
28	2010-01-01	12:15	Water	101
29	2010-01-01	12:20	Water	101
30	2010-01-01	12:25	Water	101
31	2010-01-01	12:30	Water	101
32	2010-01-01	12:35	Water	101
33	2010-01-01	12:40	Water	101
34	2010-01-01	12:45	Water	101
35	2010-01-01	12:50	Water	101
36	2010-01-01	12:55	Water	101
37	2010-01-01	13:00	Water	101
38	2010-01-01	13:05	Water	101
39	2010-01-01	13:10	Water	101
40	2010-01-01	13:15	Water	101
41	2010-01-01	13:20	Water	101
42	2010-01-01	13:25	Water	101
43	2010-01-01	13:30	Water	101
44	2010-01-01	13:35	Water	101
45	2010-01-01	13:40	Water	101
46	2010-01-01	13:45	Water	101
47	2010-01-01	13:50	Water	101
48	2010-01-01	13:55	Water	101
49	2010-01-01	14:00	Water	101
50	2010-01-01	14:05	Water	101
51	2010-01-01	14:10	Water	101
52	2010-01-01	14:15	Water	101
53	2010-01-01	14:20	Water	101
54	2010-01-01	14:25	Water	101
55	2010-01-01	14:30	Water	101
56	2010-01-01	14:35	Water	101
57	2010-01-01	14:40	Water	101
58	2010-01-01	14:45	Water	101
59	2010-01-01	14:50	Water	101
60	2010-01-01	14:55	Water	101
61	2010-01-01	15:00	Water	101
62	2010-01-01	15:05	Water	101
63	2010-01-01	15:10	Water	101
64	2010-01-01	15:15	Water	101
65	2010-01-01	15:20	Water	101
66	2010-01-01	15:25	Water	101
67	2010-01-01	15:30	Water	101
68	2010-01-01	15:35	Water	101
69	2010-01-01	15:40	Water	101
70	2010-01-01	15:45	Water	

021496-OW14	2-14-8	11:35	AQU
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PROJECT INFORMATION

PROJ. NO.: QW-14 Resamp.	NO. CONTAINERS
PROJ. NAME: DeSample	CUSTODY SEALS
P.O. NO.:	RECEIVED IN AGT
SHIPPED VIA: Fed Ex	RECEIVED COLD

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments: SEE ATTACHED LIST OF ~~PARAM~~ PARAMETERS TO BE ANALYZED FOR.

ANALYSIS REQUEST

NUMBER OF CONTAINERS	
Petroleum Hydrocarbons (418.1)	
(MOD 8015) Gas/Diesel	
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	
BTXE/MTBE (8020)	
Chlorinated Hydrocarbons (604/8010)	5
Aromatic Hydrocarbons (602/8020)	5
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	5
Pesticides/PCB (608/8080)	5
Herbicides (615/8150)	5
Base/Neutral/Acid Compounds GC/MS (625/8270)	5
Volatile Organics GC/MS (624/8240)	5
Polynuclear Aromatics (610/8310)	5
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)	

SAMPLE RECEIPT

SAMPLED & RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.	
Signature: <i>Steve Morris</i>	Time: 0800	Signature:	Time:	Signature:	Time:
Printed Name: <i>Steve Morris</i>	Date: 2/15/96	Printed Name:	Date:	Printed Name:	Date:
Company: <i>SIART</i>	Phone: 505 7223833	Company:		Company:	
RECEIVED BY: 1.		RECEIVED BY: 2.		RECEIVED BY: (LAB) 3.	
Signature: <i>Chris Rayner</i>	Time: 1019	Signature:	Time:	Signature:	Time:
Printed Name: <i>Chris Rayner</i>	Date: 2/16/96	Printed Name:	Date:	Printed Name:	Date:
Company: <i>FMK - Farmington</i>		Company:		Analytical Technologies, Inc.	