

GW - 32

REPORTS

YEAR(S):

1995 GW REPORT



February 28, 1996

Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

Mr. Benito J. Garcia
Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
2044 Galisteo
P. O. Box 26110
Santa Fe, New Mexico 87502

RECEIVED

MAR 11 1996

Environmental Bureau
Oil Conservation Division

Dear Mr. Garcia

**SUBJECT: ANNUAL GROUNDWATER REPORT - 1995
GIANT REFINING COMPANY - CINIZA
PERMIT NO. NMD000333211-2**

Pursuant to the requirements of the captioned permit, the Annual Groundwater Report for sampling performed in 1995 is enclosed.

If you require additional information or have any questions on this matter, please contact me at (505) 722-0227.

Sincerely,

Edward L. Horst
Environmental Manager
Giant Refining Company
CINIZA Refinery

cc: David Pavlich - Health, Safety and Environmental Manager
Giant Refining Company

Kim Bullerdick - Corporate Counsel
Giant Industries Arizona, Inc.

SUMMARY AND DISCUSSION OF ANNUAL GROUNDWATER REPORT

The analytical data from the annual and semi-annual groundwater sampling events indicated that the monitoring and background wells completed in the "Sonsela" formation, the uppermost potential aquifer in the geographical area, has raised question as to the accuracy and the usefulness of these analytical results. These questions are compounded by the fact that, when comparing the analytical results received by NMED/HRMB and Giant, several discrepancies appear. For example, compare the analytical results that NMED/HRMB received for well SMW-4 and the analytical results received by Giant for the same well. NMED/HRMB's results indicate all "compounds" were below detection levels, while the results received by Giant show acetone at 54 ppb, Methylene chloride at 3 ppb and Trichlorofluoromethane at 2 ppb. These kinds of difference are somewhat confusing, especially when considering these are split samples employing the same analytical methods and analytical company to perform the analytical work.

Because of suspected "hits", written notice was sent to Mr. Benito J. Garcia, Bureau Chief of HRMB, on January 26, 1996. Giant believes that there are still too many questions that need answers and proposed, in the January 26, 1996, letter, to defer the determination of the presence or absence of the contaminants in question until the results of the next scheduled sampling event in the Spring.

Giant has re-sampled MW-1 and is presently awaiting written analytical results from Inter-Mountain Laboratories out of Farmington, New Mexico. Verbal communication with IML indicated that the suspect compounds (all common "lab. contaminants") were non-detectable in the re-sample. Once written results are received, they will be forwarded to NMED for their review.

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	MW-1
WELL LOCATION (LONGITUDE)	108 25' 36"
WELL LOCATION (LATITUDE)	35 29' 08"
NEW MEXICO STATE PLANE	(X) 320,903.76 (Y) 1,636,112.13
AQUIFER NAME	Sonsela
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	10-14-81
DRILLING METHOD	Cable
INNER CASING DIAMETER	5.0"
BOREHOLE DIAMETER	10.0"
CASING MATERIAL	PVC
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6745.80
ELEV. BOTTOM OF WELL CASING	6745.80
ELEV. BOTTOM OF SCREENED INT.	6750.80
ELEVATION OF SCREENED INTERVAL	6760.80
SURVEYED ELEVATION OF CASING TOP	6878.52
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	MW-2
WELL LOCATION (LONGITUDE)	108 26' 00"
WELL LOCATION (LATITUDE)	35 29" 43"
NEW MEXICO STATE PLANE	(X) 321,035.35 (Y) 1,636,184.06
AQUIFER NAME	Sonsela
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	10-15-81
DRILLING METHOD	Cable
INNER CASING DIAMETER	5.0"
BOREHOLE DIAMETER	10.0"
CASING MATERIAL	PVC
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6741.90
ELEV. BOTTOM OF WELL CASING	6741.90
ELEV. BOTTOM OF SCREENED INT.	6747.90
ELEVATION OF SCREENED INTERVAL	6847.90
SURVEYED ELEVATION OF CASING TOP	6880.84
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	MW-4
WELL LOCATION (LONGITUDE)	108 26' 54"
WELL LOCATION (LATITUDE)	35 29' 30"
NEW MEXICO STATE PLANE	(X) 321,602.07 (Y) 1,635,066.25
AQUIFER NAME xx	Sonsela
AQUIFER CONFINED?	UNCONFINED?
WELL INSTALLATION DATE	10-16-81
DRILLING METHOD	Cable
INNER CASING DIAMETER	5.0"
BOREHOLE DIAMETER	10.0"
CASING MATERIAL	PVC
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6761.60
ELEV. BOTTOM OF WELL CASING	6761.60
ELEV. BOTTOM OF SCREENED INT.	6761.60
ELEVATION OF SCREENED INTERVAL	6781.60
SURVEYED ELEVATION OF CASING TOP	6882.54
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	MW-5
WELL LOCATION (LONGITUDE)	108 25' 57"
WELL LOCATION (LATITUDE)	35 29' 43"
NEW MEXICO STATE PLANE	(X) 321,233.03 (Y) 1,636,212.58
AQUIFER NAME	Sonsela
AQUIFER CONFINED?	UNCONFINED?
WELL INSTALLATION DATE	7-21-86
DRILLING METHOD	HLWAG & AIRRT
INNER CASING DIAMETER	5.0"
BOREHOLE DIAMETER	10.0"
CASING MATERIAL	PVC
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6746.80
ELEV. BOTTOM OF WELL CASING	6753.30
ELEV. BOTTOM OF SCREENED INT.	6758.30
ELEVATION OF SCREENED INTERVAL	6768.80
SURVEYED ELEVATION OF CASING TOP	6883.32
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	OW-11
WELL LOCATION (LONGITUDE)	108 25' 36"
WELL LOCATION (LATITUDE)	35 29' 08"
NEW MEXICO STATE PLANE	(X) 323,167.68 (Y) 1,632,185.21
AQUIFER NAME	Sonsela
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	12-30-80
DRILLING METHOD	Cable
INNER CASING DIAMETER	4.0"
BOREHOLE DIAMETER	8.0"
CASING MATERIAL	PVC
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6773.00
ELEV. BOTTOM OF WELL CASING	6773.00
ELEV. BOTTOM OF SCREENED INT.	6858.00
ELEVATION OF SCREENED INTERVAL	6880.00
SURVEYED ELEVATION OF CASING TOP	6923.89
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	SMW-3
WELL LOCATION (LONGITUDE)	108 25' 56"
WELL LOCATION (LATITUDE)	35 29' 40"
NEW MEXICO STATE PLANE	(X) 321,397.90 (Y) 1,635,948.75
AQUIFER NAME	Ciniza Sand
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	10-1-85
DRILLING METHOD	HLWAG
INNER CASING DIAMETER	2.0"
BOREHOLE DIAMETER	6.5"
CASING MATERIAL	SS304
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6836.15
ELEV. BOTTOM OF WELL CASING	6838.65
ELEV. BOTTOM OF SCREENED INT.	6841.65
ELEVATION OF SCREENED INTERVAL	6861.65
SURVEYED ELEVATION OF CASING TOP	6884.56
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	SMW-4
WELL LOCATION (LONGITUDE)	108 26' 01"
WELL LOCATION (LATITUDE)	35 29' 44"
NEW MEXICO STATE PLANE	(X) 321,397.90 (Y) 1,635,948.75
AQUIFER NAME	Ciniza Sand
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	9-25-85
DRILLING METHOD	HLWAG
INNER CASING DIAMETER	2.0"
BOREHOLE DIAMETER	6.5"
CASING MATERIAL	SS304
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6806.74
ELEV. BOTTOM OF WELL CASING	6807.84
ELEV. BOTTOM OF SCREENED INT.	6810.84
ELEVATION OF SCREENED INTERVAL	6830.84
SURVEYED ELEVATION OF CASING TOP	6880.08
DATE OF REPORT 2-22-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

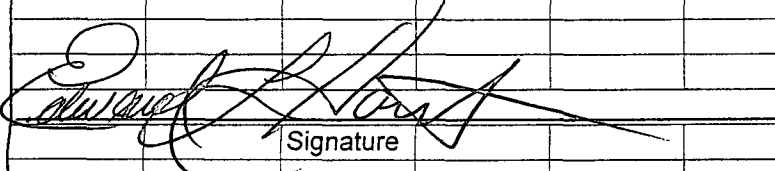
NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

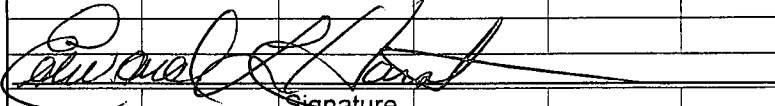
FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	SMW-5
WELL LOCATION (LONGITUDE)	108 26' 03"
WELL LOCATION (LATITUDE)	35 29' 41"
NEW MEXICO STATE PLANE	(X) 320,778.61 (Y) 1,636,054.28
AQUIFER NAME	Ciniza Sand
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	9-25-85
DRILLING METHOD	HLWAG
INNER CASING DIAMETER	2.0"
BOREHOLE DIAMETER	6.5"
CASING MATERIAL	SS304
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6800.68
ELEV. BOTTOM OF WELL CASING	6801.78
ELEV. BOTTOM OF SCREENED INT.	6804.78
ELEVATION OF SCREENED INTERVAL	6824.78
SURVEYED ELEVATION OF CASING TOP	6878.02
DATE OF REPORT 2-26-96	SIGNATURE NAME (TYPED) Edward L. Horst

MONITORING WELL IDENTIFICATION REPORT

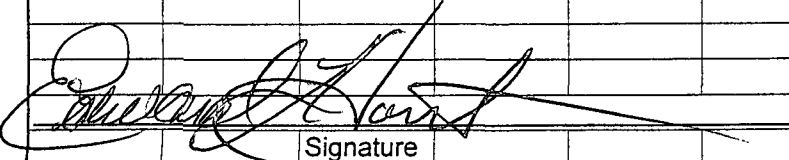
NEW MEXICO ENVIRONMENT DEPARTMENT
HAZARDOUS WASTE SECTION
P.O. BOX 26110
SANTA FE, NEW MEXICO 87502

FACILITY NAME	Giant Refining Co. - Ciniza
EPA I.D. NUMBER	NMD000333211-2
COUNTY	McKinley
WELL NUMBER	SMW-6
WELL LOCATION (LONGITUDE)	108 26' 02"
WELL LOCATION (LATITUDE)	35 29' 38"
NEW MEXICO STATE PLANE	(X) 320,839.52 (Y) 1,635,867.66
AQUIFER NAME	Ciniza Sand
AQUIFER CONFINED? xx	UNCONFINED?
WELL INSTALLATION DATE	10-3-85
DRILLING METHOD	HLWAG
INNER CASING DIAMETER	2.0"
BOREHOLE DIAMETER	6.5"
CASING MATERIAL	SS304
METHOD OF DEVELOPMENT	Compr
ELEV. BOTTOM OF BOREHOLE	6806.35
ELEV. BOTTOM OF WELL CASING	6807.55
ELEV. BOTTOM OF SCREENED INT.	6810.55
ELEVATION OF SCREENED INTERVAL	6830.55
SURVEYED ELEVATION OF CASING TOP	6880.71
DATE OF REPORT 2-2-96	SIGNATURE NAME (TYPED) Edward L. Horst

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters			
Prepared by:	Edward L. Horst		Telephone: (505)722-0227
Facility Name:	GIANT CINIZA		EPA ID #: NMD000333211-2
Date:	FALL, 95		Parameter pH
Well Number:	MW-1		Up or Down Gradient: Down
Please list the values calculated for the background parameters on the Background Indicator parameter Calculation Sheet:			
X(b)=	8.51	S(b) ² =	0.015
W(b)=	0.000938	n(b)=	16
Please list the current values for this monitoring well:			
	Value	(Value-X(m)) ²	
1	8.91	0.0004	
2	8.88	1E-04	
3	8.88	1E-04	
4	8.9	1E-04	
Total 1	35.57	Total 2	0.000175
Mean Value X(m)	8.89	t(m)=	5.814
Variance S(m) ²	0.000167	W(m)=	4.17E-05
t(*)=	11.43579	If t(*) absolute is less than t(c) there has not been an increase in the value.	
t(c)=	3.069		
 Signature			

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters			
Prepared by:	Edward L. Horst		Telephone: (505)722-0227
Facility Name:	GIANT CINIZA		EPA ID #: NMD000333211-2
Date:	FALL, 95		Parameter pH
Well Number:	MW-2		Up or Down Gradient: Down
Please list the values calculated for the background parameters on the Background Indicator parameter Calculation Sheet:			
X(b)=	8.51	S(b)2=	0.015
W(b)=	0.000938	n(b)=	16
Please list the current values for this monitoring well:			
	Value	(Value-X(m))2	
1	9.01	0.000506	
2	9.04	5.63E-05	
3	9.03	6.25E-06	
4	9.05	0.000306	
Total 1	36.13	Total 2	0.000219
Mean Value X(m)	9.0325	t(m)=	5.814
Variance S(m)2	0.000271	W(m)=	6.77E-05
t(*)=	15.03117	If t(*) absolute is less than t(c) there has not been an increase in the value.	
t(c)=	3.140114		
 Signature			

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters			
Prepared by:	Edward L. Horst		Telephone: (505)722-0227
Facility Name:	GIANT CINIZA		EPA ID #: NMD000333211-2
Date:	FALL, 95		Parameter pH
Well Number:	MW-4		Up or Down Gradient: Down
Please list the values calculated for the background parameters on the Background Indicator parameter Calculation Sheet:			
X(b)=	8.51	S(b) ² =	0.015
W(b)=	0.000938	n(b)=	16
Please list the current values for this monitoring well:			
	Value	(Value-X(m)) ²	
1	9.02	5.63E-05	
2	9.01	6.25E-06	
3	9.02	5.63E-05	
4	9	0.000156	
Total 1	36.05	Total 2	6.87E-05
Mean Value X(m)	9.0125	t(m)=	5.814
Variance S(m) ²	7.08E-05	W(m)=	1.77E-05
t(*)=	15.82465	If t(*) absolute is less than t(c) there has not been an increase in the value.	
t(c)=	3.00015		
 Signature			

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters			
Prepared by:	Edward L. Horst		Telephone: (505)722-0227
Facility Name:	GIANT CINIZA		EPA ID #: NMD000333211-2
Date:	FALL, 95	Parameter	pH
Well Number:	MW-5	Up or Down Gradient:	Down
Please list the values calculated for the background parameters on the Background Indicator parameter Calculation Sheet:			
X(b)=	8.51	S(b)2=	0.015
W(b)=	0.000938	n(b)=	16
Please list the current values for this monitoring well:			
	Value	(Value-X(m))2	
1	9.07	0.000225	
2	9.03	0.000625	
3	9.06	2.5E-05	
4	9.06	2.5E-05	
Total 1	36.22	Total 2	0.000225
Mean Value X(m)	9.055	t(m)=	5.814
Variance S(m)2	8.33E-05	W(m)=	2.08E-05
t(*)=	17.05765	If t(*) absolute is less than t(c) there has not been an increase in the value.	
t(c)=	3.009326		
			
Signature			

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Prepared by: Edward L. Horst Telephone:) 722-0227
Facility Name: GIANT CINIZA EPA ID #: NMD000333211-2
Date: Fall, 95 Parameter: : SPEC. COND.
Well Number: MW-1 Up or Downgradient: : DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)=	984	S(b)2=	1487	t(b)=	2.602
W(b)=	92.9375	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1110	6.25
2	1130	306.25
3	1120	56.25
4	1120	56.25

Total 1	4480	Total 2	425.00
---------	------	---------	--------

Mean value X(m)	1120	t(m)=	4.541
Variance S(m)2	141.66667	W(m)=	35.41667

t(*)= 12.0042

t(c)= 3.1370

If t(*) absolute is less than t(c)
there has not been an increase
in the value


Signature

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Prepared by: Edward L. Horst Telephone:) 722-0227
Facility Name: GIANT CINIZA EPA ID #: NMD000333211-2
Date: Fall,95 Parameter: : SPEC. COND.
Well Number: MW-2 Up or Downgradient: : DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)=	984	S(b)2=	1487	t(b)=	2.602
W(b)=	92.9375	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1080	1056.25
2	1100	156.25
3	1100	156.25
4	1100	156.25
Total 1	4380	Total 2 1525.00

Mean value X(m)	1095	t(m)=	4.541
Variance S(m)2	508.33333	W(m)=	127.0833

t(*)= 7.4833

t(c)= 3.7220

If t(*) absolute is less than t(c)
there has not been an increase
in the value


Signature

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Prepared by: Edward L. Horst Telephone:) 722-0227
Facility Name: GIANT CINIZA EPA ID #: NMD000333211-2
Date: Fall, 1995 Parameter: : SPEC. COND.
Well Number: MW-4 Up or Downgradient: UP

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)=	984	S(b)2=	1487	t(b)=	2.602
W(b)=	92.9375	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	1100	156.25
2	1110	6.25
3	1100	156.25
4	1090	506.25

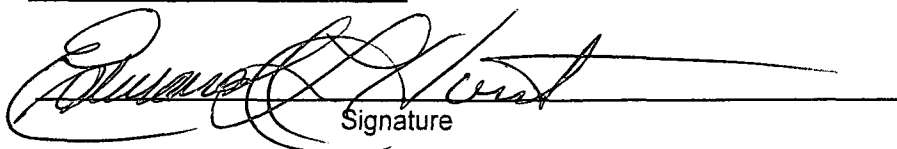
Total 1	4400	Total 2	825.00
---------	------	---------	--------

Mean value X(m)	1100	t(m)=	4.541
Variance S(m)2	275	W(m)=	68.75

t(*)= 9.1226

t(c)= 3.4265

If t(*) absolute is less than t(c)
there has not been an increase
in the value


Signature

Calculation Sheet for Semi-Annual Evaluation
of Indicator Parameters

Prepared by: Edward L. Horst Telephone:) 722-0227
Facility Name: GIANT CINIZA EPA ID #: NMD000333211-2
Date: Fall, 95 Parameter: : SPEC. COND.
Well Number: MW-5 Up or Downgradient: : DOWN

Please list the values calculated for the background parameters
on the Background Indicator Parameter Calculation Sheet:

X(b)=	984	S(b) ² =	1487	t(b)=	2.602
W(b)=	92.9375	n(b)=	16		

Please list the current values for this monitoring well.

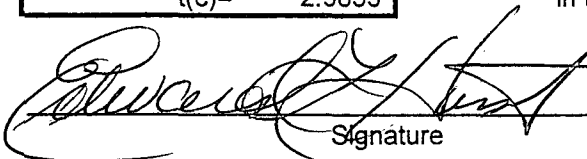
	Value	(Value - X(m)) ²
1	1120	56.25
2	1100	156.25
3	1110	6.25
4	1120	56.25
Total 1	4450	Total 2 275.00

Mean value X(m)	1112.5	t(m)=	4.541
Variance S(m) ²	91.666667	W(m)=	22.91667

t(*)= 11.9384

t(c)= 2.9855

If t(*) absolute is less than t(c)
there has not been an increase
in the value


Signature

TOLERANCE INTERVAL

1995

LEAD

SMW-3	5-95	MEAN-	0.0019	SD	0.0015
	10-95		0.005		0.0111
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	0.0025 *	0.005	ppm	Does not exceed the tolerance limit.
	10-95	0.0025 *	0.027	ppm	Does exceed the tolerance limit.

SMW-4	5-95	MEAN-	0.002	SD	0.0014
	10-95		0.0018		0.0014
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	0.0025 *	0.005	ppm	Does not exceed the tolerance limit.
	10-95	0.0025 *	0.005	ppm	Does not exceed the tolerance limit.

SMW-5	5-95	MEAN-	0.0018	SD	0.0015
	10-95		0.002		0.0016
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	0.0025 *	0.005	ppm	Does not exceed the tolerance limit.
	10-95	0.0025 *	0.005	ppm	Does not exceed the tolerance limit.

SMW-6	10-95	MEAN-	NO SAMP	SD	NO SAMPLE
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	0.0025	0.000	ppm	Does not exceed the tolerance limit.
	10-95	NO SAMPLE			Sample was not taken at this location.

* 1/2 of Reporting Limit.
 TLS95

TOLERANCE INTERVAL

CHROME

SMW	DATE	MEAN	SD
SMW-3	5-95	0.0643	0.1971
	10-95	0.0655	0.1894

DATE	RESULT	TOL LIMIT	UNITS	
5-95	0.01	0.459	ppm	Does not exceed the tolerance limit.
10-95	0.08	0.444	ppm	Does not exceed the tolerance limit.

SMW	DATE	MEAN	SD
SMW-4	5-95	0.0046	0.0033
	10-95	0.158	0.0288

DATE	RESULT	TOL LIMIT	UNITS	
5-95	0.005 *	0.011	ppm	Does not exceed the tolerance limit.
10-95	0.01	0.216	ppm	Does not exceed the tolerance limit.

SMW	DATE	MEAN	SD
SMW-5	5-95	0.0155	0.0288
	10-95	0.0158	0.0288

DATE	RESULT	TOL LIMIT	UNITS	
5-95	0.01	0.073	ppm	Does not exceed the tolerance limit.
10-95	0.02	0.073	ppm	Does not exceed the tolerance limit.

SMW	DATE	MEAN	SD
SMW-6	5-95	0.1933	0.4679
	10-95	No Sample	No Sample

DATE	RESULT	TOL LIMIT	UNITS	
5-95	1.79	1.129	ppm	Exceeds the tolerance limit by 159%.
10-95	NONE			Samples were not taken.

* 1/2 of reporting limit.
 TLS95

TOLERANCE INTERVAL

pH

SMW-3	5-95	MEAN-	7.8235	SD	0.1378
	10-95		7.8257		0.1438

DATE	RESULT	TOL LIMIT	UNITS	
5-95	7.8	8.099	---	Does not exceed the tolerance limit.
10-95	7.75	8.113		Does not exceed the tolerance limit.

SMW-4	5-95	MEAN-	8.3629	SD	0.1633
	10-95		7.970		0.1579

DATE	RESULT	TOL LIMIT	UNITS	
5-95	8.5	8.690	---	Does not exceed the tolerance limit.
10-95	8.39	8.285		Does exceed the tolerance limit

SMW-5	5-95	MEAN-	8.52	SD	0.327
	10-95		8.518		0.3266

DATE	RESULT	TOL LIMIT	UNITS	
5-95	8.8	9.171	---	Does not exceed the tolerance limit.
10-95	8.69	9.171		Does not exceed the tolerance limit.

SMW-6	5-95	MEAN-	7.875	SD	0.4597
	10-95	No Sample			

DATE	RESULT	TOL LIMIT	UNITS	
5-95	7.2	8.794	---	Does not exceed the tolerance limit.
10-95	No Sample			

TLS95

TOLERANCE INTERVAL

EC					
SMW-3	5-95	MEAN-	3193.46	SD	329.4
	10-95		3238.32		306.95
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	2700	3852.260	---	Does not exceed the tolerance limit.
	10-95	2900	3852.220		Does not exceed the tolerance limit.
SMW-4	5-95	MEAN-	1233.39	SD	94.69
	10-95		1236.500		92.22
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	1300	1422.770	---	Does not exceed the tolerance limit.
	10-95	1280	1420.940		Does not exceed the tolerance limit.
SMW-5	5-95	MEAN-	1132.71	SD	73.09
	10-95		1135.030		71.14
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	1100	1278.890	---	Does not exceed the tolerance limit.
	10-95	1167.5	1277.310		Does not exceed the tolerance limit.
SMW-6	5-95	MEAN-	4804.82	SD	6376.63
	10-95		No Sample		
	DATE	RESULT	TOL LIMIT	UNITS	
	5-95	20000	17558.08	---	Exceeds the tolerance limit by 114%.
	10-95	No Sample			

TLS95

TOLERANCE INTERVAL

TEMPERATURE

SMW-3	5-95	MEAN-	54.93	SD	2.4
	10-95		55.27		2.56

DATE	RESULT	TOL LIMIT	UNITS	
5-95	57	59.73	degrees	Does not exceed the tolerance limit.
10-95	59	60.39	degrees	Does not exceed the tolerance limit.

SMW-4	5-95	MEAN-	55.52	SD	2.55
	10-95		55.790		2.63

DATE	RESULT	TOL LIMIT	UNITS	
5-95	56.25	60.62	degrees	Does not exceed the tolerance limit.
10-95	59	61.05	degrees	Does not exceed the tolerance limit.

SMW-5	5-95	MEAN-	54.61	SD	2.81
	10-95		54.920		2.86

DATE	RESULT	TOL LIMIT	UNITS	
5-95	56.75	60.23	degrees	Does not exceed the tolerance limit.
10-95	58	60.64	degrees	Does not exceed the tolerance limit.

SMW-6	5-95	MEAN-	54.98	SD	3.77
-------	------	-------	-------	----	------

DATE	RESULT	TOL LIMIT	UNITS	
5-95	57.5	62.52	degrees	Does not exceed the tolerance limit.

TLS95

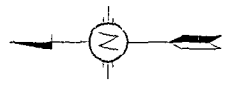
TOLERANCE INTERVAL

WATER LEVEL

SMW-3	5-95	MEAN-	6851.78	SD	2.18
-------	------	-------	---------	----	------

GIANT REFINING CO. - CINIZA					
ANNUAL GROUNDWATER MEASUREMENT					
Well No.	Date	Casing Elevation	Depth to Water	Groundwater Elevation	
MW-1	05-16-95	6878.52	7.86	6870.66	
	10-26-95		6.12	6872.4	
MW-2	05-16-95	6880.84	7.71	6873.13	
	10-28-95		8.5	6872.34	
MW-4	05-16-95	6882.54	9.83	6872.71	
	10-28-95		6.61	6875.93	
MW-5	05-11-96	6883.32	6	6877.32	
	10-28-95		9.32	6874	
OW-11	05-14-95	6923.89	19.09	6904.8	
	10-28-95		19.76	6904.13	
SMW-3	05-11-95	6884.56	31.45	6853.11	
	10-26-95		31.56	6853	
SMW-4	05-11-95	6880.8	32.67	6848.13	
	10-26-95		30.16	6850.64	
SMW-5	05-11-95	6878.02	30.12	6847.9	
	10-26-95		30.55	6847.47	

GROUNDWATER ELEVATION
COUNTOUR MAP



1995
GROUNDWATER ELEVATION
CONTOUR MAP

2/96 ELH

MW-1	6872.4
MW-2	6872.34
MW-4	6875.93
MW-5	6874.00
OW-11	6904.13

GROUNDWATER VELOCITY

SONSELA AQUIFER

The groundwater velocity in the Sonsel aquifer under the Land Treatment Unit is estimated to be .014105 ft/day (5.148 ft/year), using the following calculation:

V	=	(KI/n)
V	=	Velocity, ft/day
K	=	Horizontal Hydraulic Conductivity, 0.35 ft/day
I	=	Potentiometric Gradient, .00403 ft/day
n	=	Porosity, 10%

"I" was calculated by using the differential elevation between wells MW-2 and MW-4 in 1994.

TLS 95

SMW-3

GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Chloromethane	ND	ND	ND	ND	ND	ug/L	10
Bromomethane	ND	ND	ND	ND	ND	ug/L	10
Vinyl chloride	ND	ND	ND	ND	ND	ug/L	10
Chloroethane	ND	ND	ND	ND	ND	ug/L	10
Methylene chloride	ND	ND	ND	ND	ND	ug/L	5.0
Acetone	ND	ND	ND	ND	ND	ug/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ug/L	5.0
1,1-Dichloroethene	ND	ND	ND	ND	ND	ug/L	5.0
1,1,1-Dichloroethane	ND	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethene	ND	ND	ND	ND	ND	ug/L	5.0
(cis/trans)	ND	ND	ND	ND	ND	ug/L	5.0
Chloroform	ND	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethane	ND	ND	ND	ND	ND	ug/L	5.0
2-Butanone	---	---	---	---	---	ug/L	5.0
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ug/L	10
Carbon tetrachloride	ND	ND	ND	ND	ND	ug/L	5.0
Vinyl acetate	ND	ND	ND	ND	ND	ug/L	5.0
Bromodichloromethane	ND	ND	ND	ND	ND	ug/L	10
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ug/L	5.0
Trichloroethene	ND	ND	ND	ND	ND	ug/L	5.0
Chlorodibromomethane	---	---	---	---	---	ug/L	5.0
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ug/L	5.0
Benzene	ND	ND	ND	ND	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ND	ug/L	10
Bromoform	ND	ND	ND	ND	ND	ug/L	5.0
4-Methyl-2-pentanone	ND	ND	ND	ND	ND	ug/L	10
2-Hexanone	ND	ND	ND	ND	ND	ug/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ug/L	5.0
Tetrachloroethene	ND	ND	ND	ND	ND	ug/L	5.0
Toluene	ND	ND	ND	ND	ND	ug/L	5.0
Chlorobenzene	ND	ND	ND	ND	ND	ug/L	5.0
Ethylbenzene	ND	ND	ND	ND	ND	ug/L	5.0
Styrene	ND	ND	ND	ND	ND	ug/L	5.0
Xylenes (total)	ND	ND	6.0	ND	ND	ug/L	5.0
Acetonitrile	---	---	ND	---	---	ug/L	10.0
Acrolein	---	---	ND	ND	ND	ug/L	20.0
Acrylonitrile	---	---	ND	ND	ND	ug/L	10.0

1,2-Dibromoethane
Dibromomethane
Dichlorodifluoromethane
Methyl Iodide
Trans-1,4-Dichloro-2-Butene
Trichloromonofluoromethane
1,2,3-Trichloropropane
Ethyl Methacrylate

[illegible]

SMW-3

GIANT REFINING - CINIZA

Dissolved Metals

Parameter	29 APR 93 Result	29 APR 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Calcium	43.5	45	37.7	---	mg/L	0.40
Magnesium	15.6	13.9	12.1	---	mg/L	0.40
Potassium	ND	ND	ND	---	mg/L	10.0
Sodium	820	744	564	---	mg/L	10.0

SMW-3

GIANT REFINING - CINIZA

Total Metals

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Chromium	ND	0.062	.718	0.01	0.08	mg/L	0.010
Lead	ND	ND	.043	ND	ND	mg/L	0.05

SMW-3

GIANT REFINING - CINIZA

General Inorganics

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Alkalinity, Bicarb. as CaCO ₃ at pH 4.5	---	660	---	590	---	mg/L	5.0
Alkalinity, Carb. as CaCO ₃ at pH 8.3	---	ND	---	3	---	mg/L	5.0
Chloride	---	83	---	69	---	mg/L	3.0
pH	7.66	7.81	7.63	7.80	7.77	units	---
pH	7.68	---	7.68	---	7.74	units	---
pH	7.71	---	7.7	---	7.73	units	---
pH	7.72	---	7.79	---	7.74	units	---
Average pH	7.6925	---	7.7	7.80	7.75	units	---
Sulfate	---	1000	---	680	---	mg/L	5.0
Specific Conductance at 25 deg.C	3220	3160	3360	2700	2890	umhos/cm	1.0
Specific Conductance at 25 deg.C	3250	---	3340	---	2880	umhos/cm	1.0
Specific Conductance at 25 deg.C	3190	---	3500	---	2900	umhos/cm	1.0
Specific Conductance at 25 deg.C	3230	---	3520	---	2890	umhos/cm	1.0
Average Specific Conductance at 25 deg.C	3222.5	---	3430	2700	2890	umhos/cm	1.0
Total Organic Carbon	2	2	5	5	14.9	mg/L	0.50
Total Organic Carbon	2	2	5	5	---	mg/L	0.50
Total Organic Carbon	---	---	---	---	---	mg/L	0.50
Total Organic Carbon	---	---	---	---	---	mg/L	0.50
Total Organic Halogen as Cl	30	30	20	80	60	ug/L	30
Total Organic Halogen as Cl	30	30	20	70	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	---	ug/L	30
Total Dissolved Solids	---	2300	---	1900	---	mg/L	10
Water Elevation	6852.43	6855.35	6852.76	6853.16	6853	ft	

SMW-4

GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Chloromethane	ND	ND	ND	ND	ug/L	10
Bromomethane	ND	ND	ND	ND	ug/L	10
Vinyl chloride	ND	ND	ND	ND	ug/L	10
Chloroethane	ND	ND	ND	ND	ug/L	10
Methylene chloride	ND	ND	ND	3	ug/L	3
Acetone	ND	ND	ND	54	ug/L	10
Carbon disulfide	ND	ND	ND	ND	ug/L	5.0
1,1-Dichloroethene	ND	ND	ND	ND	ug/L	5.0
1,1-Dichloroethane	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ug/L	5.0
Chloroform	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethane	ND	ND	ND	ND	ug/L	5.0
2-Butanone	---	---	---	---	ug/L	5.0
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L	10
Carbon tetrachloride	ND	ND	ND	ND	ug/L	5.0
Vinyl acetate	ND	ND	ND	ND	ug/L	5.0
Bromodichloromethane	ND	ND	ND	ND	ug/L	10
trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L	5.0
Trichloroethene	ND	ND	ND	ND	ug/L	5.0
Chlorodibromomethane	---	---	---	---	ug/L	5.0
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L	5.0
Benzene	ND	ND	ND	ND	ug/L	5.0
Bromoform	ND	ND	ND	ND	ug/L	5.0
4-Methyl-2-Pentanone	ND	ND	ND	ND	ug/L	10
2-Hexanone	ND	ND	ND	ND	ug/L	5.0
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L	10
Tetrachloroethene	ND	ND	ND	ND	ug/L	10
Toluene	ND	ND	ND	ND	ug/L	5.0
Chlorobenzene	ND	ND	ND	ND	ug/L	5.0
Ethylbenzene	ND	ND	ND	ND	ug/L	5.0
Styrene	ND	ND	ND	ND	ug/L	5.0
Xylenes (Total)	ND	ND	ND	ND	ug/L	5.0
Acetonitrile	ND	ND	---	---	ug/L	10.0
Acrolein	ND	ND	ND	ND	ug/L	20.0
Acrylonitrile	---	ND	ND	ND	ug/L	10.0
1,2-Dibromoethane	---	ND	ND	ND	ug/L	5.0

Dichlorodifluoromethane
Methyl Iodide
Trans-1,4-Dichloro-2-Butene
Trichloromonofluoromethane
1,2,3-Trichloropropane
Ethyl Methacrylate

---	ND	ND	ND	ug/L	5.0
---	ND	ND	ND	ug/L	5.0
---	ND	ND	ND	ug/L	5.0
---	ND	ND	2	ug/L	1
---	ND	ND	ND	ug/L	5.0
---	ND	ND	ND	ug/L	5.0

SMW-4

GIANT REFINING - CINIZA

Dissolved Metals

Parameter	29 APR 93 DUP	29 APR 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Calcium	4.6	2.6	3.3	---	mg/L	0.40
Magnesium	1.5	0.7	0.7	---	mg/L	0.40
Potassium	ND	ND	ND	---	mg/L	10.0
Sodium	321	286	266	---	mg/L	10.0

SMW-4

GIANT REFINING - CINIZA

Total Metals

Parameter	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 Oct 95	Units	Reporting Limit
Chromium	ND	0.03	ND	0.01	mg/L	0.010
Lead	ND	ND	ND	ND	mg/L	0.0050

SMW-4

GIANT REFINING - CINIZA

General Inorganics

Parameter	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	393	---	380	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	18	---	11	---	mg/L
Chloride	56	---	53	---	mg/L
pH	8.49	8.53	8.50	8.47	units
pH	---	8.48	---	8.40	units
pH	---	8.51	---	8.35	units
pH	---	8.48	---	8.34	units
Average pH	---	8.5	8.50	8.39	units
Sulfate	160	---	220	---	mg/L
Specific Conductance at 25 deg.C	1190	1270	1300	1280	umhos/cm
Specific Conductance at 25 deg.C	---	1280	---	1280	umhos/cm
Specific Conductance at 25 deg.C	---	1250	---	1280	umhos/cm
Specific Conductance at 25 deg.C	---	1230	---	1280	umhos/cm
Average Specific Conductance at 25 deg.C	---	1257.5	1300	1280	umhos/cm
Total Organic Carbon	3	ND	ND	1	mg/L
Total Organic Carbon	3	ND	ND	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Halogen as Cl	80	ND	30	110	ug/L
Total Organic Halogen as Cl	50	ND	20	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Dissolved Solids	760	---	790	---	mg/L
Water Elevation	6850.29	6849.88	6849.30	6848.52	ft

SMW-5

GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Chloromethane	ND	ND	ND	ND	ug/L	10
Bromomethane	ND	ND	ND	ND	ug/L	10
Vinyl chloride	ND	ND	ND	ND	ug/L	10
Chloroethane	ND	ND	ND	ND	ug/L	10
Methylene chloride	ND	ND	ND	ND	ug/L	5.0
Acetone	ND	ND	ND	ND	ug/L	10
Carbon disulfide	ND	ND	ND	ND	ug/L	5.0
1,1-Dichloroethene	ND	ND	ND	ND	ug/L	5.0
1,1-Dichloroethane	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethene	ND	ND	ND	ND	ug/L	5.0
(cis/trans)	ND	ND	ND	ND	ug/L	5.0
Chloroform	ND	ND	ND	ND	ug/L	5.0
1,2-Dichloroethane	ND	ND	ND	ND	ug/L	5.0
2-Butanone	---	---	---	---	ug/L	5.0
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L	10
Carbon tetrachloride	ND	ND	ND	ND	ug/L	5.0
Vinyl acetate	ND	ND	ND	ND	ug/L	5.0
Bromodichloromethane	ND	ND	ND	ND	ug/L	10
trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L	5.0
Trichloroethene	ND	ND	ND	ND	ug/L	5.0
Chlorodibromomethane	---	---	---	---	ug/L	5.0
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L	5.0
Benzene	ND	ND	ND	ND	ug/L	5.0
cis-1,3-Dichloropropene	ND	ND	ND	ND	ug/L	5.0
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ug/L	10
Bromoform	ND	ND	ND	ND	ug/L	5.0
4-Methyl-2-pentanone	ND	ND	ND	ND	ug/L	10
2-Hexanone	ND	ND	ND	ND	ug/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L	5.0
Tetrachloroethene	ND	ND	ND	ND	ug/L	5.0
Toluene	ND	ND	ND	ND	ug/L	5.0
Chlorobenzene	ND	ND	ND	ND	ug/L	5.0
Ethylbenzene	ND	ND	ND	ND	ug/L	5.0
Stryene	ND	ND	ND	ND	ug/L	5.0
Xylenes (total)	ND	ND	ND	ND	ug/L	5.0
Acetonitrile	---	---	---	---	ug/L	10.0
Acrolein	---	---	---	---	ug/L	20.0
Acrylonitrile	---	---	---	---	ug/L	10.0

SMW-5

GIANT REFINING - CINIZA

Dissolved Metals

Parameter	29 APR 94 Result	15 MAY 95 Result	Result	26 OCT 95 Result	Reporting Units	Limit
Calcium	3.4	1.6	2.2	---	mg/L	0.40
Magnesium	1.5	0.7	0.5	---	mg/L	0.40
Potassium	1.3	ND	ND	---	mg/L	10.0
Sodium	256	267	250	---	mg/L	10.0

SMW-5

Giant Refining - Ciniza

Total Metals

Parameter	29 APR 94 Result	19 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Chromium	0.094	.076	0.01	0.02	mg/L	0.010
Lead	ND	.008	ND	ND	mg/L	0.0050

SMW-5

GIANT REFINING - CINIZA

General Organics

Parameter	29 APR 94 Result	18 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units	Reporting Limit
Alkalinity, Bicarb. as CaCO3 at pH 4.5	349	---	350	---	mg/L	5.0
Alkalinity, Carb. as CaCO3 at pH 8.3	24	---	21	---	mg/L	5.0
Chloride	67	---	54	---	mg/L	3.0
pH	8.85	8.58	8.80	8.69	units	---
pH	---	8.6	---	8.69	units	---
pH	---	8.6	---	8.69	units	---
pH	---	8.64	---	8.70	units	---
Average pH	---	8.605	8.80	8.69	units	---
Sulfate	150	---	1800	---	mg/L	5.0
Specific Conductance at 25 deg.C	1130	1120	1100	1170	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1130	---	1160	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1120	---	1170	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1150	---	1170	umhos/cm	1.0
Average Specific Conductance at 25 deg.C	---	1130	1100	1167.5	umhos/cm	1.0
Total Organic Carbon	2	8	ND	1.2	mg/L	0.50
Total Organic Carbon	2	8	ND	---	mg/L	0.50
Total Organic Carbon	---	---	---	---	mg/L	0.50
Total Organic Carbon	---	---	---	---	mg/L	0.50
Total Organic Halogen as Cl	30	ND	16	15	ug/L	30
Total Organic Halogen as Cl	ND	ND	30	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	ug/L	30
Total Dissolved Solids	720	---	790	---	mg/L	10
Water Elevation	6848.13	6848.02	6848.38	6847.47	ft	

OW-11 GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	28 APR 93 Result	29 OCT 93 Result	3 MAY 94 Result	19 OCT 94 Result	15 MAY 95 Result	26 OCT 95 rRESULT	Units
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ND	ND	ND	ug/L
Tetrachloroethene	ND	ND	ND	ND	ND	ND	ug/L
Toluene	ND	ND	ND	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ND	ND	13	ug/L
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ug/L
Chloromethane	ND	ND	ND	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ND	ND	ND	ug/L
Vinyl Chloride	ND	ND	ND	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ND	ND	ND	ug/L
Methylene Chloride	ND	ND	ND	ND	ND	5	ug/L
Carbon Disulfide	ND	ND	ND	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ND	ND	ND	ug/L
1,2-Dichloroethene (Total)	ND	ND	ND	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ND	ND	ND	ug/L
Carbon Tetrachloride	ND	ND	ND	ND	ND	ND	ug/L
Vinyl Acetate	ND	ND	ND	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	ug/L
1,2-Dichloropropane	ND	ND	ND	ND	ND	ND	ug/L
Trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ND	ND	ND	ug/L
Dibromochloromethane	ND	ND	ND	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	ug/L

Cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	ug/L
2-Chloroethylvinylether	ND	ND	ND	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ND	ND	ND	ug/L
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	ug/L
4-Methyl-2-Pentanone (MIBK)	ND	ND	ND	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ND	ND	ND	ug/L
Styrene	ND	ND	ND	ND	ND	ND	ug/L
Acrolein	--	--	--	--	--	--	ug/L
Acrylonitrile	--	--	--	--	--	--	ug/L
Dibromomethane	--	--	--	--	--	--	ug/L
Dichlorodifluoromethane	--	--	--	--	--	--	ug/L
Methyl Iodide	--	--	--	--	--	--	ug/L
Trans-1,4-Dichloro-2-Butene	--	--	--	--	--	--	ug/L
Trichloromonofluoromethane	--	--	--	--	--	--	ug/L
1,2,3-Trichloropropane	--	--	--	--	--	--	ug/L
Ethyl Methacrylate	--	--	--	--	--	--	ug/L
Ethanol	--	--	--	--	--	--	ug/L
1,4-Dichloro-2-Butane	--	--	--	--	--	--	ug/L

OW-11 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	22 APR 92 Result	28 APR 93 Result	29 APR 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units
Arsenic	ND	ND	ND	ND	---	mg/L
Barium	ND	ND	0.015	0.01	---	mg/L
Cadmium	ND	ND	ND	ND	---	mg/L
Calcium	7.1	4.8	5.5	7.6	---	mg/L
Copper	---	---	---	---	---	mg/L
Manganese	ND	ND	ND	ND	---	mg/L
Nickel	---	---	---	---	---	mg/L
Selenium	ND	ND	ND	ND	---	mg/L
Silver	ND	ND	ND	ND	---	mg/L
Sodium	140	421	505	480	---	mg/L
Zinc	---	---	---	---	---	mg/L
Potassium	1.2	1.1	1.1	ND	---	mg/L
Magnesium	---	---	---	0.8	---	mg/L

OW-11 GIANT REFINING - CINIZA

Total Metals

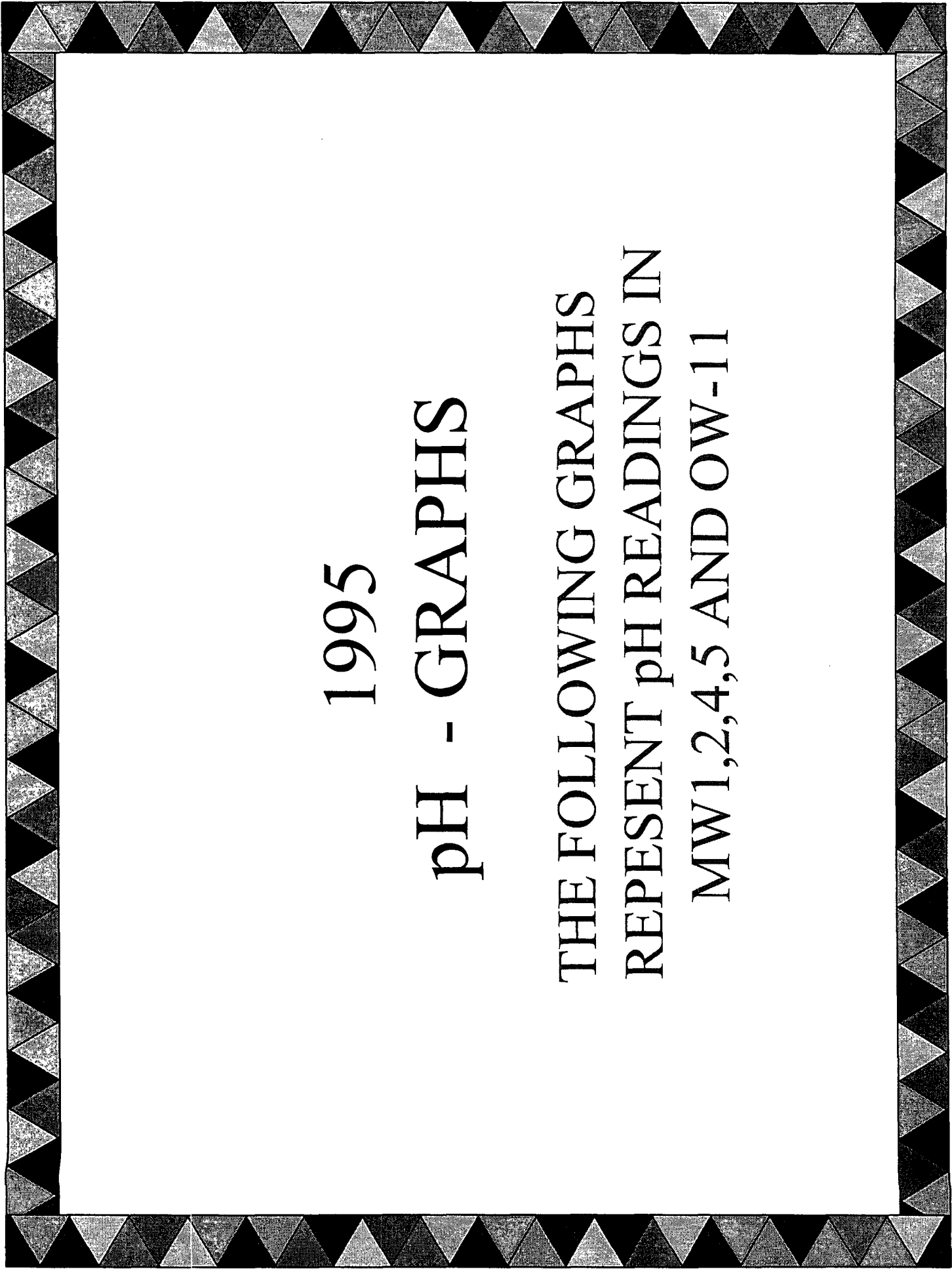
Parameter	22 OCT 92 Result	28 APR 93 Result	29 OCT 93 Result	29 APR 94 Result	19 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units
Chromium	0.010	ND	ND	ND	ND	ND	---	mg/L
Lead	ND	ND	ND	ND	ND	ND	---	mg/L
Mercury	---	ND	---	ND	---	ND	---	mg/L

OW-11 GIANT REFINING - CINIZA

General Inorganics

Parameter	28 APR 93 Result	29 OCT 93 Result	29 APR 94 Result	19 OCT 94 Result	15 MAY 95 Result	26 OCT 95 Result	Units
Alkalinity, Bicarb. as CaCO ₃ at pH 4.5	485	---	374	---	330	---	mg/L
Alkalinity, Carb. as CaCO ₃ at pH 8.3	ND	---	11	---	10	---	mg/L
Chloride	160	---	144	---	100	---	mg/L
pH	8.3	8.26	8.38	8.34	8.50	8.39	units
pH	---	8.31	---	8.34	---	8.31	units
pH	---	8.32	---	8.35	---	8.31	units
pH	---	8.3	---	8.35	---	8.3	units
Phenolics	8.3	8.2975	8.38	8.345	8.50	8.33	mg/L
Sulfate	ND	ND	ND	---	ND	---	mg/L
	200	---	600	---	680	---	mg/L
Specific Conductance at 25 deg.C	1800	1840	2080	2120	2500	2340	umhos/cm
Specific Conductance at 25 deg.C	---	1870	---	2180	---	2360	umhos/cm
Specific Conductance at 25 deg.C	---	1820	---	2190	---	2380	umhos/cm
Specific Conductance at 25 deg.C	---	1880	---	2190	---	2340	umhos/cm
	1800	1852.5	2080	2170	2500	2355	umhos/cm
Total Organic Carbon	4	3	2	2	1	1.9	mg/L
Total Organic Carbon	---	3	2	2	1	---	mg/L
Total Organic Carbon	---	---	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	---	---	mg/L
Total Organic Halogen as Cl	30	200	30	ND	30	9	ug/L

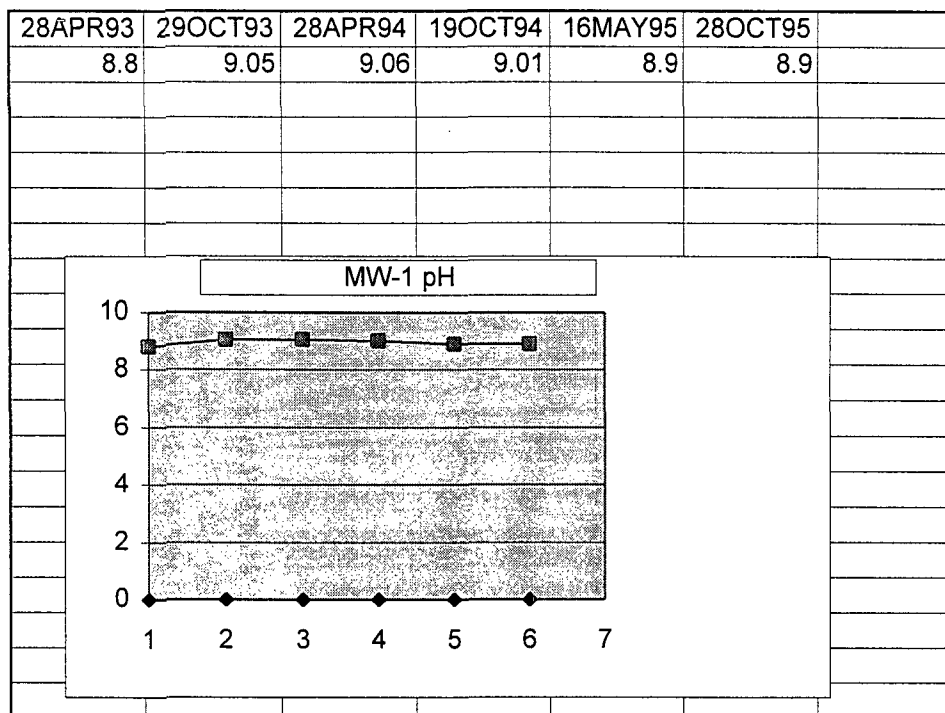
Total Organic	---	200	ND	ND	60	---	ug/L
Halogen as Cl	---	---	---	---	---	---	ug/L
Total Organic	---	---	---	---	---	---	ug/L
Halogen as Cl	---	---	---	---	---	---	ug/L
Total Organic	---	---	---	---	---	---	ug/L
Halogen as Cl	---	---	---	---	---	---	ug/L
Total Dissolved	---	---	---	---	---	---	ug/L
Solids	1100	---	1400	---	1600	---	mg/L
Water Elevation	6905.79	6905.62	6905.62	6890.82	6905.47	6904.13	ft

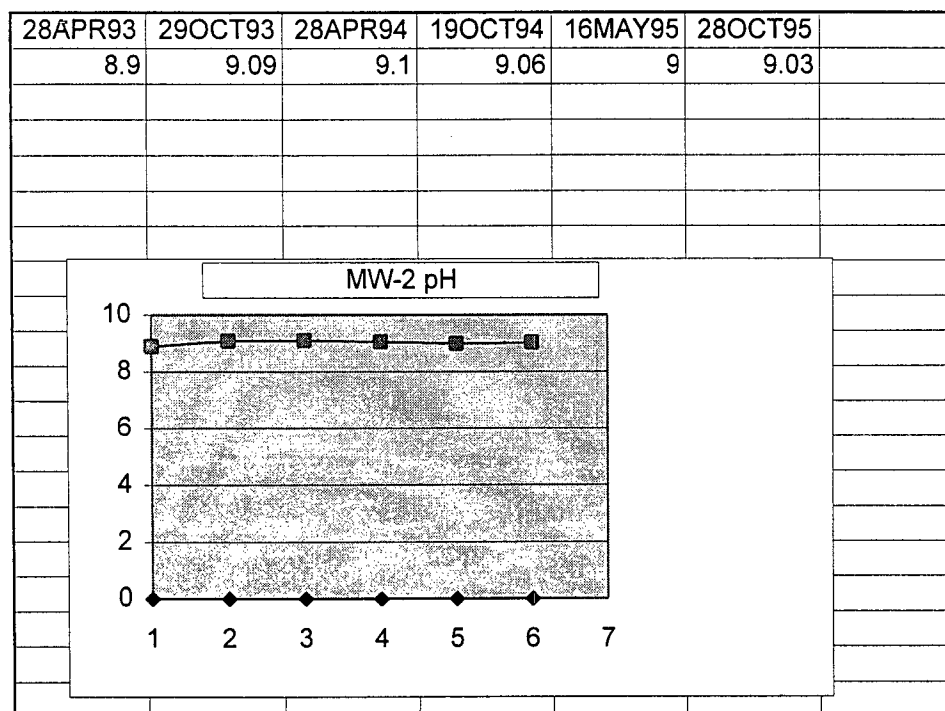


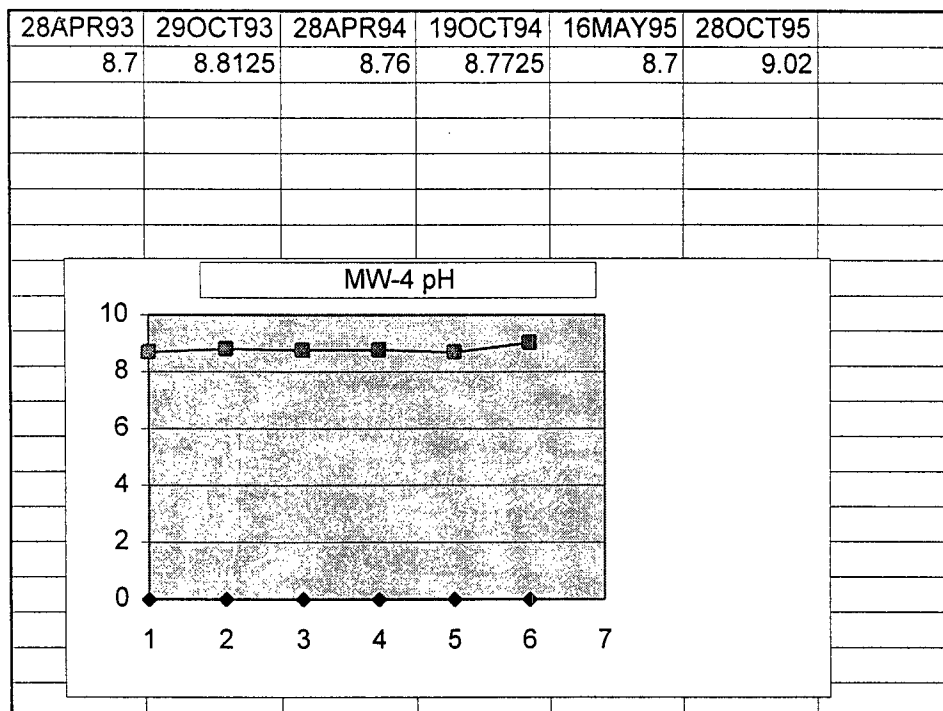
1995

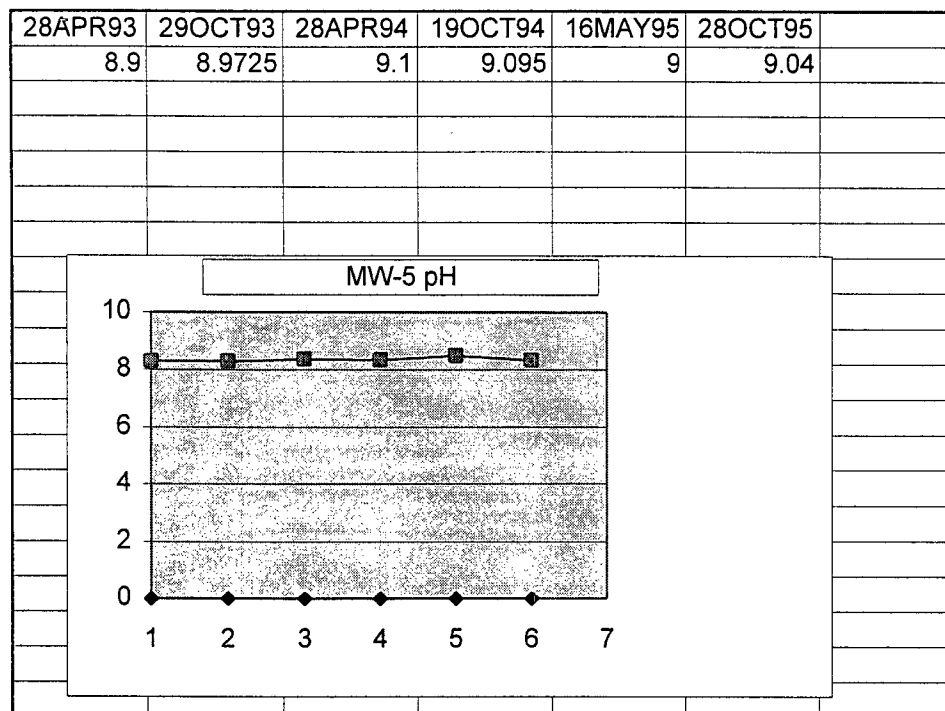
pH - GRAPHS

THE FOLLOWING GRAPHS
REPRESENT pH READINGS IN
MW1,2,4,5 AND OW-11



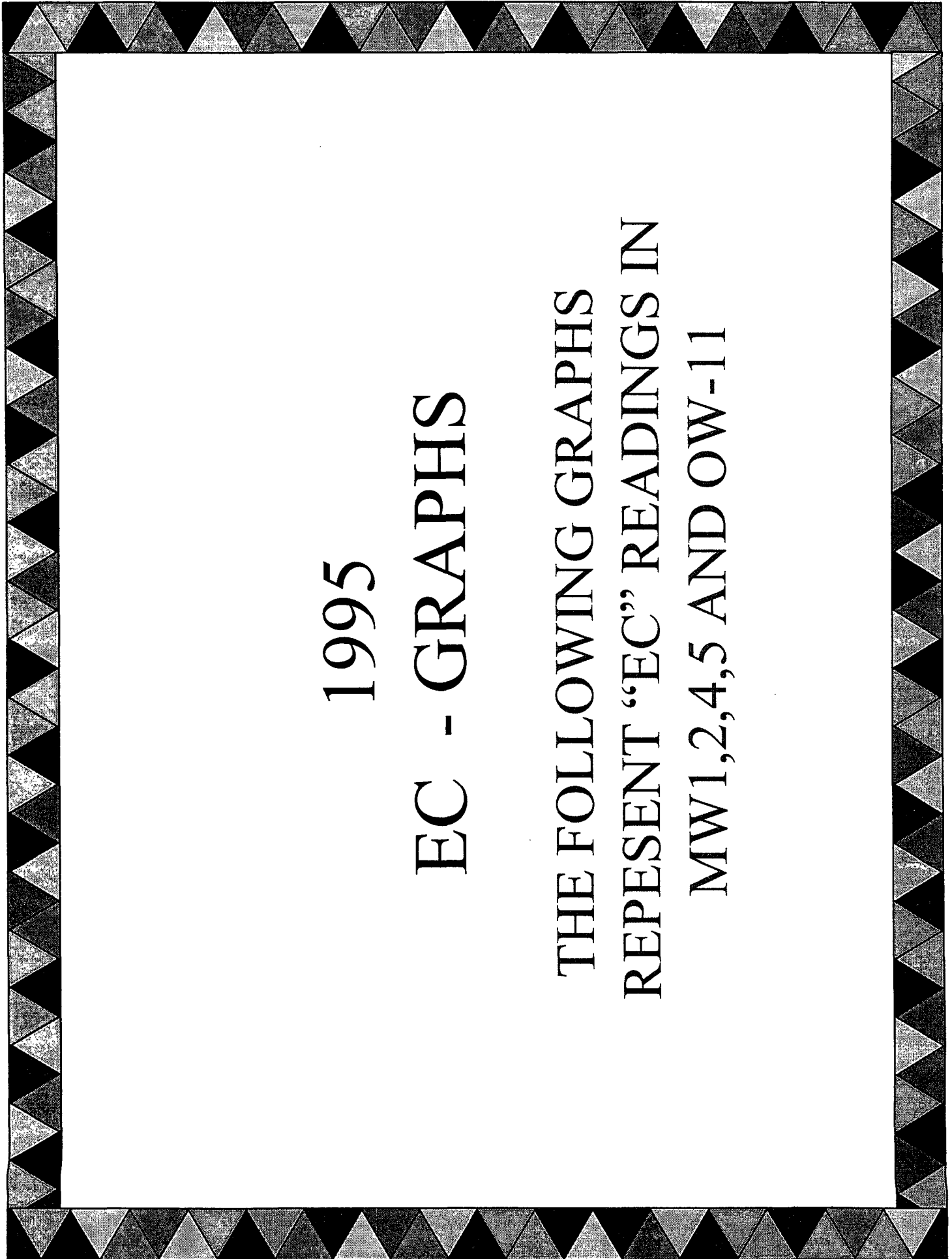






OW-11 pH

Point	Series 1 (Squares)	Series 2 (Diamonds)
1	8.2	0
2	8.2	0
3	8.3	0
4	8.2	0
5	8.4	0
6	8.2	0



1995

EC - GRAPHS

THE FOLLOWING GRAPHS
REPRESENT "EC" READINGS IN
MW1,2,4,5 AND OW-11

[illegible]

MW-2 EC

Time Point	Series 1 (Squares)	Series 2 (Diamonds)
1	1120	0
2	1090	0
3	1120	0
4	1110	0
5	1090	0
6	1190	0

[illegible]

MW-5 EC

Salinity	Growth (mm) (Square Markers)	Growth (mm) (Diamond Markers)
1	1120	0
2	1110	0
3	1250	0
4	1110	0
5	1090	0
6	1190	0

28APR93	29OCT93	28APR94	19OCT94	16MAY95	28OCT95
1800	1852.5	2080	2170	2500	2362.5

OW-11 EC

Date	Value
28APR93	1800
29OCT93	1852.5
28APR94	2080
19OCT94	2170
16MAY95	2500
28OCT95	2362.5



1995

LEAD - GRAPHS

THE FOLLOWING GRAPHS
REPRESENT LEAD REPORTED
CONCENTRATIONS IN
MW1,2,4,5 AND OW-11

Page 1

[illegible]

[illegible]

MW-5 LEAD

Time (days)	Lead Concentration (mg/L)
1	0
2	0.002
3	0
4	0
5	0
6	0

Page 5

1995

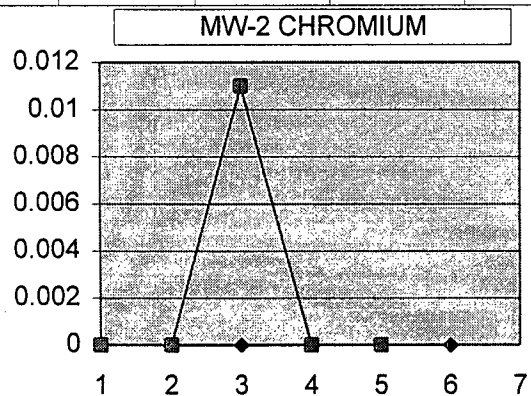
CHROMIUM - GRAPHS

THE FOLLOWING GRAPHS
REPRESENT CHROMIUM
REPORTED
CONCENTRATIONS IN
MW1,2,4,5 AND OW-11

[illegible]

MW-2 CHROMIUM

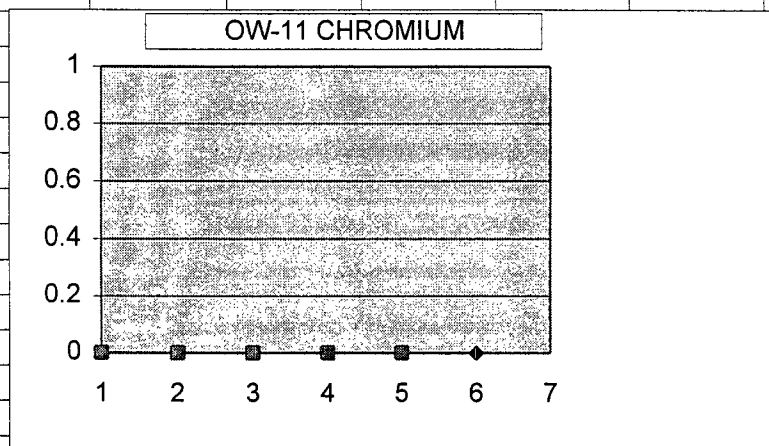
Station Number	Chromium (mg/L)
1	0
2	0
3	0.011
4	0
5	0
6	0



[illegible]

Time (days)	Chromium (mg/L)
1	0
2	0
3	0
4	0
5	0
6	0.05

28APR93	29OCT93	28APR94	19OCT94	16MAY95	28OCT95	
0	0	0	0	0		





Analytical**Technologies**, Inc.

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

ATI I.D. 505383

June 14, 1995

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

Project Name/Number: ANN. GRNDH₂O

Attention: Lynn Shelton

On 05/23/95, 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.

All 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.

L. Krakowski for

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure



Analytical Technologies, Inc.

CLIENT : GIANT REFINING DATE RECEIVED : 05/23/95
PROJECT # : (NONE)
PROJECT NAME : ANN. GRNDH₂O REPORT DATE : 06/14/95

ATI ID: 505383

	ATI PENSACOLA ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	505383-01	MW-1	AQUEOUS	05/19/95
02	505383-02	MW-2	AQUEOUS	05/19/95

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
2

ATI STANDARD DISPOSAL PRACTICE

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505678
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505383
Project Name: GIANT REFINING
Project Location: ANNUAL GROUNDWATER
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: LIQUID
QC Level: II

Lab Id: 001
Client Sample Id: 505383-01
Sample Date/Time: 19-MAY-95 1002
Received Date: 25-MAY-95

Batch: NAW063
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 31-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	ND	50	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
ETHANOL	UG/L	ND	100	
METHYL ETHYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	5	
BROMODICHLOROMETHANE	UG/L	ND	5	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON DISULFIDE	UG/L	ND	5	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLORODIBROMOMETHANE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	10	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
4-METHYL-2-PENTANONE	UG/L	ND	10	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505678
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505383
Project Name: GIANT REFINING
Project Location: ANNUAL GROUNDWATER
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: LIQUID
QC Level: II

Lab Id: 001
Client Sample Id: 505383-01
Sample Date/Time: 19-MAY-95 1002
Received Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
VINYL CHLORIDE	UG/L	ND	10	
TOTAL XYLENES	UG/L	ND	5	
BROMOFLUOROBENZENE	%REC/SURR	97	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	86	76-114	
TOLUENE-D8	%REC/SURR	99	88-110	
ANALYST	INITIALS	DWB		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505678
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505383
Project Name: GIANT REFINING
Project Location: ANNUAL GROUNDWATER
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: LIQUID
QC Level: II

Lab Id: 002
Client Sample Id: 505393-02
Sample Date/Time: 19-MAY-95 1034
Received Date: 25-MAY-95

Batch: NAW063
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 31-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	ND	50	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
ETHANOL	UG/L	ND	100	
METHYL ETHYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	5	
BROMODICHLOROMETHANE	UG/L	ND	5	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON DISULFIDE	UG/L	ND	5	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLORODIBROMOMETHANE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	10	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
4-METHYL-2-PENTANONE	UG/L	ND	10	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505678
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505383
Project Name: GIANT REFINING
Project Location: ANNUAL GROUNDWATER
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: LIQUID
QC Level: II

Lab Id: 002
Client Sample Id: 505393-02
Sample Date/Time: 19-MAY-95 1034
Received Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
VINYL CHLORIDE	UG/L	ND	10	
TOTAL XYLENES	UG/L	ND	5	
BROMOFLUOROBENZENE	%REC/SURR	103	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	98	76-114	
TOLUENE-D8	%REC/SURR	98	88-110	
ANALYST	INITIALS	DWB		

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: NAW063
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Blank Id: A Date Analyzed: 31-MAY-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ACETONE	UG/L	ND	10
ACETONITRILE	UG/L	ND	100
ACROLEIN	UG/L	ND	100
ACRYLONITRILE	UG/L	ND	100
ALLYL CHLORIDE	UG/L	ND	100
BENZENE	UG/L	ND	1
BIS(CHLOROMETHYL)ETHER	UG/L	ND	5
BROMODICHLOROMETHANE	UG/L	ND	1
BROMOFORM	UG/L	ND	2
BROMOMETHANE	UG/L	ND	1
CARBON DISULFIDE	UG/L	ND	1
CARBON TETRACHLORIDE	UG/L	ND	2
CHLOROBENZENE	UG/L	ND	1
CHLOROETHANE	UG/L	ND	1
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5
CHLOROFORM	UG/L	ND	2
CHLOROMETHANE	UG/L	ND	2
CHLOROPRENE	UG/L	ND	5
DIBROMOCHLOROMETHANE	UG/L	ND	1
DIBROMOMETHANE	UG/L	ND	5
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	ND	5
DICHLORODIFLUOROMETHANE	UG/L	ND	5
1,1-DICHLOROETHANE	UG/L	ND	1
1,2-DICHLOROETHANE	UG/L	ND	2
1,1-DICHLOROETHENE	UG/L	ND	1
1,2-DICHLOROETHENE (TOTAL)	UG/L	ND	2
1,2-DICHLOROPROPANE	UG/L	ND	2
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5
1,4-DIOXANE	UG/L	ND	10
ETHYLBENZENE	UG/L	ND	1
ETHYL METHACRYLATE	UG/L	ND	5
2-HEXANONE (MBK)	UG/L	ND	3
IODOMETHANE	UG/L	ND	5
ISOBUTYL ALCOHOL	UG/L	ND	10
METHACRYLONITRILE	UG/L	ND	5
METHYLENE CHLORIDE	UG/L	ND	3
METHYL ETHYL KETONE	UG/L	ND	3
METHYL METHACRYLATE	UG/L	ND	5
4-METHYL-2-PENTANONE (MIBK)	UG/L	ND	3
PROPIONITRILE	UG/L	ND	5
STYRENE	UG/L	ND	2
TETRACHLOROETHENE	UG/L	ND	1
1,1,1,2-TETRACHLOROETHANE	UG/L	ND	2
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: NAW063
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Parameters:	Units:	Results:	Reporting Limits:
TOLUENE	UG/L	ND	5
1,1,1-TRICHLOROETHANE	UG/L	ND	5
1,1,2-TRICHLOROETHANE	UG/L	ND	2
TRICHLOROETHENE	UG/L	ND	1
TRICHLOROFLUOROMETHANE	UG/L	ND	1
1,2,3 TRICHLOROPROPANE	UG/L	ND	5
VINYL ACETATE	UG/L	ND	2
VINYL CHLORIDE	UG/L	ND	1
XYLENES (TOTAL)	UG/L	ND	2
BROMOFLUOROBENZENE	%REC/SURR	99	86-115
1,2-DICHLOROETHANE-D4	%REC/SURR	94	76-114
TOLUENE-D8	%REC/SURR	99	88-110
ANALYST	INITIALS	DWB	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: NAW063
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

RS Date Analyzed: 31-MAY-95
RSD Date Analyzed: 31-MAY-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<1	47	94	47	94	0	12	81-115
TRICHLOROETHENE	50	<1	52	104	52	104	0	15	90-115
BENZENE	50	<1	51	102	52	104	2	15	84-116
TOLUENE	50	<5	51	102	50	100	2	11	90-119
CHLOROBENZENE	50	<1	52	104	52	104	0	15	87-115

Surrogates:	RS	RSD	RPD	Rec
1,2-DICHLOROETHANE-D4	97	97		76-114
TOLUENE-D8	99	97		88-110
BROMOFLUOROBENZENE	103	99		86-115

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: NAW063
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 505690-1

MS Date Analyzed: 01-JUN-95
MSD Date Analyzed: 01-JUN-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<1	45	90	46	92	2	12	78-119
TRICHLOROETHENE	50	<1	47	94	49	98	4	15	90-116
BENZENE	50	<1	46	92	48	96	4	10	84-118
TOLUENE	50	<5	48	96	49	98	2	11	84-129
CHLOROENZENE	50	<1	48	96	49	98	2	15	87-117

Surrogates:	MS %Rec	MSD %Rec	Rec Lmts
1,2-DICHLOROETHANE-D4	87	86	76-114
TOLUENE-D8	99	96	88-110
BROMOFLUOROBENZENE	99	99	86-115

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.

CHAIN OF CUSTODY

ATI LAB I.D.

505385

DATE: 5/19/95 PAGE 1 OF 1

PROJECT MANAGER:

COMPANY: GIANT BERNING CO.
 ADDRESS: ROUTE 3, BOX 7
 GALLUP, NM 87301
 PHONE: (505) 722-3833
 FAX: (505) 722-0210
 BILL TO: LYNN SHELTON
 COMPANY: SAME
 ADDRESS: SAME

SAMPLE ID DATE TIME MATRIX LAB ID

MW-1 5/19/95 10:02 H2O D1
 MW-2 5/19/95 10:34 H2O D2

ANALYSIS REQUEST

--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

PROJECT INFORMATION SAMPLE RECEIPT

PROJ. NO.:
 PROJ. NAME: ANN. GENDH2O
 P.O. NO.:
 SHIPPED VIA: FED EX
 NO. CONTAINERS: 4
 CUSTODY SEALS: Y/N/NA
 RECEIVED INTACT: Y
 RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) LJ24hr LJ48hr LJ72hr LJ1WEEK (NORMAL) P42 WEEK

Comments

* SEE ATTACHED LIST.

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

Signature:	Time:	Signature:	Time:	Signature:	Time:
<i>[Signature]</i>	0745				
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
<i>[Signature]</i>	5/19/95				
Company:	Phone:	Company:	Phone:	Company:	Phone:
GIANT (505) 722-0210					

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

Signature:	Time:	Signature:	Time:	Signature:	Time:
<i>[Signature]</i>		<i>[Signature]</i>		<i>[Signature]</i>	
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Company:	Phone:	Company:	Phone:	Company:	Phone:
				Analytical Technologies, Inc.	

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT
GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS
ESTIMATED.
JJ = REPORTED VALUE IS ESTIMATED DUE TO MATRIX INTERFERENCE.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE
DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

LP = LEVERNE PETERSON	RW = RITA WINGO
DWB = DAVID BOWERS	LD = LARRY DILMORE
DB = DENNIS BESON	DC = DAVID CELESTIAL
LL = LANCE LARSON	RB = RAFAEL BARRAZA
JA = JENNIFER ALEXANDER	



Analytical**Technologies**, Inc.

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

ATI I.D. 505362

June 19, 1995

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

Project Name/Number: ANNUAL GROUNDWATER

Attention: Lynn Shelton

On 05/17/95, 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.

Metal analyses were performed by Analytical Technologies, Inc., 17400 SW Upper Boones Ferry Road, Suite 270, Durham, OR.

EPA method 8020 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

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

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 : 05/17/95
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER REPORT DATE : 06/19/95

ATI ID: 505362

	ATI PENSACOLA ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	505362-01	OW-1	AQUEOUS	05/15/95
02	505362-02	OW-2	AQUEOUS	05/15/95
03	505362-03	OW-3	AQUEOUS	05/15/95
04	505362-04	SMW-3	AQUEOUS	05/15/95
05	505362-05	SMW-4	AQUEOUS	05/15/95
06	505362-06	SMW-5	AQUEOUS	05/15/95
07	505362-07	SMW-6	AQUEOUS	05/15/95
08	505362-08	OW-11	AQUEOUS	05/15/95
09	505362-09	TRIP BLANK	AQUEOUS	05/11/95

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
9

ATI STANDARD DISPOSAL PRACTICE

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505362-01		Lab ID: 001			
CHLORIDE (325.2)	MG/L	46	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1300	1	CDW037	
PH (150.1)	UNITS	8.7	NA	PHW106	
SULFATE (375.4)	MG/L	ND	10	SEW048	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	830	5	TDW032	

Comments:

Client ID: 505362-02		Lab ID: 002			
CHLORIDE (325.2)	MG/L	41	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1300	1	CDW037	
PH (150.1)	UNITS	7.9	NA	PHW106	
SULFATE (375.4)	MG/L	19	10	SEW048	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	840	5	TDW032	

Comments:

Client ID: 505362-03		Lab ID: 003			
CHLORIDE (325.2)	MG/L	39	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1300	1	CDW037	
PH (150.1)	UNITS	8.0	NA	PHW106	
SULFATE (375.4)	MG/L	29	10	SEW048	
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	980	5	TDW032	

Comments:

Client ID: 505362-04		Lab ID: 004			
CHLORIDE (325.2)	MG/L	69	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	2700	1	CDW037	
PH (150.1)	UNITS	7.8	NA	PHW106	
SULFATE (375.4)	MG/L	680	250	SEW048	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1900	5	TDW032	

Comments:

Client ID: 505362-05		Lab ID: 005			
CHLORIDE (325.2)	MG/L	53	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1300	1	CDW037	
PH (150.1)	UNITS	8.5	NA	PHW106	
SULFATE (375.4)	MG/L	220	50	SEW048	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790	5	TDW032	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505362-06		Lab ID: 006			
CHLORIDE (325.2)	MG/L	54	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	1100	1	CDW037	
PH (150.1)	UNITS	8.8	NA	PHW106	
SULFATE (375.4)	MG/L	210	50	SEW048	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790	5	TDW032	

Comments:

Client ID: 505362-07		Lab ID: 007			
CHLORIDE (325.2)	MG/L	6300	100	CKW14B	+
CONDUCTIVITY (120.1)	UMH/CM	20000	1	CDW037	
PH (150.1)	UNITS	7.2	NA	PHW106	
SULFATE (375.4)	MG/L	1800	500	SEW048	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	13000	5	TDW032	

Comments:

Client ID: 505362-08		Lab ID: 008			
CHLORIDE (325.2)	MG/L	100	2	CKW14B	
CONDUCTIVITY (120.1)	UMH/CM	2500	1	CDW037	
PH (150.1)	UNITS	8.5	NA	PHW106	
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW018	
SULFATE (375.4)	MG/L	680	200	SEW048	+
TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1600	5	TDW032	

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
505362-01	CHLORIDE (325.2)	MG/L	46
	CONDUCTIVITY (120.1)	UMH/CM	1300
	PH (150.1)	UNITS	8.7
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	830
505362-02	CHLORIDE (325.2)	MG/L	41
	CONDUCTIVITY (120.1)	UMH/CM	1300
	PH (150.1)	UNITS	7.9
	SULFATE (375.4)	MG/L	19
505362-03	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	840
	CHLORIDE (325.2)	MG/L	39
	CONDUCTIVITY (120.1)	UMH/CM	1300
	PH (150.1)	UNITS	8.0
505362-04	SULFATE (375.4)	MG/L	29
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	980
	CHLORIDE (325.2)	MG/L	69
	CONDUCTIVITY (120.1)	UMH/CM	2700
505362-05	PH (150.1)	UNITS	7.8
	SULFATE (375.4)	MG/L	680
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1900
	CHLORIDE (325.2)	MG/L	53
505362-06	CONDUCTIVITY (120.1)	UMH/CM	1300
	PH (150.1)	UNITS	8.5
	SULFATE (375.4)	MG/L	220
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790
505362-07	CHLORIDE (325.2)	MG/L	54
	CONDUCTIVITY (120.1)	UMH/CM	1100
	PH (150.1)	UNITS	8.8
	SULFATE (375.4)	MG/L	210
505362-08	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	790
	CHLORIDE (325.2)	MG/L	6300
	CONDUCTIVITY (120.1)	UMH/CM	20000
	PH (150.1)	UNITS	7.2
505362-09	SULFATE (375.4)	MG/L	1800
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	13000
	CHLORIDE (325.2)	MG/L	100
	CONDUCTIVITY (120.1)	UMH/CM	2500
505362-10	PH (150.1)	UNITS	8.5
	SULFATE (375.4)	MG/L	680
	TOTAL DISSOLVED SOLIDS (160.1)	MG/L	1600
	CHLORIDE (325.2)	MG/L	100



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505362-01		Lab ID: 001			
ALKALINITY, TOTAL (2320B)	MG/L	430	1	ASW023	
PH (150.1)	UNITS	8.7	NA	PHW106	
BICARBONATE, CaCO ₃ (2330B)	MG/L	410	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	19	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	2	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:

Client ID: 505362-02		Lab ID: 002			
ALKALINITY, TOTAL (2320B)	MG/L	660	1	ASW023	
PH (150.1)	UNITS	7.9	NA	PHW106	
BICARBONATE, CaCO ₃ (2330B)	MG/L	660	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	5	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	16	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:

Client ID: 505362-03		Lab ID: 003			
ALKALINITY, TOTAL (2320B)	MG/L	680	1	ASW023	
PH (150.1)	UNITS	8.0	NA	PHW106	
BICARBONATE, CaCO ₃ (2330B)	MG/L	670	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	6	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	13	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505362-04		Lab ID: 004			
ALKALINITY, TOTAL (2320B)	MG/L	590	1	ASW023	
PH (150.1)	UNITS	7.8	NA	PHW106	
BICARBONATE, CACO3 (2330B)	MG/L	590	1	NONE	
CARBONATE, CACO3 (2330B)	MG/L	3	1	NONE	
CARBON DIOXIDE, FREE AS CACO3	MG/L	19	1	NONE	
HYDROXIDE (2330B) AS CACO3	MG/L	ND	1	NONE	

Comments:

Client ID: 505362-05		Lab ID: 005			
ALKALINITY, TOTAL (2320B)	MG/L	390	1	ASW023	
PH (150.1)	UNITS	8.5	NA	PHW106	
BICARBONATE, CACO3 (2330B)	MG/L	380	1	NONE	
CARBONATE, CACO3 (2330B)	MG/L	11	1	NONE	
CARBON DIOXIDE, FREE AS CACO3	MG/L	2	1	NONE	
HYDROXIDE (2330B) AS CACO3	MG/L	ND	1	NONE	

Comments:

Client ID: 505362-06		Lab ID: 006			
ALKALINITY, TOTAL (2320B)	MG/L	370	1	ASW023	
PH (150.1)	UNITS	8.8	NA	PHW106	
BICARBONATE, CACO3 (2330B)	MG/L	350	1	NONE	
CARBONATE, CACO3 (2330B)	MG/L	21	1	NONE	
CARBON DIOXIDE, FREE AS CACO3	MG/L	1	1	NONE	
HYDROXIDE (2330B) AS CACO3	MG/L	ND	1	NONE	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505362-07		Lab ID: 007			
ALKALINITY, TOTAL (2320B)	MG/L	150	1	ASW023	
PH (150.1)	UNITS	7.2	NA	PHW106	
BICARBONATE, CaCO ₃ (2330B)	MG/L	150	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	ND	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	19	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:

Client ID: 505362-08		Lab ID: 008			
ALKALINITY, TOTAL (2320B)	MG/L	340	1	ASW023	
PH (150.1)	UNITS	8.5	NA	PHW106	
BICARBONATE, CaCO ₃ (2330B)	MG/L	330	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	10	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	2	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505434
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY

Client Sample Id:	Parameter:	Unit:	Result:
505362-01	ALKALINITY, TOTAL (2320B)	MG/L	430
	PH (150.1)	UNITS	8.7
	BICARBONATE, CaCO_3 (2330B)	MG/L	410
	CARBONATE, CaCO_3 (2330B)	MG/L	19
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	2
505362-02	ALKALINITY, TOTAL (2320B)	MG/L	660
	PH (150.1)	UNITS	7.9
	BICARBONATE, CaCO_3 (2330B)	MG/L	660
	CARBONATE, CaCO_3 (2330B)	MG/L	5
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	16
505362-03	ALKALINITY, TOTAL (2320B)	MG/L	680
	PH (150.1)	UNITS	8.0
	BICARBONATE, CaCO_3 (2330B)	MG/L	670
	CARBONATE, CaCO_3 (2330B)	MG/L	6
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	13
505362-04	ALKALINITY, TOTAL (2320B)	MG/L	590
	PH (150.1)	UNITS	7.8
	BICARBONATE, CaCO_3 (2330B)	MG/L	590
	CARBONATE, CaCO_3 (2330B)	MG/L	3
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	19
505362-05	ALKALINITY, TOTAL (2320B)	MG/L	390
	PH (150.1)	UNITS	8.5
	BICARBONATE, CaCO_3 (2330B)	MG/L	380
	CARBONATE, CaCO_3 (2330B)	MG/L	11
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	2
505362-06	ALKALINITY, TOTAL (2320B)	MG/L	370
	PH (150.1)	UNITS	8.8
	BICARBONATE, CaCO_3 (2330B)	MG/L	350
	CARBONATE, CaCO_3 (2330B)	MG/L	21
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	1
505362-07	ALKALINITY, TOTAL (2320B)	MG/L	150
	PH (150.1)	UNITS	7.2
	BICARBONATE, CaCO_3 (2330B)	MG/L	150
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	19
505362-08	ALKALINITY, TOTAL (2320B)	MG/L	340
	PH (150.1)	UNITS	8.5
	BICARBONATE, CaCO_3 (2330B)	MG/L	330
	CARBONATE, CaCO_3 (2330B)	MG/L	10
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	2



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	ALKALINITY	PH
Batch Id:	ASW023	PHW106
Blank Result:	<1	N/A
Anal. Method:	2320B	150.1
Prep. Method:	N/A	N/A
Analysis Date:	25-MAY-95	18-MAY-95
Prep. Date:	25-MAY-95	18-MAY-95

Sample Duplication

Sample Dup:	505434-1	505434-1
Rept Limit:	<1	N/A

Sample Result:	426	8.72
Dup Result:	424	8.70
Sample RPD:	0	0.02
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	505434-1	N/A
Rept Limit:	<1	N/A
Sample Result:	426	
Spiked Result:	450	
Spike Added:	25F	
% Recovery:	96	
% Rec Limits:	80-113	
Dry Weight%	N/A	

ICV

ICV Result:	233	9.93
True Result:	250	10.00
% Recovery:	93	99
% Rec Limits:	90-110	90-110

LCS

LCS Result:		6.81
True Result:		6.87
% Recovery:		99
% Rec Limits:		97-103



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
DBH = DONALD B. HAND
TT = TONY TINEO
JHS = JOSEPH SAUNDERS
NSB = NANCY S. BUTLER

RB = REBECCA BROWN
BF = BLANCA FACH
NB = NANCY L. BRASCH
MM = MARY MOLONEY
CF = CHRISTINE FOSTER

CD = CHRISTY DRAPER
SL = STEPHANIE LOWRY
FB = FREDDIE BROWN



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CONDUCT'Y	PH	SULFATE	TDS	PHENOL
Batch Id:	CKW14B	CDW037	PHW106	SEW048	TDW032	PEW018
Blank Result:	<2	<1	N/A	<10	<5	<0.005
Anal. Method:	325.2	120.1	150.1	375.4	160.1	420.1
Prep. Method:	N/A	N/A	N/A	N/A	N/A	N/A
Analysis Date:	22-MAY-95	25-MAY-95	18-MAY-95	20-MAY-95	21-MAY-95	26-MAY-95
Prep. Date:	22-MAY-95	25-MAY-95	18-MAY-95	20-MAY-95	21-MAY-95	23-MAY-95

Sample Duplication

Sample Dup:	505358-1	505434-1	505434-1	505434-1	505434-1	505434-8
Rept Limit:	<2	<1	N/A	<10	<5	<0.005
Sample Result:	6.2	1311	8.72	<10	828	<0.005
Dup Result:	6.3	1317	8.70	<10	794	<0.005
Sample RPD:	0.1G	0	0.02	N/C	4	N/C
Max RPD:	2	4	0.12	10	16	0.005
Dry Weight%	N/A	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505358-1	N/A	N/A	505434-1	N/A	505434-8
Rept Limit:	<2	N/A	N/A	<10	N/A	<0.005
Sample Result:	6.2			<10		<0.005
Spiked Result:	27.9			29.1		0.21
Spike Added:	20.0			20.0		0.20
% Recovery:	109			146		105
% Rec Limits:	77-130			51-151		59-151
Dry Weight%	N/A			N/A		N/A

ICV

ICV Result:	54	1384	9.93	18.9		0.044
True Result:	55	1413	10.00	20.0		0.040
% Recovery:	98	98	99	95		110
% Rec Limits:	90-110	90-110	90-110	90-110		90-110

LCS

LCS Result:	316	6.81		291	
True Result:	303	6.87		293	
% Recovery:	104	99		99	
% Rec Limits:	84-110	97-103		66-122	



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	TDS
Batch Id:	TDW032
Blank Result:	<5
Anal. Method:	160.1
Prep. Method:	N/A
Analysis Date:	21-MAY-95
Prep. Date:	21-MAY-95

Sample Duplication

Sample Dup:	505434-1
Rept Limit:	<5

Sample Result:	828
Dup Result:	794
Sample RPD:	4
Max RPD:	16
Dry Weight%	N/A

Matrix Spike

Sample Spiked:	N/A
Rept Limit:	N/A
Sample Result:	
Spiked Result:	
Spike Added:	
% Recovery:	
% Rec Limits:	
Dry Weight%	

ICV

ICV Result:	
True Result:	
% Recovery:	
% Rec Limits:	

LCS

LCS Result:	291
True Result:	293
% Recovery:	99
% Rec Limits:	66-122



Analytical Technologies, Inc.

TOTAL ORGANIC CARBON

Method 415.2

Lab Name: Analytical Technologies, Inc.

Date Collected: 05/15/95

Client Name: ATI-NM

Date Analyzed: 05/23/95

Client Project ID: GRCZ -- 505362

Sample Matrix: Water

Lab Workorder Number: 95-05-118

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 95-05-118	1	< 1.0	< 1.0	N/A
SMW-3	95-05-118-01	1	5		
	95-05-118-01DUP	1	5	5	0
SMW-4	95-05-118-02	1	< 1.0		
	95-05-118-02DUP	1	< 1.0	< 1.0	N/A
SMW-5	95-05-118-03	1	< 1.0		
	95-05-118-03DUP	1	< 1.0	< 1.0	N/A
SMW-6	95-05-118-04	1	20		
	95-05-118-04DUP	1	19	19.5	5
OW-11	95-05-118-05	1	1		
	95-05-118-05DUP	1	1	1	0



Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE
Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Date Collected: 05/15/95

Client Name: ATI-NM

Date Extracted: 05/30/95

Client Project ID: GRCZ--505362

Date Analyzed: 05/30/95

Lab Workorder Number: 95-05-118

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB95-05-118	100	< 20	< 20	N/A
SMW-3	95-05-118-01	100	80		
	95-05-118-01DUP	100	70	75	13
SMW-4	95-05-118-02	100	30		
	95-05-118-02DUP	100	20	25	40
SMW-5	95-05-118-03	100	16		
	95-05-118-03DUP	100	30	23	61



Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE
Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Date Collected: 05/15/95

Client Name: ATI-NM

Date Extracted: 05/31/95

Client Project ID: GRCZ--505362

Date Analyzed: 05/31/95

Lab Workorder Number: 95-05-118

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB95-05-118	100	< 20	< 20	N/A
SMW-6	95-05-118-04	50	170		
	95-05-118-04DUP	50	180	175	6
OW-11	95-05-118-05	100	30		
	95-05-118-05DUP	100	60	45	67



Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE MATRIX SPIKE RESULTS

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Lab Sample ID: 95-05-118-01

Sample Matrix: Water

Sample ID

SMW-3

Date Extracted: 05/30/95

Date Analyzed: 05/30/95

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	75	260	93



Analytical Technologies, Inc.

DISSOLVED METALS RESULTS

CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
DATE SAMPLED: 05/15/95
DATE RECEIVED: 05/18/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/23/95
UNITS: mg/L

ATI I.D.: 505615-0 505615-1 505615-2
Client I.D.: Method Blank OW-1 OW-2

PARAMETER	METHOD			
CALCIUM	6010	< 0.1	2.0	8.9
MAGNESIUM	6010	< 0.1	0.2	3.6
POTASSIUM	6010	< 2	< 2	< 2
SODIUM	6010	< 0.1	287	297



Analytical Technologies, Inc.

DISSOLVED METALS RESULTS

CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
DATE SAMPLED: 05/15/95
DATE RECEIVED: 05/18/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/23/95
UNITS: mg/L

ATI I.D.:	505615-3	505615-4	505615-5
Client I.D.:	OW-3	SMW-3	SMW-4

PARAMETER	METHOD			
CALCIUM	6010	8.1	37.7	3.3
MAGNESIUM	6010	2.7	12.1	0.7
POTASSIUM	6010	< 2	< 2	< 2
SODIUM	6010	276	564 D	266

D - Value from a two fold dilution.



Analytical **Technologies**, Inc.

DISSOLVED METALS RESULTS

CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
DATE SAMPLED: 05/15/95
DATE RECEIVED: 05/18/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/23/95
UNITS: mg/L

ATI I.D.: 505615-6 505615-7
Client I.D.: SMW-5 SMW-6

PARAMETER	METHOD		
CALCIUM	6010	2.2	709 D
MAGNESIUM	6010	0.5	174 D
POTASSIUM	6010	< 2	5
SODIUM	6010	250	2410 D

D - Value from a ten fold dilution.



Analytical Technologies, Inc.

DISSOLVED METALS RESULTS

CLIENT:	ATI-Albuquerque	ATI I.D.:	505615
PROJECT #:	505362	DATE SAMPLED:	05/15/95
PROJECT NAME:	Annual Groundwater	DATE RECEIVED:	05/18/95
SAMPLE MATRIX:	WATER	DATE DIGESTED:	05/19/95
		DATE ANALYZED:	05/19,22,23/95
		UNITS:	mg/L

ATI I.D.:	505615-0	505615-8
Client I.D.:	Method Blank	OW-11

PARAMETER	METHOD		
ARSENIC	7060	< 0.005	< 0.005
BARIUM	6010	< 0.01	0.01
CADMIUM	6010	< 0.005	< 0.005
CALCIUM	6010	< 0.1	7.6
MAGNESIUM	6010	< 0.1	0.8
MANGANESE	6010	< 0.01	< 0.01
POTASSIUM	6010	< 2	< 2
SELENIUM	7740	< 0.005	< 0.005
SILVER	6010	< 0.01	< 0.01
SODIUM	6010	< 0.1	480



Analytical **Technologies**, Inc.

TOTAL METALS RESULTS

CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
DATE SAMPLED: 05/15/95
DATE RECEIVED: 05/18/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,23/95
UNITS: mg/L

ATI I.D.:	505615-0	505615-4	505615-5
Client I.D.:	Method Blank	SMW-3	SMW-4

PARAMETER	METHOD			
CHROMIUM	6010	< 0.01	0.01	< 0.01
LEAD	7421	< 0.002	< 0.002	< 0.002
MERCURY	7470	< 0.0002		



Analytical Technologies, Inc.

TOTAL METALS RESULTS

CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
DATE SAMPLED: 05/15/95
DATE RECEIVED: 05/18/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,23/95
UNITS: mg/L

ATI I.D.:	505615-6	505615-7	505615-8
Client I.D.:	SMW-5	SMW-6	OW-11

PARAMETER	METHOD			
CHROMIUM	6010	0.01	1.79	< 0.01
LEAD	7421	< 0.002	< 0.002	< 0.002
MERCURY	7470			< 0.0002



Analytical Technologies, Inc.

METALS DUPLICATE RESULTS

METHOD: 6010
CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
QC SAMPLE: 505615-1 Dissolved
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/23/95
DILUTION FACTOR: 1
UNITS: mg/L

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
CALCIUM	2.0	2.1	5	20
MAGNESIUM	0.2	0.2	0	20
POTASSIUM	< 2	< 2	NA	20
SODIUM	287	294	2	20



Analytical Technologies, Inc.

METALS DUPLICATE RESULTS

METHOD: 6010 / 7000 series
CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
QC SAMPLE: 505615-4 Total
DATE DIGESTED: 05/18/95
DATE ANALYZED: 05/19,22,23/95
DILUTION FACTOR: 1
UNITS: mg/L

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
ARSENIC	< 0.005	< 0.005	NA	20
BARIUM	0.03	0.03	0	20
CALCIUM	37.7	37.0	2	20
CADMIUM	< 0.005	< 0.005	NA	20
CHROMIUM	0.01	< 0.01	NC	20
COPPER	< 0.01	< 0.01	NA	20
LEAD	< 0.002	< 0.002	NA	20
MAGNESIUM	12.3	12.1	2	20
MANGANESE	0.02	0.02	0	20
MERCURY	< 0.0002	< 0.0002	NA	20
POTASSIUM	< 2	< 2	NA	20
SELENIUM	< 0.005	< 0.005	NA	20
SILVER	< 0.01	< 0.01	NA	20
SODIUM	600 D	628 D	5	20

NC - Not Calculable

D - Value from a two fold dilution.

* Quality control for arsenic, lead and selenium performed on sample 505621-1 (Dissolved).

** Quality control for mercury performed on sample 505615-8 (Dissolved).



Analytical Technologies, Inc.

METALS SPIKE RESULTS

METHOD: 6010 / 7000 series
CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
QC SAMPLE: 505615-4 Total
DATE DIGESTED: 05/18/95
DATE ANALYZED: 05/19,22,23/95
DILUTION FACTOR: 1
UNITS: mg/L

PARAMETER	SAMPLE RESULT	SPIKE CONC	SPIKE RESULT	% RECOV		CONTROL LIMIT
ARSENIC	< 0.005	0.040	0.039	98	*	75-125%
BARIUM	0.03	2.00	1.98	98		75-125%
CADMIUM	< 0.005	1.00	0.984	98		75-125%
CHROMIUM	0.01	1.00	0.98	97		75-125%
COPPER	< 0.01	1.00	0.95	95		75-125%
LEAD	< 0.002	0.020	0.018	90	*	75-125%
MANGANESE	0.02	1.00	0.98	96		75-125%
MERCURY	< 0.0002	0.0020	0.0021	105	**	75-125%
SELENIUM	< 0.005	0.020	0.018	90	*	75-125%
SILVER	< 0.01	1.00	0.98	98		75-125%

* Quality control for arsenic, lead and selenium performed on sample 505621-1 (Dissolved).

** Quality control for mercury performed on sample 505615-8 (Dissolved).



Analytical Technologies, Inc.

METALS BLANK SPIKE RESULTS

METHOD: 6010 / 7000 series
CLIENT: ATI-Albuquerque
PROJECT #: 505362
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505615
QC SAMPLE: Method Blank
DATE DIGESTED: 05/18/95
DATE ANALYZED: 05/19,22,23/95
DILUTION FACTOR: 1
UNITS: mg/L

PARAMETER	SPIKE RESULT	SPIKE CONC	% RECOV	CONTROL LIMIT
ARSENIC	0.040	0.040	100	80-120%
BARIUM	2.00	2.00	100	80-120%
CADMIUM	0.991	1.00	99	80-120%
CHROMIUM	0.99	1.00	99	80-120%
COPPER	0.96	1.00	96	80-120%
LEAD	0.018	0.020	90	80-120%
MANGANESE	0.99	1.00	99	80-120%
MERCURY	0.0021	0.0020	105	80-120%
SELENIUM	0.017	0.020	85	80-120%
SILVER	1.00	1.00	100	80-120%



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)

CLIENT : GIANT REFINING CO.

ATI I.D.: 505362

PROJECT # : (NONE)

PROJECT NAME : ANNUAL GROUNDWATER

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	OW-1	AQUEOUS	05/15/95	NA	05/20/95	1
02	OW-2	AQUEOUS	05/15/95	NA	05/20/95	1
03	OW-3	AQUEOUS	05/15/95	NA	05/20/95	1
PARAMETER			UNITS	01	02	03
BENZENE			UG/L	<0.5	<0.5	<0.5
TOLUENE			UG/L	<0.5	<0.5	<0.5
ETHYLBENZENE			UG/L	<0.5	<0.5	<0.5
TOTAL XYLENES			UG/L	<0.5	<0.5	<0.5
METHYL-t-BUTYL ETHER			UG/L	<2.5	<2.5	<2.5

SURROGATE:

TRIFLUOROTOLUENE (%)

98

97

97



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	002	Sample Date/Time:	15-MAY-95 1409
Client Sample Id:	505362-05	Received Date:	20-MAY-95

Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %:	Analysis Date:	26-MAY-95
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 505362-06

Sample Date/Time: 15-MAY-95 1335
Received Date: 20-MAY-95

Batch: GEW050

Blank: A

Dry Weight %: N/A

Extraction Date: N/A
Analysis Date: 26-MAY-95

Parameter:

Units:

Results:

Rpt Lmts: Q:

ETHANOL

MG/L

ND

5

Comments:

ANALYST: KW



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	004	Sample Date/Time:	15-MAY-95 1145
Client Sample Id:	505362-07	Received Date:	20-MAY-95
Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %:	Analysis Date:	26-MAY-95
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	005	Sample Date/Time:	15-MAY-95 1609
Client Sample Id:	505362-08	Received Date:	20-MAY-95
Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %:	Analysis Date:	26-MAY-95
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	006	Sample Date/Time:	11-MAY-95 N/S
Client Sample Id:	505362-09 (TB)	Received Date:	20-MAY-95
Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	26-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

Blank Id: A Date Analyzed: 26-MAY-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ETHANOL	MG/L	ND	5

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

RS Date Analyzed: 26-MAY-95
RSD Date Analyzed: 26-MAY-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
ETHANOL	25	<5	22	88	24	96	9	50	50-150

Surrogates:

Comments:

Notes:

MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.

* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.

SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE
PROGRAM AND REFERENCE METHOD.

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT



Analytical Technologies, Inc.

"QC Report"

Title: Water Matrix
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 505500-1

MS Date Analyzed: 26-MAY-95
MSD Date Analyzed: 26-MAY-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
ETHANOL	100	<5	106	106	118	118	11 50	50-150

Surrogates:

Comments:

Notes:

MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.

* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.

SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE
PROGRAM AND REFERENCE METHOD.

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 505362-04
Sample Date/Time: 15-MAY-95 1525
Received Date: 20-MAY-95

Batch: MAW077
Blank: B
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 505362-04
Sample Date/Time: 15-MAY-95 1525
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	103	89-116	
TOLUENE-D8	%REC/SURR	99	88-110	
BROMOFLUOROBENZENE	%REC/SURR	105	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002 Sample Date/Time: 15-MAY-95 1409
Client Sample Id: 505362-05 Received Date: 20-MAY-95

Batch: MAW077 Extraction Date: N/A
Blank: B Dry Weight %: N/A Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 505362-05
Sample Date/Time: 15-MAY-95 1409
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	103	89-116	
TOLUENE-D8	%REC/SURR	101	88-110	
BROMOFLUOROBENZENE	%REC/SURR	102	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003 Sample Date/Time: 15-MAY-95 1335
Client Sample Id: 505362-06 Received Date: 20-MAY-95

Batch: MAW077 Extraction Date: N/A
Blank: B Dry Weight %: N/A Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 505362-06
Sample Date/Time: 15-MAY-95 1335
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	99	89-116	
TOLUENE-D8	%REC/SURR	102	88-110	
BROMOFLUOROBENZENE	%REC/SURR	99	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004 Sample Date/Time: 15-MAY-95 1145
Client Sample Id: 505362-07 Received Date: 20-MAY-95

Batch: MAW077 Extraction Date: N/A
Blank: B Dry Weight %: N/A Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004
Client Sample Id: 505362-07

Sample Date/Time: 15-MAY-95 1145
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	100	89-116	
TOLUENE-D8	%REC/SURR	102	88-110	
BROMOFLUOROBENZENE	%REC/SURR	99	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 005
Client Sample Id: 505362-08
Batch: MAW077
Blank: B
Dry Weight %: N/A
Sample Date/Time: 15-MAY-95 1609
Received Date: 20-MAY-95
Extraction Date: N/A
Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 005
Client Sample Id: 505362-08
Sample Date/Time: 15-MAY-95 1609
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	99	89-116	
TOLUENE-D8	%REC/SURR	100	88-110	
BROMOFLUOROBENZENE	%REC/SURR	97	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 006
Client Sample Id: 505362-09 (TB)

Sample Date/Time: 11-MAY-95 N/S
Received Date: 20-MAY-95

Batch: MAW077
Blank: B

Dry Weight %: N/A

Extraction Date: N/A
Analysis Date: 25-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 006
Client Sample Id: 505362-09 (TB)

Sample Date/Time: 11-MAY-95 N/S
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	103	89-116	
TOLUENE-D8	%REC/SURR	101	88-110	
BROMOFLUOROBENZENE	%REC/SURR	103	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Blank Id: B Date Analyzed: 25-MAY-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ACROLEIN	UG/L	ND	100
ACETONE	UG/L	ND	10
ACETONITRILE	UG/L	ND	100
ACRYLONITRILE	UG/L	ND	100
ALLYL CHLORIDE	UG/L	ND	100
BENZENE	UG/L	ND	5
BROMOCHLOROMETHANE	UG/L	ND	5
BROMOBENZENE	UG/L	ND	5
BROMODICHLOROMETHANE	UG/L	ND	5
BROMOFORM	UG/L	ND	5
BROMOMETHANE	UG/L	ND	5
2-BUTANONE	UG/L	ND	5
CARBON DISULFIDE	UG/L	ND	5
CHLOROPRENE	UG/L	ND	5
CARBON TETRACHLORIDE	UG/L	ND	5
CHLOROBENZENE	UG/L	ND	5
CHLOROETHANE	UG/L	ND	5
CHLOROFORM	UG/L	ND	5
CHLOROMETHANE	UG/L	ND	5
2-CHLOROTOLUENE	UG/L	ND	5
4-CHLOROTOLUENE	UG/L	ND	5
CIS 1,2 DICHLOROETHYLENE	UG/L	ND	5
CHLORODIBROMOMETHANE	UG/L	ND	5
1,2 DIBROMOETHANE	UG/L	ND	5
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	ND	5
1,4-DICHLORO-2-BUTENE	UG/L	ND	5
DIBROMOMETHANE	UG/L	ND	5
1,4-DICHLOROBENZENE	UG/L	ND	5
1,3-DICHLOROBENZENE	UG/L	ND	5
1,2-DICHLOROBENZENE	UG/L	ND	5
DICHLORODIFLUOROMETHANE	UG/L	ND	5
1,1-DICHLOROETHANE	UG/L	ND	5
1,2-DICHLOROETHANE	UG/L	ND	5
1,1-DICHLOROETHENE	UG/L	ND	5
1,3 DICHLOROPROPANE	UG/L	ND	5
2,2-DICHLOROPROPANE	UG/L	ND	5
1,2-DICHLOROPROPANE	UG/L	ND	5
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5
1,1 DICHLOROPROPENE	UG/L	ND	5
ETHYL BENZENE	UG/L	ND	5
METHYL METHACRYLATE	UG/L	ND	5
METHACRYLONITRILE	UG/L	ND	5
4-METHYL-2-PENTANONE	UG/L	ND	5
HEXACHLOROBUTADIENE	UG/L	ND	5
2-HEXANONE	UG/L	ND	5



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Parameters:	Units:	Results:	Reporting Limits:
ISOPROPYL BENZENE	UG/L	ND	5
ISOBUTYL ALCOHOL	UG/L	ND	10
IODOMETHANE	UG/L	ND	5
P-ISOPROPYLTOLUENE	UG/L	ND	5
METHYLENE CHLORIDE	UG/L	ND	5
NAPHTHALENE	UG/L	ND	5
N-BUTYL BENZENE	UG/L	ND	5
N-PROPYL BENZENE	UG/L	ND	5
PROPIONITRILE	UG/L	ND	5
SEC-BUTYL BENZENE	UG/L	ND	5
STYRENE	UG/L	ND	5
TERT-BUTYL BENZENE	UG/L	ND	5
1,1,1,2-TETRACHLOROETHANE	UG/L	ND	5
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5
TETRACHLOROETHENE	UG/L	ND	5
TOLUENE	UG/L	ND	5
TOLUENE DIISOCYANATE	UG/L	ND	10
TOLUENE DIAMINE	UG/L	ND	10
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5
1,1,1-TRICHLOROETHANE	UG/L	ND	5
1,1,2-TRICHLOROETHANE	UG/L	ND	5
1,2,3 TRICHLOROBENZENE	UG/L	ND	5
1,2,4 TRICHLOROBENZENE	UG/L	ND	5
TRICHLOROETHENE	UG/L	ND	5
TRICHLOROFLUOROMETHANE	UG/L	ND	5
1,2,3 TRICHLOROPROPANE	UG/L	ND	5
1,2,4-TRIMETHYLBENZENE	UG/L	ND	5
1,3,5-TRIMETHYLBENZENE	UG/L	ND	5
VINYL ACETATE	UG/L	ND	5
VINYL CHLORIDE	UG/L	ND	5
M,P-XYLENE	UG/L	ND	5
O-XYLENE	UG/L	ND	5
DIBROMOFLUOROMETHANE	%REC/SURR	100	89-116
TOLUENE-D8	%REC/SURR	99	88-110
BROMOFLUOROBENZENE	%REC/SURR	100	86-115
ANALYST	INITIALS	LL	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

RS Date Analyzed: 24-MAY-95
RSD Date Analyzed: 24-MAY-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<5	44	88	43	86	2	30	72-122
TRICHLOROETHENE	50	<5	45	90	45	90	0	30	81-114
BENZENE	50	<5	49	98	49	98	0	30	87-120
TOLUENE	50	<5	45	90	47	94	4	30	83-120
CHLOROBENZENE	50	<5	46	92	48	96	4	30	87-113
Surrogates:									
DIBROMOFLUOROMETHANE				106		100			89-116
TOLUENE-D8				100		100			88-110
BROMOFLUOROBENZENE				103		100			86-115

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: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 505501-2

MS Date Analyzed: 24-MAY-95
MSD Date Analyzed: 24-MAY-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<5	43	86	44	88	2	14	74-124
TRICHLOROETHENE	50	<5	43	86	45	90	5	24	79-116
BENZENE	50	<5	50	100	50	100	0	16	65-142
TOLUENE	50	<5	45	90	47	94	4	15	89-114
CHLOROBENZENE	50	<5	48	96	49	98	2	15	85-116

Surrogates:	MS	MSD	Rec Lmts
DIBROMOFLUOROMETHANE	103	105	89-116
TOLUENE-D8	103	107	88-110
BROMOFLUOROBENZENE	104	103	86-115

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.

CHAIN OF CUSTODY

DATE: 5-15-95 PAGE 1 OF 1

ATI LAB I.D.

505362

PROJECT MANAGER: LYNN SHELTON

COMPANY: GIANT REFINING CO.

ADDRESS: Rt 3 Box 7

PHONE: GALLUP NM 87301

FAX: (505) 722 0227

BILL TO: (505) 722 0210

COMPANY:

ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
OW-1	5-15	525	AG	01
OW-2	5-15	1409	10	02
OW-3	5-15	1057		03
SMW-3	5-15	1525		04
SMW-4	5-15	1409		05
SMW-5	5-15	1335		06
SMW-6	5-15	1145		07
OW-11	5-15	1609	AV	08

PROJECT INFORMATION

PROJ. NO.: 71

PROJ. NAME: ANNUAL GROUNDWATER MONITORING

P.O. NO.: Y N NA

SHIPPED VIA: FED EX

RECEIVED INTACT: Y

RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 124hr ☐ 148hr ☐ 172hr ☐ 11 WEEK (NORMAL) ☒ 2 WEEK

Comments: X SEE ATTACHED LIST

ANALYSIS REQUEST										NUMBER OF CONTAINERS	
Petroleum Hydrocarbons (418.1)											
(MOD 8015) Gas/Diesel											
Diesel/Gasoline/BTEX/MTBE (MOD 8015/8020)											
BTX/MTBE (8020)											
PH, EC, TD5, CL504											
ALKALINITY											
Chlorinated Hydrocarbons (601/8010)											
Aromatic Hydrocarbons (602/8020)											
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.											
DIS SOLVED METALS											
Pesticides/PCB (608/8080)											
Herbicides (615/8150)											
Base/Neutral/Acid Compounds GC/MS (625/8270)											
Volatiles Organics GC/MS (624/8240)											
Polynuclear Aromatics (610/8310)											
TOTAL METALS											
PHENOL											
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: [Signature]	Time: 1000	Signature:	Time:	Signature:	Time:
Printed Name: WALT DORNER	Date: 5/16/95	Printed Name:	Date:	Printed Name:	Date:
Company: GIANT (505) 722-0212	Phone:	Company:		Company:	
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:	

TWORK PROJECT MANAGER: LETITIA KRAKOWSKI

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

ENT PROJECT MANAGER:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
25362-01	5/15	0905	AD	1
-02		0910		2
-03		1057		3
-04		1525		4
05		1409		5
06		1335		6
07		1145		7
08	N=	1109		8

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	SS 362	TOTAL NUMBER OF CONTAINERS	
PROJECT NAME:	CK	CHAIN OF CUSTODY SEALS	
LEVEL:	STD. IV	INTACT?	
REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	
STANDARD:	RUSHI	LAB NUMBER	505015

DUE DATE: 6/1
 CASH SURCHARGE: 00
 CLIENT DISCOUNT: See p. 101A

ANALYSIS REQUEST

[illegible]

RELINQUISHED BY: 1.	RELINQUISHED BY: 2.
Signature: <i>[Signature]</i>	Signature: _____
Time: 1600	Time: _____
Date: 5/17/95	Date: _____
Printed Name: ALBUQUERQUE	Printed Name: _____
Analytical Technologies, Inc.	Company: _____
Albuquerque	
RECEIVED BY: (LAB) 1.	RECEIVED BY: (LAB) 2.
Signature: <i>[Signature]</i>	Signature: _____
Time: 1010	Time: _____
Date: 5/18/95	Date: _____
Printed Name: ALBUQUERQUE	Printed Name: _____
Company: 177	Company: _____

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI				ANALYSIS REQUEST															
COMPANY: Analytical Technologies, Inc. ADDRESS: 2709-D Pan American Freeway, NE Albuquerque, NM 87107				NUMBER OF CONTAINERS AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020) 8 AIR - O2, CO2, METHANE 8 RADUUM 226/228 8 GROSS ALPHA/BETA 8 FECAL COLIFORM 8 TOTAL COLIFORM 8 BOD 8 ASBESTOS 8 NACE 8 Volatile Organics GC/MS (624/8240) 8 Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020) 8 8240 (TCLP 1311) ZHE 8 610/8310 8 619/619 MOD 8 632/632 MOD 8 SURFACTANTS (MBAS) 8 SULFIDE 8 ORGANIC LEAD 8 TOX DILUTION 8 TOX DILUTION 8															
CLIENT PROJECT MANAGER:				CLIENT PROJECT MANAGER:															
SAMPLE ID 505362-04 -05 -06 -07 -08 -09 (13) 5/11				DATE 5/15 				TIME 				MATRIX AX 				LAB ID 01 02 03 04 05 06			
PROJECT INFORMATION PROJECT NUMBER: 505362- PROJECT NAME: 619C2 QC LEVEL: STD IV QC REQUIRED: MS MSD BLANK TAT: (STANDARD) RUSH!				SAMPLE RECEIPT TOTAL NUMBER OF CONTAINERS 41 CHAIN OF CUSTODY SEALS NT INTACT? NT RECEIVED GOOD COND. (COLD) LAB NUMBER				SAMPLES SENT TO SAN DIEGO FT. COLLINS RENTON PENSACOLA PORTLAND PHOENIX FIBERQUANT				RELINQUISHED BY: 1. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: Analytical Technologies, Inc. Albuquerque				RELINQUISHED BY: 2. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: FPD			
RECEIVED BY: (LAB) 1. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: FPD				RECEIVED BY: (LAB) 2. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: FPD				RECEIVED BY: (LAB) 3. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: FPD				RECEIVED BY: (LAB) 4. Signature: [Signature] Printed Name: [Name] Date: [Date] Company: FPD							
DUE DATE: 6/1 RUSH SURCHARGE: [Amount] CLIENT DISCOUNT: See Quote				WOT# LK415															

Common notation for Organic reporting

N/S = NOT SUBMITTED

N/A = NOT APPLICABLE

= DILUTED OUT

UG = MICROGRAMS

UG/L = PARTS PER BILLION.

UG/KG = PARTS PER BILLION.

UG/M3 = MILLIGRAM PER CUBIC METER.

PMV = PART PER MILLION BY VOLUME.

UG/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.

PT 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

DGH = DARREL HALSELL

TLH = TARA HELTON

KW = KAREN WADSWORTH

MV = MONIQUE VERHEYDEN

SW = STEVE WILHITE

SJF = STEVE FILOROMO

PL = PAUL LESCHENSKY

RW = ROBERT WOLFE

BV = BEN VAUGHN

KS = KENDALL SMITH

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT
GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS
ESTIMATED.
JJ = REPORTED VALUE IS ESTIMATED DUE TO MATRIX INTERFERENCE.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE
DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

LP = LEVERNE PETERSON	RW = RITA WINGO
DWB = DAVID BOWERS	LD = LARRY DILMORE
DB = DENNIS BESON	DC = DAVID CELESTIAL
LL = LANCE LARSON	RB = RAFAEL BARRAZA
JA = JENNIFER ALEXANDER	



Analytical**Technologies**, Inc.

2709-D Pan American Freeway, NE Albuquerque, NM 87117
Phone (505) 344-3777 FAX (505) 344-4413

ATI I.D. 505368

June 28, 1995

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

Project Name/Number: ANNUAL GROUNDWATER

Attention: Lynn Shelton

On 05/18/95, 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.

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

Metals analyses were performed by Analytical Technologies, Inc., 17400 SW Upper Boones Ferry Road, Suite 270, Durham, OR.

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

The report has been reissued in part to correct the Conductivity value for sample MW-1 (ATI ID - 505368-01).

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.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER

DATE RECEIVED : 05/18/95

REPORT DATE : 06/28/95

ATI ID: 505368

	ATI PENSACOLA ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	505368-01	MW-1	AQUEOUS	05/16/95
02	505368-02	MW-2	AQUEOUS	05/16/95
03	505368-03	MW-4	AQUEOUS	05/16/95
04	505368-04	MW-5	AQUEOUS	05/16/95

---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.



Analytical Technologies, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

[0] Page 1
Date 26-Jun-95

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505368-01			Lab ID: 001		
CHLORIDE (325.2)	MG/L	47	2	CKW15A	
CONDUCTIVITY (120.1)	UMH/CM	1100	1	CDW037	
PH (150.1)	UNITS	8.9	NA	PHW107	
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW018	
SULFATE (375.4)	MG/L	150	50	SEW053	+

Comments:

Client ID: 505368-02			Lab ID: 002		
CHLORIDE (325.2)	MG/L	58	2	CKW15A	
CONDUCTIVITY (120.1)	UMH/CM	1100	1	CDW037	
PH (150.1)	UNITS	9.0	NA	PHW107	
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW018	
SULFATE (375.4)	MG/L	170	50	SEW053	+

Comments:

Client ID: 505368-03			Lab ID: 003		
CHLORIDE (325.2)	MG/L	18	2	CKW15A	
CONDUCTIVITY (120.1)	UMH/CM	1200	1	CDW037	
PH (150.1)	UNITS	8.7	NA	PHW107	
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW018	
SULFATE (375.4)	MG/L	180	50	SEW053	+

Comments:

Client ID: 505368-04			Lab ID: 004		
CHLORIDE (325.2)	MG/L	63	2	CKW15A	
CONDUCTIVITY (120.1)	UMH/CM	1100	1	CDW037	
PH (150.1)	UNITS	9.0	NA	PHW107	
PHENOLS, TOTAL (420.1)	MG/L	ND	0.005	PEW018	
SULFATE (375.4)	MG/L	190	50	SEW053	+

Comments:



Analytical Technologies, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

[0] Page 2
Date 26-Jun-95

----- 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	RB = REBECCA BROWN	CD = CHRISTY DRAPER
DBH = DONALD B. HAND	BF = BLANCA FACH	SL = STEPHANIE LOWRY
TT = TONY TINEO	NB = NANCY L. BRASCH	FB = FREDDIE BROWN
JHS = JOSEPH SAUNDERS	MM = MARY MOLONEY	
NSB = NANCY S. BUTLER	CF = CHRISTINE FOSTER	



Analytical Technologies, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

[0] Page 1
Date 26-Jun-95

"WetChem Quality Control Report"

Parameter:	CHLORIDE	CONDUCT'Y	PH	PHENOL	SULFATE
Batch Id:	CKW15A	CDW037	PHW107	PEW018	SEW053
Blank Result:	<2	<1	N/A	<0.005	<10
Anal. Method:	325.2	120.1	150.1	420.1	375.4
Prep. Method:	N/A	N/A	N/A	N/A	N/A
Analysis Date:	30-MAY-95	25-MAY-95	19-MAY-95	26-MAY-95	25-MAY-95
Prep. Date:	30-MAY-95	25-MAY-95	19-MAY-95	23-MAY-95	25-MAY-95

Sample Duplication

Sample Dup:	505481-1	505434-1	505471-1	505434-8	505481-1
Rept Limit:	<2	<1	N/A	<0.005	<50+
Sample Result:	47	1311	6.68	<0.005	149.5
Dup Result:	48	1317	6.67	<0.005	147.0
Sample RPD:	2	0	0.01	N/C	2.5G
Max RPD:	13	4	0.12	0.005	50
Dry Weight%	N/A	N/A	N/A	N/A	N/A

Matrix Spike

Sample Spiked:	505481-1	N/A	N/A	505434-8	505481-1
Rept Limit:	<2	N/A	N/A	<0.005	<50+
Sample Result:	47			<0.005	149.5
Spiked Result:	67			0.21	257.5
Spike Added:	20			0.20	100.0
% Recovery:	100			105	108
% Rec Limits:	89-110			59-151	51-151
Dry Weight%	N/A			N/A	N/A

ICV

ICV Result:	56	1384	10.01	0.044	19.4
True Result:	55	1413	10.00	0.040	20.0
% Recovery:	102	98	100	110	97
% Rec Limits:	90-110	90-110	90-110	90-110	90-110

LCS

LCS Result:	316	6.94			
True Result:	303	6.87			
% Recovery:	104	101			
% Rec Limits:	84-110	97-103			



Analytical **Technologies**, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

Quality Control Report

Analysis: Group of Single Wetchem

Accession:	505481
Client:	ANALYTICAL TECHNOLOGIES, INC.
Project Number:	505368
Project Name:	GIANT REFINING ANNUAL GROUNDWATER
Project Location:	GALLUP, NM
Department:	WET CHEM



Analytical Technologies, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

[0] Page 3
Date 26-Jun-95

"Method Report Summary"

Accession Number: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
505368-01	CHLORIDE (325.2)	MG/L	47
	CONDUCTIVITY (120.1)	UMH/CM	1100
	PH (150.1)	UNITS	8.9
	SULFATE (375.4)	MG/L	150
505368-02	CHLORIDE (325.2)	MG/L	58
	CONDUCTIVITY (120.1)	UMH/CM	1100
	PH (150.1)	UNITS	9.0
	SULFATE (375.4)	MG/L	170
505368-03	CHLORIDE (325.2)	MG/L	18
	CONDUCTIVITY (120.1)	UMH/CM	1200
	PH (150.1)	UNITS	8.7
	SULFATE (375.4)	MG/L	180
505368-04	CHLORIDE (325.2)	MG/L	63
	CONDUCTIVITY (120.1)	UMH/CM	1100
	PH (150.1)	UNITS	9.0
	SULFATE (375.4)	MG/L	190



Analytical Technologies, Inc.

ANALYTICAL TECHNOLOGIES, INC. 11 East Olive Road Pensacola, Florida 32514 (904) 474-1001

[0] Page 2
Date 26-Jun-95

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
505368-01	001 WATER	16-MAY-95 N/S	19-MAY-95
505368-02	002 WATER	16-MAY-95 N/S	19-MAY-95
505368-03	003 WATER	16-MAY-95 N/S	19-MAY-95
505368-04	004 WATER	16-MAY-95 N/S	19-MAY-95



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505368-01		Lab ID: 001			
ALKALINITY, TOTAL (2320B)	MG/L	330	1	ASW024	
PH (150.1)	UNITS	8.9	NA	PHW107	
BICARBONATE, CaCO ₃ (2330B)	MG/L	310	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	23	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	1	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:

Client ID: 505368-02		Lab ID: 002			
ALKALINITY, TOTAL (2320B)	MG/L	320	1	ASW024	
PH (150.1)	UNITS	9.0	NA	PHW107	
BICARBONATE, CaCO ₃ (2330B)	MG/L	320	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	ND	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	1	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	1	1	NONE	

Comments:

Client ID: 505368-03		Lab ID: 003			
ALKALINITY, TOTAL (2320B)	MG/L	460	1	ASW024	
PH (150.1)	UNITS	8.7	NA	PHW107	
BICARBONATE, CaCO ₃ (2330B)	MG/L	440	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	21	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	2	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	ND	1	NONE	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 505368-04		Lab ID: 004			
ALKALINITY, TOTAL (2320B)	MG/L	330	1	ASW024	
PH (150.1)	UNITS	9.0	NA	PHW107	
BICARBONATE, CaCO ₃ (2330B)	MG/L	330	1	NONE	
CARBONATE, CaCO ₃ (2330B)	MG/L	ND	1	NONE	
CARBON DIOXIDE, FREE AS CaCO ₃	MG/L	1	1	NONE	
HYDROXIDE (2330B) AS CaCO ₃	MG/L	1	1	NONE	

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 505481
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINING ANNUAL GROUNDWATER
Project Location: GALLUP, NM
Test: TOTAL ALKALINITY

Client Sample Id:	Parameter:	Unit:	Result:
505368-01	ALKALINITY, TOTAL (2320B)	MG/L	330
	PH (150.1)	UNITS	8.9
	BICARBONATE, CaCO_3 (2330B)	MG/L	310
	CARBONATE, CaCO_3 (2330B)	MG/L	23
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	1
505368-02	ALKALINITY, TOTAL (2320B)	MG/L	320
	PH (150.1)	UNITS	9.0
	BICARBONATE, CaCO_3 (2330B)	MG/L	320
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	1
	HYDROXIDE (2330B) AS CaCO_3	MG/L	1
505368-03	ALKALINITY, TOTAL (2320B)	MG/L	460
	PH (150.1)	UNITS	8.7
	BICARBONATE, CaCO_3 (2330B)	MG/L	440
	CARBONATE, CaCO_3 (2330B)	MG/L	21
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	2
505368-04	ALKALINITY, TOTAL (2320B)	MG/L	330
	PH (150.1)	UNITS	9.0
	BICARBONATE, CaCO_3 (2330B)	MG/L	330
	CARBON DIOXIDE, FREE AS CaCO_3	MG/L	1
	HYDROXIDE (2330B) AS CaCO_3	MG/L	1



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	ALKALINITY	PH
Batch Id:	ASW024	PHW107
Blank Result:	<1	N/A
Anal. Method:	2320B	150.1
Prep. Method:	N/A	N/A
Analysis Date:	25-MAY-95	19-MAY-95
Prep. Date:	25-MAY-95	19-MAY-95

Sample Duplication

Sample Dup:	505481-1	505471-1
Rept Limit:	<1	N/A
Sample Result:	333	6.68
Dup Result:	330	6.67
Sample RPD:	1	0.01
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	505481-1	N/A
Rept Limit:	<1	N/A
Sample Result:	333	
Spiked Result:	359	
Spike Added:	25F	
% Recovery:	104	
% Rec Limits:	80-113	
Dry Weight%	N/A	

ICV

ICV Result:	227	10.01
True Result:	250	10.00
% Recovery:	91	100
% Rec Limits:	90-110	90-110

LCS

LCS Result:		6.94
True Result:		6.87
% Recovery:		101
% Rec Limits:		97-103

TOTAL ORGANIC CARBON

Method 415.2



Analytical **Technologies**, Inc.

Lab Name: Analytical Technologies, Inc.

Date Collected: 05/16/95

Client Name: ATI-NM

Date Analyzed: 05/23/95

Client Project ID: GRCZ -- 505368

Sample Matrix: Water

Lab Workorder Number: 95-05-133

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 95-05-133	1	< 1.0	< 1.0	N/A
MW-1	95-05-133-01	1	36		
	95-05-133-01DUP	1	36	36	0
MW-2	95-05-133-02	1	< 1.0		
	95-05-133-02DUP	1	< 1.0	< 1.0	N/A
MW-4	95-05-133-03	1	< 1.0		
	95-05-133-03DUP	1	< 1.0	< 1.0	N/A
MW-5	95-05-133-04	1	< 1.0		
	95-05-133-04DUP	1	< 1.0	< 1.0	N/A



Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Date Collected: 05/16/95

Client Name: ATI-NM

Date Extracted: 05/31/95

Client Project ID: GRCZ--505368

Date Analyzed: 05/31/95

Lab Workorder Number: 95-05-133

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB95-05-133	100	< 20	< 20	N/A
MW-1	95-05-133-01	100	30		
	95-05-133-01DUP	100	30	30	0
MW-2	95-05-133-02	100	40		
	95-05-133-02DUP	100	20	30	67
MW-4	95-05-133-03	100	20		
	95-05-133-03DUP	100	20	20	0
MW-5	95-05-133-04	100	20		
	95-05-133-04DUP	100	4	12	133



Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE MATRIX SPIKE RESULTS

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Lab Sample ID: 95-05-118-01

Sample Matrix: Water

Sample ID

In House

Date Extracted: 05/30/95

Date Analyzed: 05/30/95

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	75	260	93

TOTAL METALS RESULTS



Analytical Technologies, Inc.

CLIENT: ATI-Albuquerque
PROJECT #: 505368
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505621
DATE SAMPLED: 05/16/95
DATE RECEIVED: 05/19/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,23/95
UNITS: mg/L

ATI I.D.:	505621-0	505621-1	505621-2
Client I.D.:	Method Blank	MW-1	MW-2

PARAMETER	METHOD			
CHROMIUM	6010	< 0.01	< 0.01	< 0.01
LEAD	7421	< 0.002	0.002	< 0.002
MERCURY	7470	< 0.0002	< 0.0002	< 0.0002

TOTAL METALS RESULTS



Analytical Technologies, Inc.

CLIENT: ATI-Albuquerque
PROJECT #: 505368
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505621
DATE SAMPLED: 05/16/95
DATE RECEIVED: 05/19/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,23/95
UNITS: mg/L

ATI I.D.: 505621-3 505621-4
Client I.D.: MW-4 MW-5

PARAMETER	METHOD		
CHROMIUM	6010	< 0.01	< 0.01
LEAD	7421	< 0.002	< 0.002
MERCURY	7470	< 0.0002	< 0.0002

DISSOLVED METALS RESULTS



Analytical Technologies, Inc.

CLIENT: ATI-Albuquerque
PROJECT #: 505368
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505621
DATE SAMPLED: 05/16/95
DATE RECEIVED: 05/19/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,22,23/95
UNITS: mg/L

ATI I.D.:	505621-0	505621-1	505621-2
Client I.D.:	Method Blank	MW-1	MW-2

PARAMETER	METHOD			
ARSENIC	7060	< 0.005	< 0.005	< 0.005
BARIUM	6010	< 0.01	0.01	0.02
CADMIUM	6010	< 0.005	< 0.005	< 0.005
CALCIUM	6010	< 0.1	1.8	1.4
MAGNESIUM	6010	< 0.1	0.2	0.1
MANGANESE	6010	< 0.01	< 0.01	< 0.01
POTASSIUM	6010	< 2	< 2	< 2
SELENIUM	7740	< 0.005	< 0.005	< 0.005
SILVER	6010	< 0.01	< 0.01	< 0.01
SODIUM	6010	< 0.1	242	246

DISSOLVED METALS RESULTS



Analytical **Technologies**, Inc.

CLIENT: ATI-Albuquerque
PROJECT #: 505368
PROJECT NAME: Annual Groundwater
SAMPLE MATRIX: WATER

ATI I.D.: 505621
DATE SAMPLED: 05/16/95
DATE RECEIVED: 05/19/95
DATE DIGESTED: 05/19/95
DATE ANALYZED: 05/19,22,23/95
UNITS: mg/L

ATI I.D.: 505621-3 505621-4
Client I.D.: MW-4 MW-5

PARAMETER	METHOD		
ARSENIC	7060	< 0.005	< 0.005
BARIUM	6010	0.02	0.02
CADMIUM	6010	< 0.005	< 0.005
CALCIUM	6010	1.7	1.5
MAGNESIUM	6010	0.2	0.1
MANGANESE	6010	< 0.01	< 0.01
POTASSIUM	6010	< 2	< 2
SELENIUM	7740	< 0.005	< 0.005
SILVER	6010	< 0.01	< 0.01
SODIUM	6010	257	246

METALS DUPLICATE RESULTS



Analytical Technologies, Inc.

METHOD: 6010 / 7000 series
 CLIENT: ATI-Albuquerque
 PROJECT #: 505368
 PROJECT NAME: Annual Groundwater
 SAMPLE MATRIX: WATER

ATI I.D.: 505621
 QC SAMPLE: 505615-4 Total
 DATE DIGESTED: 05/18/95
 DATE ANALYZED: 05/19,22,23/95
 DILUTION FACTOR: 1
 UNITS: mg/L

PARAMETER	SAMPLE RESULT	DUPLICATE RESULT	RPD	RPD CONTROL LIMIT
ARSENIC	< 0.005	< 0.005	NA	20
BARIUM	0.03	0.03	0	20
CALCIUM	37.7	37.0	2	20
CADMIUM	< 0.005	< 0.005	NA	20
CHROMIUM	0.01	< 0.01	NC	20
COPPER	< 0.01	< 0.01	NA	20
LEAD	< 0.002	< 0.002	NA	20
MAGNESIUM	12.3	12.1	2	20
MANGANESE	0.02	0.02	0	20
MERCURY	< 0.0002	< 0.0002	NA	20
POTASSIUM	< 2	< 2	NA	20
SELENIUM	< 0.005	< 0.005	NA	20
SILVER	< 0.01	< 0.01	NA	20
SODIUM	600 D	628 D	5	20

NC - Not Calculable

D - Value from a two fold dilution.

* Quality control for arsenic, lead and selenium performed on sample 505621-1 (Dissolved).

** Quality control for mercury performed on sample 505615-8 (Dissolved).



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)
CLIENT : GIANT REFINING CO. ATI I.D.: 505362
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GROUNDWATER

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
09	TRIP BLANK	AQUEOUS	05/11/95	NA	05/20/95	1
PARAMETER			UNITS	09		
BENZENE			UG/L	<0.5		
TOLUENE			UG/L	<0.5		
ETHYLBENZENE			UG/L	<0.5		
TOTAL XYLENES			UG/L	<0.5		
METHYL-t-BUTYL ETHER			UG/L	<2.5		

SURROGATE:

TRIFLUOROTOLUENE (%) 93



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 505362
BLANK I.D.	: 051995	MATRIX	: AQUEOUS
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 05/19/95
PROJECT NAME	: ANNUAL GROUNDWATER	DILUTION FACTOR	: 1

PARAMETER	UNITS	
BENZENE	UG/L	<0.5
TOLUENE	UG/L	<0.5
ETHYLBENZENE	UG/L	<0.5
TOTAL XYLENES	UG/L	<0.5
METHYL-t-BUTYL ETHER	UG/L	<2.5

SURROGATE:

TRIFLUOROTOLUENE (%)	100
----------------------	-----



Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD.

TEST : BTEX, MTBE (EPA 8020)
MSMSD # : 50536506 ATI I.D. : 505362
CLIENT : GIANT REFINING CO. DATE EXTRACTED : NA
PROJECT # : (NONE) DATE ANALYZED : 05/19/95
PROJECT NAME : ANNUAL GROUNDWATER SAMPLE MATRIX : AQUEOUS
REF. I.D. : 50536506 UNITS : UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	10	100	11	110	10
TOLUENE	1.2	10	11	98	11	98	0
ETHYLBENZENE	<0.5	10	11	110	11	110	0
TOTAL XYLENES	1.3	30	33	105	34	109	3
METHYL-t-BUTYL ETHER	<2.5	10	10	100	11	110	10

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

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505501
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505362
Project Name: GRC
Project Location: N/S
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	001	Sample Date/Time:	15-MAY-95 1525
Client Sample Id:	505362-04	Received Date:	20-MAY-95
Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %:	Analysis Date:	26-MAY-95
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW

METALS SPIKE RESULTS



Analytical Technologies, Inc.

METHOD: 6010 / 7000 series
 CLIENT: ATI-Albuquerque
 PROJECT #: 505368
 PROJECT NAME: Annual Groundwater
 SAMPLE MATRIX: WATER

ATI I.D.: 505621
 QC SAMPLE: 505615-4 Total
 DATE DIGESTED: 05/18/95
 DATE ANALYZED: 05/19,22,23/95
 DILUTION FACTOR: 1
 UNITS: mg/L

PARAMETER	SAMPLE RESULT	SPIKE CONC	SPIKE RESULT	% RECOV		CONTROL LIMIT
ARSENIC	< 0.005	0.040	0.039	98	*	75-125%
BARIUM	0.03	2.00	1.98	98		75-125%
CADMIUM	< 0.005	1.00	0.984	98		75-125%
CHROMIUM	0.01	1.00	0.98	97		75-125%
COPPER	< 0.01	1.00	0.95	95		75-125%
LEAD	< 0.002	0.020	0.018	90	*	75-125%
MANGANESE	0.02	1.00	0.98	96		75-125%
MERCURY	< 0.0002	0.0020	0.0021	105	**	75-125%
SELENIUM	< 0.005	0.020	0.018	90	*	75-125%
SILVER	< 0.01	1.00	0.98	98		75-125%

* Quality control for arsenic, lead and selenium performed on sample 505621-1 (Dissolved).

** Quality control for mercury performed on sample 505615-8 (Dissolved).

METALS BLANK SPIKE RESULTS



Analytical Technologies, Inc.

METHOD: 6010 / 7000 series
 CLIENT: ATI-Albuquerque
 PROJECT #: 505368
 PROJECT NAME: Annual Groundwater
 SAMPLE MATRIX: WATER

ATI I.D.: 505621
 QC SAMPLE: Method Blank
 DATE DIGESTED: 05/18/95
 DATE ANALYZED: 05/19,22,23/95
 DILUTION FACTOR: 1
 UNITS: mg/L

PARAMETER	SPIKE RESULT	SPIKE CONC	% RECOV	CONTROL LIMIT
ARSENIC	0.040	0.040	100	80-120%
BARIUM	2.00	2.00	100	80-120%
CADMIUM	0.991	1.00	99	80-120%
CHROMIUM	0.99	1.00	99	80-120%
COPPER	0.96	1.00	96	80-120%
LEAD	0.018	0.020	90	80-120%
MANGANESE	0.99	1.00	99	80-120%
MERCURY	0.0021	0.0020	105	80-120%
SELENIUM	0.017	0.020	85	80-120%
SILVER	1.00	1.00	100	80-120%



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 505368-03
Sample Date/Time: 16-MAY-95 N/S
Received Date: 20-MAY-95

Batch: GEW050
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 26-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: ETHANOL
Analysis Method: ATI SOP 641
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	002	Sample Date/Time:	16-MAY-95 N/S
Client Sample Id:	505368-04	Received Date:	20-MAY-95

Batch: GEW050		Extraction Date:	N/A
Blank: A	Dry Weight %:	Analysis Date:	26-MAY-95
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ETHANOL	MG/L	ND	5	

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

Blank Id: A Date Analyzed: 26-MAY-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ETHANOL	MG/L	ND	5

Comments:
ANALYST: KW



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

RS Date Analyzed: 26-MAY-95
RSD Date Analyzed: 26-MAY-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	Rec Lmts	Rec Lmts
ETHANOL	25	<5	22	88	24	96	9	50	50-150
Surrogates:									

Comments:

Notes:

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



Analytical Technologies, Inc.

"QC Report"

Title: Water Matrix
Batch: GEW050
Analysis Method: ATI SOP 641
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 505500-1

MS Date Analyzed: 26-MAY-95
MSD Date Analyzed: 26-MAY-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
ETHANOL	100	<5	106	106	118	118	11	50-150

Surrogates:

Comments:

Notes:

MG/L = PARTS PER MILLION. < = LESS THAN REPORTING LIMIT.

* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS.

SOURCE FOR CONTROL LIMITS ARE INTERNAL LABORATORY QUALITY ASSURANCE
PROGRAM AND REFERENCE METHOD.

N/S = NOT SUBMITTED N/A = NOT APPLICABLE D = DILUTED OUT



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001 Sample Date/Time: 16-MAY-95 N/S
Client Sample Id: 505368-03 Received Date: 20-MAY-95

Batch: MAW077 Extraction Date: N/A
Blank: C Dry Weight %: N/A Analysis Date: 26-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 505368-03

Sample Date/Time: 16-MAY-95 N/S
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	98	89-116	
TOLUENE-D8	%REC/SURR	104	88-110	
BROMOFLUOROBENZENE	%REC/SURR	99	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 505368-04
Sample Date/Time: 16-MAY-95 N/S
Received Date: 20-MAY-95
Batch: MAW077
Blank: C
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 26-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
BENZENE	UG/L	ND	5	
ACETONE	UG/L	ND	50	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
CARBON DISULFIDE	UG/L	ND	5	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	10	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
1,1 DICHLOROETHYLENE	UG/L	ND	5	
ETHYL METHACRYLATE	UG/L	ND	10	
2-HEXANONE	UG/L	ND	5	
IODOMETHANE	UG/L	ND	5	
METHYL ETHYL KETONE	UG/L	ND	10	
METHYL ISOBUTYL KETONE	UG/L	ND	10	
TETRACHLOROETHYLENE	UG/L	ND	5	
TRICHLOROETHYLENE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	10	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	5	
BROMOMETHANE	UG/L	ND	10	
CARBON TETRACHLORIDE	UG/L	ND	5	
CHLOROBENZENE	UG/L	ND	5	
CHLOROETHANE	UG/L	ND	10	
CHLOROFORM	UG/L	ND	5	
CHLOROMETHANE	UG/L	ND	10	
CHLORODIBROMOMETHANE	UG/L	ND	10	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	20	
1,1-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROETHANE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	5	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	5	
STYRENE	UG/L	ND	5	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5	
TOLUENE	UG/L	ND	5	
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 505500
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 505368
Project Name: GIANT REFINERY
Project Location: GALLUP, NM
Test: SW 846 8260 TABLE SIX
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 505368-04
Sample Date/Time: 16-MAY-95 N/S
Received Date: 20-MAY-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,1,2-TRICHLOROETHANE	UG/L	ND	5	
TRICHLOROFLUOROMETHANE	UG/L	ND	5	
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL CHLORIDE	UG/L	ND	10	
M,P-XYLENE	UG/L	ND	5	
O-XYLENE	UG/L	ND	5	
DIBROMOFLUOROMETHANE	%REC/SURR	104	89-116	
TOLUENE-D8	%REC/SURR	102	88-110	
BROMOFLUOROBENZENE	%REC/SURR	100	86-115	
ANALYST	INITIALS	LL		

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Blank Id: C Date Analyzed: 25-MAY-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ACROLEIN	UG/L	ND	100
ACETONE	UG/L	ND	10
ACETONITRILE	UG/L	ND	100
ACRYLONITRILE	UG/L	ND	100
ALLYL CHLORIDE	UG/L	ND	100
BENZENE	UG/L	ND	5
BROMOCHLOROMETHANE	UG/L	ND	5
BROMOBENZENE	UG/L	ND	5
BROMODICHLOROMETHANE	UG/L	ND	5
BROMOFORM	UG/L	ND	5
BROMOMETHANE	UG/L	ND	5
2-BUTANONE	UG/L	ND	5
CARBON DISULFIDE	UG/L	ND	5
CHLOROPRENE	UG/L	ND	5
CARBON TETRACHLORIDE	UG/L	ND	5
CHLOROBENZENE	UG/L	ND	5
CHLOROETHANE	UG/L	ND	5
CHLOROFORM	UG/L	ND	5
CHLOROMETHANE	UG/L	ND	5
2-CHLOROTOLUENE	UG/L	ND	5
4-CHLOROTOLUENE	UG/L	ND	5
CIS 1,2 DICHLOROETHYLENE	UG/L	ND	5
CHLORODIBROMOMETHANE	UG/L	ND	5
1,2 DIBROMOETHANE	UG/L	ND	5
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	ND	5
1,4-DICHLORO-2-BUTENE	UG/L	ND	5
DIBROMOMETHANE	UG/L	ND	5
1,4-DICHLOROBENZENE	UG/L	ND	5
1,3-DICHLOROBENZENE	UG/L	ND	5
1,2-DICHLOROBENZENE	UG/L	ND	5
DICHLORODIFLUOROMETHANE	UG/L	ND	5
1,1-DICHLOROETHANE	UG/L	ND	5
1,2-DICHLOROETHANE	UG/L	ND	5
1,1-DICHLOROETHENE	UG/L	ND	5
1,3 DICHLOROPROPANE	UG/L	ND	5
2,2-DICHLOROPROPANE	UG/L	ND	5
1,2-DICHLOROPROPANE	UG/L	ND	5
CIS-1,3-DICHLOROPROPENE	UG/L	ND	5
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	5
1,1 DICHLOROPROPENE	UG/L	ND	5
ETHYL BENZENE	UG/L	ND	5
METHYL METHACRYLATE	UG/L	ND	5
METHACRYLONITRILE	UG/L	ND	5
4-METHYL-2-PENTANONE	UG/L	ND	5
HEXACHLOROBUTADIENE	UG/L	ND	5
2-HEXANONE	UG/L	ND	5



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Parameters:	Units:	Results:	Reporting Limits:
ISOPROPYL BENZENE	UG/L	ND	5
ISOBUTYL ALCOHOL	UG/L	ND	10
IODOMETHANE	UG/L	ND	5
P-ISOPROPYLTOLUENE	UG/L	ND	5
METHYLENE CHLORIDE	UG/L	ND	5
NAPHTHALENE	UG/L	ND	5
N-BUTYL BENZENE	UG/L	ND	5
N-PROPYL BENZENE	UG/L	ND	5
PROPIONITRILE	UG/L	ND	5
SEC-BUTYL BENZENE	UG/L	ND	5
STYRENE	UG/L	ND	5
TERT-BUTYL BENZENE	UG/L	ND	5
1,1,1,2-TETRACHLOROETHANE	UG/L	ND	5
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	5
TETRACHLOROETHENE	UG/L	ND	5
TOLUENE	UG/L	ND	5
TOLUENE DIISOCYANATE	UG/L	ND	10
TOLUENE DIAMINE	UG/L	ND	10
TRANS 1,2 DICHLOROETHYLENE	UG/L	ND	5
1,1,1-TRICHLOROETHANE	UG/L	ND	5
1,1,2-TRICHLOROETHANE	UG/L	ND	5
1,2,3 TRICHLOROBENZENE	UG/L	ND	5
1,2,4 TRICHLOROBENZENE	UG/L	ND	5
TRICHLOROETHENE	UG/L	ND	5
TRICHLOROFLUOROMETHANE	UG/L	ND	5
1,2,3 TRICHLOROPROPANE	UG/L	ND	5
1,2,4-TRIMETHYLBENZENE	UG/L	ND	5
1,3,5-TRIMETHYLBENZENE	UG/L	ND	5
VINYL ACETATE	UG/L	ND	5
VINYL CHLORIDE	UG/L	ND	5
M,P-XYLENE	UG/L	ND	5
O-XYLENE	UG/L	ND	5
DIBROMOFLUOROMETHANE	%REC/SURR	104	89-116
TOLUENE-D8	%REC/SURR	100	88-110
BROMOFLUOROBENZENE	%REC/SURR	100	86-115
ANALYST	INITIALS	LL	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

RS Date Analyzed: 24-MAY-95
RSD Date Analyzed: 24-MAY-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<5	44	88	43	86	2	30	72-122
TRICHLOROETHENE	50	<5	45	90	45	90	0	30	81-114
BENZENE	50	<5	49	98	49	98	0	30	87-120
TOLUENE	50	<5	45	90	47	94	4	30	83-120
CHLOROBENZENE	50	<5	46	92	48	96	4	30	87-113

Surrogates:	RS %Rec	RSD %Rec	Rec Lmts
DIBROMOFLUOROMETHANE	106	100	89-116
TOLUENE-D8	100	100	88-110
BROMOFLUOROBENZENE	103	100	86-115

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: MAW077
Analysis Method: 8260 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992.
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 505501-2

MS Date Analyzed: 24-MAY-95
MSD Date Analyzed: 24-MAY-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
1,1-DICHLOROETHENE	50	<5	43	86	44	88	2	14 74-124
TRICHLOROETHENE	50	<5	43	86	45	90	5	24 79-116
BENZENE	50	<5	50	100	50	100	0	16 65-142
TOLUENE	50	<5	45	90	47	94	4	15 89-114
CHLOROBENZENE	50	<5	48	96	49	98	2	15 85-116

Surrogates:								
DIBROMOFLUOROMETHANE				103		105		89-116
TOLUENE-D8				103		107		88-110
BROMOFLUOROBENZENE				104		103		86-115

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.

PROJECT MANAGER:

COMPANY: GIANT REENTLING CO.
ADDRESS: ROUTE 3, BOX 7
PHONE: GALLUP, NM 87301
FAX: (505) 722-3833
(505) 722-0212

BILL TO: LYNN SHELTON
COMPANY: SAME
ADDRESS: SAME

ANALYSIS REQUEST

	✓	U	=	=	NUMBER OF CONTAINERS
Petroleum Hydrocarbons (418.1)					
(MOD 8015) Gas/Diesel					
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)					
BTXE/MTBE (8020)	X	X	X	X	
TGC	X	X	X	X	
TOX	X	X	X	X	
Chlorinated Hydrocarbons (601/8010)					
Aromatic Hydrocarbons (602/8020)					
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	X	X	X	X	
PHENOL	X	X	X	X	
TOTAL METALS	X	X	X	X	
Pesticides/PCB (608/8080)					
Herbicides (615/6150)					
Base/Neutral/Acid Compounds GC/MS (625/8270)	X	X			
Volatile Organics GC/MS (624/8240) *					
Polynuclear Aromatics (610/8310)	X	X	X	X	
DISSOLVED METALS	X	X	X	X	
PH, EC, SC, ALK.					
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.:	—	NO. CONTAINERS	US
PROJ. NAME:	ANNUAL GEONAVAL	CUSTODY SEALS	Y/N/NA
P.O. NO.:	—	RECEIVED INTACT	Y
SHIPPED VIA:	FED EX	RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

	(RUSH)	124hr	148hr	172hr	11 WEEK	(NORMAL) 12 WEEK
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						
18						
19						
20						
21						
22						
23						
24						
25						
26						
27						
28						
29						
30						
31						
32						
33						
34						
35						
36						
37						
38						
39						
40						
41						
42						
43						
44						
45						
46						
47						
48						
49						
50						
51						
52						
53						
54						
55						
56						
57						
58						
59						
60						
61						
62						
63						
64						
65						
66						
67						
68						
69						
70						
71						
72						
73						
74						
75						
76						
77						
78						
79						
80						
81						
82						
83						
84						
85						
86						
87						
88						
89						
90						

Comments:

SEE ATTACHED LIST

SAMPLED & RELINQUISHED BY: 1.

Signature:	Time:	Signature:	Time:	Signature:	Time:
<i>Walter Jones</i>	11:00				
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
WALTER JONES	5/17/85				
Company:	Phone:	Company:		Company:	
SIANT (505) 777-0818					

RECEIVED BY:

Signature:	Time:	Signature:	Time:	Signature:	Time:
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
Company:		Company:		Company:	

[illegible]

----- 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

RB = REBECCA BROWN

CD = CHRISTY DRAPER

DBH = DONALD B. HAND

BF = BLANCA FACH

SL = STEPHANIE LOWRY

TT = TONY TINEO

NB = NANCY L. BRASCH

FB = FREDDIE BROWN

JHS = JOSEPH SAUNDERS

MM = MARY MOLONEY

NSB = NANCY S. BUTLER

CF = CHRISTINE FOSTER

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

DGH = DARREL HALSELL

TLH = TARA HELTON

KW = KAREN WADSWORTH

MV = MONIQUE VERHEYDEN

SW = STEVE WILHITE

SJF = STEVE FILOROMO

PL = PAUL LESCHENSKY

RW = ROBERT WOLFE

BV = BEN VAUGHN

KS = KENDALL SMITH

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT
GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS
ESTIMATED.
JJ = REPORTED VALUE IS ESTIMATED DUE TO MATRIX INTERFERENCE.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE
DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

LP = LEVERNE PETERSON	RW = RITA WINGO
DWB = DAVID BOWERS	LD = LARRY DILMORE
DB = DENNIS BESON	DC = DAVID CELESTIAL
LL = LANCE LARSON	RB = RAFAEL BARRAZA
JA = JENNIFER ALEXANDER	



Analytical**Technologies**, Inc.

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

ATI I.D. 510428

November 20, 1995

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

Project Name/Number: SEMI ANNUAL GWTR

Attention: Dave Pavlich

On 10/31/95, 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.

Both bottles for sample "MW2" (TOX analysis) were received cracked/broken. Sample "MW2" was transferred by ATI sample control into a new container.

EPA method 415.2 and 9020 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: 10/31/95

PROJECT # : (NONE)

PROJECT NAME : SEMI ANNUAL GWTR

REPORT DATE : 11/20/95

ATI ID: 510428

	ATI SD & PENSACOLA CLIENT ID #	DESCRIPTION	MATRIX	DATE COLLECTED
01	510428-01	MW-2	AQUEOUS	10/28/95
02	510428-02	MW-4	AQUEOUS	10/28/95
03	510428-03	MW-5	AQUEOUS	10/28/95
04	510428-04	OW-11	AQUEOUS	10/28/95

---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.



Analytical **Technologies**, Inc.

ANALYTICAL SCHEDULE

Client : ANALYTICAL TECHNOLOGIES, INC.
Project # : 510428
Project Name: SEMI-ANNUAL/GWTR-GIANT

ATI I.D.: 511018

Analysis

Technique/Description

EPA 415.2 (TOTAL ORGANIC CARBON)
EPA 9020 (TOTAL ORGANIC HALIDE)

TOTAL ORGANIC CARBON ANALYZER
TOTAL ORGANIC HALIDE ANALYZER



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510428

ATI I.D.: 511018

Project Name: SEMI-ANNUAL/GWTR-GIANT

Sample #	Client ID	Matrix	Date Sampled	Date Received
1	510428-01	WATER	28-OCT-95	01-NOV-95
2	510428-02	WATER	28-OCT-95	01-NOV-95
3	510428-03	WATER	28-OCT-95	01-NOV-95
4	510428-04	WATER	28-OCT-95	01-NOV-95

Parameter	Units	1	2	3	4
TOTAL ORGANIC CARBON	MG/L	1.3	1.8	1.7	1.9
TOTAL ORGANIC HALIDES	MG/L	0.022	<0.008	0.014	0.009



Analytical **Technologies, Inc.**

GENERAL CHEMISTRY - QUALITY CONTROL

DUP/MS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510428

ATI I.D. : 511018

Project Name: SEMI-ANNUAL/GWTR-GIANT

Parameters	REF I.D.	Units	Sample Result	Dup Result	RPD	Spiked Sample	Spike Conc	% Rec
TOTAL ORGANIC CARBON	510374-04	MG/L	1.0	1.2	18	22.1	20.0	106
TOTAL ORGANIC HALIDES	511018-01	MG/L	0.022	0.020	10	0.39	0.40	92

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

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



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

BLANK SPIKE

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510428

ATI I.D. : 511018

Project Name: SEMI-ANNUAL/GWTR-GIANT

Parameters	Blank Spike ID#	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
TOTAL ORGANIC CARBON	60001	MG/L	<0.5	19.5	20.0	98
TOTAL ORGANIC HALIDES	59855	MG/L	<0.008	0.105	0.10	105

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

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 510428-01			Lab ID: 001		
CONDUCTIVITY (120.1)	UMH/CM	1200	1	CDW060	
PH (150.1)	UNITS	9.0	NA	PHW229	
Comments:					
Client ID: 510428-02			Lab ID: 002		
CONDUCTIVITY (120.1)	UMH/CM	1200	1	CDW060	
PH (150.1)	UNITS	8.7	NA	PHW229	
Comments:					
Client ID: 510428-03			Lab ID: 003		
CONDUCTIVITY (120.1)	UMH/CM	1200	1	CDW060	
PH (150.1)	UNITS	9.0	NA	PHW229	
Comments:					
Client ID: 510428-04			Lab ID: 004		
CONDUCTIVITY (120.1)	UMH/CM	2500	1	CDW060	
PH (150.1)	UNITS	8.3	NA	PHW229	
Comments:					



Analytical**Technologies**, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
510428-01	001 WATER	28-OCT-95 N/S	01-NOV-95
510428-02	002 WATER	28-OCT-95 N/S	01-NOV-95
510428-03	003 WATER	28-OCT-95 N/S	01-NOV-95
510428-04	004 WATER	28-OCT-95 N/S	01-NOV-95



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
510428-01	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1200 9.0
510428-02	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1200 8.7
510428-03	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1200 9.0
510428-04	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	2500 8.3



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CONDUCT'Y	PH
Batch Id:	CDW060	PHW229
Blank Result:	<1	N/A
Anal. Method:	120.1	150.1
Prep. Method:	N/A	N/A
Analysis Date:	03-NOV-95	01-NOV-95
Prep. Date:	03-NOV-95	01-NOV-95

Sample Duplication

Sample Dup:	511032-1	511060-1
Rept Limit:	<1	N/A

Sample Result:	2930	5.90
Dup Result:	2970	5.89
Sample RPD:	1	0.01
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	N/A	N/A
Rept Limit:	N/A	N/A
Sample Result:		
Spiked Result:		
Spike Added:		
% Recovery:		
% Rec Limits:		
Dry Weight%		

ICV

ICV Result:	1394	9.92
True Result:	1413	10.00
% Recovery:	99	99
% Rec Limits:	90-110	90-110

LCS

LCS Result:	276	6.85
True Result:	303	6.87
% Recovery:	91	100
% Rec Limits:	84-110	97-103



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.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 510428-01
Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95
Batch: NAW103
Blank: A Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 08-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	ND	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	7	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 510428-01
Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	97	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	103	76-114	
TOLUENE-D8	%REC/SURR	98	88-110	
ANALYST	INITIALS	LP		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 510428-02
Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95
Batch: NAW103
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 08-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	14	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	5	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 510428-02

Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	95	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	106	76-114	
TOLUENE-D8	%REC/SURR	103	88-110	
ANALYST	INITIALS	LP		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 510428-03
Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95
Batch: NAW103
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 08-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	570	100	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	5	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 510428-03

Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	103	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	109	76-114	
TOLUENE-D8	%REC/SURR	105	88-110	
ANALYST	INITIALS	PL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004
Client Sample Id: 510428-04
Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95
Batch: NAW103
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 08-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	13	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	5	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004
Client Sample Id: 510428-04

Sample Date/Time: 28-OCT-95 N/S
Received Date: 01-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	93	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	112	76-114	
TOLUENE-D8	%REC/SURR	104	88-110	
ANALYST	INITIALS	LP		

Comments:



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511069
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510428
Project Name: GIANT REFINING CO.
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)

Client Sample Id:	Parameter:	Unit:	Result:
510428-01	METHYLENE CHLORIDE	UG/L	7
510428-02	ACETONE	UG/L	14
	METHYLENE CHLORIDE	UG/L	5
510428-03	ACETONE	UG/L	570
	METHYLENE CHLORIDE	UG/L	5
510428-04	ACETONE	UG/L	13
	METHYLENE CHLORIDE	UG/L	5



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: NAW103
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Blank Id: A Date Analyzed: 08-NOV-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ACETONE	UG/L	ND	10
ACETONITRILE	UG/L	ND	100
ACROLEIN	UG/L	ND	100
ACRYLONITRILE	UG/L	ND	100
ALLYL CHLORIDE	UG/L	ND	100
BENZENE	UG/L	ND	1
BIS (CHLOROMETHYL) ETHER	UG/L	ND	5
BROMODICHLOROMETHANE	UG/L	ND	1
BROMOFORM	UG/L	ND	2
BROMOMETHANE	UG/L	ND	1
CARBON DISULFIDE	UG/L	ND	1
CARBON TETRACHLORIDE	UG/L	ND	2
CHLOROBENZENE	UG/L	ND	1
CHLOROETHANE	UG/L	ND	1
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5
CHLOROFORM	UG/L	ND	2
CHLOROMETHANE	UG/L	ND	2
CHLOROPRENE	UG/L	ND	5
DIBROMOCHLOROMETHANE	UG/L	ND	1
DIBROMOMETHANE	UG/L	ND	5
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	ND	5
DICHLORODIFLUOROMETHANE	UG/L	ND	5
1,1-DICHLOROETHANE	UG/L	ND	1
1,2-DICHLOROETHANE	UG/L	ND	2
1,1-DICHLOROETHENE	UG/L	ND	1
1,2-DICHLOROETHENE (TOTAL)	UG/L	ND	2
1,2-DICHLOROPROPANE	UG/L	ND	2
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5
1,4-DIOXANE	UG/L	ND	10
ETHYLBENZENE	UG/L	ND	1
ETHYL METHACRYLATE	UG/L	ND	5
2-HEXANONE (MBK)	UG/L	ND	3
IODOMETHANE	UG/L	ND	5
ISOBUTYL ALCOHOL	UG/L	ND	10
METHACRYLONITRILE	UG/L	ND	5
METHYLENE CHLORIDE	UG/L	ND	3
METHYL ETHYL KETONE	UG/L	ND	3
METHYL METHACRYLATE	UG/L	ND	5
4-METHYL-2-PENTANONE (MIBK)	UG/L	ND	3
PROPIONITRILE	UG/L	ND	5
STYRENE	UG/L	ND	2
TETRACHLOROETHENE	UG/L	ND	1
1,1,1,2-TETRACHLOROETHANE	UG/L	ND	2
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: NAW103
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Parameters:	Units:	Results:	Reporting Limits:
TOLUENE	UG/L	ND	5
1,1,1-TRICHLOROETHANE	UG/L	ND	5
1,1,2-TRICHLOROETHANE	UG/L	ND	2
TRICHLOROETHENE	UG/L	ND	1
TRICHLOROFLUOROMETHANE	UG/L	ND	1
1,2,3 TRICHLOROPROPANE	UG/L	ND	5
VINYL ACETATE	UG/L	ND	2
VINYL CHLORIDE	UG/L	ND	1
XYLENES (TOTAL)	UG/L	ND	2
BROMOFLUOROBENZENE	%REC/SURR	93	86-115
1,2-DICHLOROETHANE-D4	%REC/SURR	101	76-114
TOLUENE-D8	%REC/SURR	103	88-110
ANALYST	INITIALS	LP	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: NAW103
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

RS Date Analyzed: 08-NOV-95
RSD Date Analyzed: 08-NOV-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	RPD Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<1	45	90	47	94	4	12	81-115
TRICHLOROETHENE	50	<1	46	92	48	96	4	15	90-115
BENZENE	50	<1	47	94	48	96	2	15	84-116
TOLUENE	50	<5	48	96	46	92	4	11	90-119
CHLOROBENZENE	50	<1	49	98	48	96	2	15	87-115

Surrogates:	RS %Rec	RSD %Rec	Rec Lmts
1,2-DICHLOROETHANE-D4	97	107	76-114
TOLUENE-D8	103	101	88-110
BROMOFLUOROBENZENE	90	95	86-115

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: NAW103
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 511069-1

MS Date Analyzed: 08-NOV-95
MSD Date Analyzed: 08-NOV-95

MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts	Rec Lmts
1,1-DICHLOROETHENE	50	<1	45	90	45	90	0	12	78-119
TRICHLOROETHENE	50	<1	48	96	47	94	2	15	90-116
BENZENE	50	<1	47	94	49	98	4	10	84-118
TOLUENE	50	<5	45	90	47	94	4	11	84-129
CHLOROBENZENE	50	<1	45	90	47	94	4	15	87-117

Surrogates:	MS	MSD	Rec Lmts
1,2-DICHLOROETHANE-D4	110	106	76-114
TOLUENE-D8	101	101	88-110
BROMOFLUOROBENZENE	91	91	86-115

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.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT
GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS
ESTIMATED.
JJ = REPORTED VALUE IS ESTIMATED DUE TO MATRIX INTERFERENCE.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE
DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

LP = LEVERNE PETERSON	RW = RITA WINGO
DWB = DAVID BOWERS	LD = LARRY DILMORE
DB = DENNIS BESON	DC = DAVID CELESTIAL
LL = LANCE LARSON	RB = RAFAEL BARRAZA
JA = JENNIFER ALEXANDER	PL = PAUL LESCHENSKY



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

CHAIN OF CUSTODY

ATILAB I.D.

DATE: 10-28-95 PAGE 1 OF 1

510428

PROJECT MANAGER: Dave Paulich

COMPANY: G. Ar Refining Co.
ADDRESS: At 3, Box 7
PHONE: Gallego, NM 87301
FAX: (505) 722-0217
BILL TO: (505) 722-0210
COMPANY: Above
ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
MW-2	10-28		H ₂ O	-01
MW-3				-02
MW-5				-03
OW-11				-04

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

ANALYSIS REQUEST										NUMBER OF CONTAINERS										
Petroleum Hydrocarbons (418.1)																				
(MOD 8015) Gas/Diesel																				
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)																				
BTXE/MTBE (8020)																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORINATED																				
CHLORIN																				

PROJECT INFORMATION

PROJ. NO.: 24

PROJ. NAME: SEMI ANNUAL GWTR

P.O. NO.: CUSTODY SEALS

SHIPPED VIA: FEDEX

RECEIVED INTACT

RECEIVED COLD

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments: SEE LIST

* 2 broken btl's: MW-2 TOX

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

Signature: [Signature] Signature: [Signature] Signature: [Signature]

Printed Name: LYNNE SHELTON Printed Name: [Blank] Printed Name: [Blank]

Company: GIANT 722 3833 Company: [Blank] Company: [Blank]

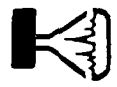
Phone: 722 3833

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

Signature: [Signature] Signature: [Signature] Signature: [Signature]

Printed Name: [Blank] Printed Name: [Blank] Printed Name: [Blank]

Company: [Blank] Company: [Blank] Company: [Blank]



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

PROJECT MANAGER: Kim McNeill

COMPANY: ALB-ATL

ADDRESS:

PHONE:

FAX:

BILL TO:

COMPANY:

ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
510428-01	10/28	1	AG	1
-02	1	2	↓	2
-03	1	3	↓	3
-04	1	4	↓	4

ANALYSIS REQUEST										NUMBER OF CONTAINERS										
Petroleum Hydrocarbons (418.1)																				5
(MOD 8015) Gas/Diesel																				5
Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)																				5
BTXE/MTBE (8020)																				5
Chlorinated Hydrocarbons (601/8010)																				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 (651/8240)																				5
Polynuclear Aromatics (610/8310)																				5
SDWA Primary Standards - Arizona																				5
SDWA Secondary Standards - Arizona																				5
SDWA Primary Standards - Federal																				5
SDWA Secondary Standards - Federal																				5
The 13 Priority Pollutant Metals																				5
RCRA Metals by Total Digestion																				5
RCRA Metals by TCLP (1311)																				5

PROJECT INFORMATION

PROJ. NO.: 510428

PROJ. NAME: Semi Annual GWR-Giant

P.O. NO.:

SHIPPED VIA:

NO. CONTAINERS

CUSTODY SEALS Y/N/NA

RECEIVED INTACT

RECEIVED GOLD

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Due 11/3 Discount: Quote two # km 1061

Route only to (circle one):

Portland San Diego Ft. Collins

Renton Pensacola

LAB USE ONLY

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

Signature: Andrew Barker Signature: Signature: Signature:

Printed Name: Andrew Barker Printed Name: Printed Name: Printed Name:

Company: ATI-ALB Company: Company: Company:

Phone: 10/31

Time: 1700

Date: 10/31

Date: Date: Date:

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

Signature: Signature: Signature: Signature:

Printed Name: Printed Name: Printed Name: Printed Name:

Company: Company: Company: Company:

Time: Time: Time: Time:

Date: Date: Date: Date:

Date: 10/27

Date: 11/1/95

Analytical Technologies, Inc.

PROJECT MANAGER: Kim McNeill

COMPANY: ATI-ALB

ADDRESS: _____

PHONE: _____

FAX: _____

BILL TO: _____

COMPANY: _____

ADDRESS: _____

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
510428-01*	10/28	11:00	AQ	01
-02	10/28	11:00	AQ	02
-03	10/28	11:00	AQ	03
-04	10/28	11:00	AQ	04
* Minimum Sample for Tox on				
510428-01				

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 (601/8010)											
Aromatic Hydrocarbons (602/8020)											
SDWA Volatiles (502.1/503.1, 502.2 Reg. & Unreg.)											
Pesticides/PCB (608/8080)											
Herbicides (615/8150)											
Base/Neutral/Acid Compounds GC/MS (625/8270)											
Volatile Organics GC/MS (624/8240)											
Polynuclear Aromatics (610/8310)											
SDWA Primary Standards - Arizona											
SDWA Secondary Standards - Arizona											
SDWA Primary Standards - Federal											
SDWA Secondary Standards - Federal											
The 13 Priority Pollutant Metals											
RCRA Metals by Total Digestion											
RCRA Metals by TCLP (1311)											

PROJECT INFORMATION

PROJ. NO.: 510428

PROJ. NAME: Semi Ann/6wTR-614W

P.O. NO.: _____

SHIPPED VIA: _____

NO. CONTAINERS: 15

CUSTODY SEALS: SEALED

RECEIVED INTACT: Y

RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Route only to (circle one): San Diego Pensacola

LAB USE ONLY

Portland San Diego Pensacola Ft. Collins Renon

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

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

Printed Name: Andrew Parker Date: 10/31 Printed Name: _____ Date: _____

Company: ATI-ALB Company: _____ Company: _____

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

Signature: _____ Time: _____ Signature: Kim McNeill Time: 09:10

Printed Name: _____ Date: _____ Printed Name: Kim McNeill Date: 10/31/15

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

DATE LISTING FOR INORGANICS FOR PROJECT ID ANATEC01 16-NOV-95
FOR ACCESSIONS RECEIVED WITHIN THE LAST 90 DAYS
ACCESSION # 511018

Project Id: ANATEC01
Proj Num : 510428

Proj Name : SEMI-ANNUAL/GWTR-GIANT
Accession : 511018

Test: EPA 415.2 (TOTAL ORGANIC CARBON)

ATI #	Matrix	Client ID	Sampled	Received	Analyzed	Prep Date
1	WATER	510428-01	28-OCT-95	01-NOV-95	13-NOV-95	N/A
2	WATER	510428-02	28-OCT-95	01-NOV-95	13-NOV-95	N/A
3	WATER	510428-03	28-OCT-95	01-NOV-95	13-NOV-95	N/A
4	WATER	510428-04	28-OCT-95	01-NOV-95	13-NOV-95	N/A

Test: EPA 9020 (TOTAL ORGANIC HALIDE)

ATI #	Matrix	Client ID	Sampled	Received	Analyzed	Prep Date
1	WATER	510428-01	28-OCT-95	01-NOV-95	07-NOV-95	N/A
2	WATER	510428-02	28-OCT-95	01-NOV-95	07-NOV-95	N/A
3	WATER	510428-03	28-OCT-95	01-NOV-95	07-NOV-95	N/A
4	WATER	510428-04	28-OCT-95	01-NOV-95	07-NOV-95	N/A



Analytical**Technologies**, Inc.

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

ATI I.D. 510424

November 20, 1995

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

Project Name/Number: SEMI ANNUAL GWTR

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.

Trip Blank was received broken and sample "OW-24" was not present in this accession number.

EPA method 415.2 and 9020 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.
PROJECT # : (NONE)
PROJECT NAME : SEMI ANNUAL GWTR

DATE RECEIVED: 10/28/95

REPORT DATE : 11/20/95

ATI ID: 510424

	ATI SD & PENSACOLA CLIENT ID #	DESCRIPTION	MATRIX	DATE COLLECTED
01	510424-01	SMW-3	AQUEOUS	10/26/95
02	510424-02	SMW-4	AQUEOUS	10/26/95
03	510424-03	SMW-5	AQUEOUS	10/26/95
04	510424-04	MW-1	AQUEOUS	10/26/95
05	510424-05	OW-24	AQUEOUS	10/26/95
06	510424-06	TRIP BLANK	AQUEOUS	10/20/95

---TOTALS---

MATRIX
AQUEOUS

#SAMPLES
6

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.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 510424-01			Lab ID: 001		
CONDUCTIVITY (120.1)	UMH/CM	2900	1	CDW060	
PH (150.1)	UNITS	7.6	NA	PHW228	
Comments:					
Client ID: 510424-02			Lab ID: 002		
CONDUCTIVITY (120.1)	UMH/CM	1400	1	CDW060	
PH (150.1)	UNITS	8.3	NA	PHW228	
Comments:					
Client ID: 510424-03			Lab ID: 003		
CONDUCTIVITY (120.1)	UMH/CM	1200	1	CDW060	
PH (150.1)	UNITS	8.5	NA	PHW228	
Comments:					
Client ID: 510424-04			Lab ID: 004		
CONDUCTIVITY (120.1)	UMH/CM	1100	1	CDW060	
PH (150.1)	UNITS	8.9	NA	PHW228	
Comments:					



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
510424-01	001 WATER	26-OCT-95 N/S	31-OCT-95
510424-02	002 WATER	26-OCT-95 N/S	31-OCT-95
510424-03	003 WATER	26-OCT-95 N/S	31-OCT-95
510424-04	004 WATER	26-OCT-95 N/S	31-OCT-95



Analytical Technologies, Inc.

"Method Report Summary"

Accession Number: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
510424-01	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	2900 7.6
510424-02	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1400 8.3
510424-03	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1200 8.5
510424-04	CONDUCTIVITY (120.1) PH (150.1)	UMH/CM UNITS	1100 8.9



Analytical Technologies, Inc.

"WetChem Quality Control Report"

Parameter:	CONDUCT'Y	PH
Batch Id:	CDW060	PHW228
Blank Result:	<1	N/A
Anal. Method:	120.1	150.1
Prep. Method:	N/A	N/A
Analysis Date:	03-NOV-95	31-OCT-95
Prep. Date:	03-NOV-95	31-OCT-95

Sample Duplication

Sample Dup:	511032-1	511032-1
Rept Limit:	<1	N/A

Sample Result:	2930	7.62
Dup Result:	2970	7.62
Sample RPD:	1	0.00
Max RPD:	4	0.12
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	N/A	N/A
Rept Limit:	N/A	N/A
Sample Result:		
Spiked Result:		
Spike Added:		
% Recovery:		
% Rec Limits:		
Dry Weight%		

ICV

ICV Result:	1394	9.87
True Result:	1413	10.00
% Recovery:	99	99
% Rec Limits:	90-110	90-110

LCS

LCS Result:	276	6.86
True Result:	303	6.87
% Recovery:	91	100
% Rec Limits:	84-110	97-103



----- 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.

ANALYTICAL SCHEDULE

Client : ANALYTICAL TECHNOLOGIES, INC.
Project # : 510424
Project Name: SEMI ANNUAL GWTR-GAINT

ATI I.D.: 510374

Analysis

Technique/Description

EPA 415.2 (TOTAL ORGANIC CARBON)
EPA 9020 (TOTAL ORGANIC HALIDE)

TOTAL ORGANIC CARBON ANALYZER
TOTAL ORGANIC HALIDE ANALYZER



Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510424

ATI I.D.: 510374

Project Name: SEMI ANNUAL GWTR-GAINT

Sample #	Client ID	Matrix	Date Sampled	Date Received
1	510424-01	WATER	26-OCT-95	31-OCT-95
2	510424-02	WATER	26-OCT-95	31-OCT-95
3	510424-03	WATER	26-OCT-95	31-OCT-95
4	510424-04	WATER	26-OCT-95	31-OCT-95

Parameter	Units	1	2	3	4
TOTAL ORGANIC CARBON	MG/L	14.9	1.0	1.2	1.0
TOTAL ORGANIC HALIDES	MG/L	0.060	0.11	0.015	0.069



Analytical**Technologies**, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

DUP/MS

Client : ANALYTICAL TECHNOLOGIES, INC.

Project # : 510424

ATI I.D. : 510374

Project Name: SEMI ANNUAL GWTR-GAINT

Parameters	REF I.D.	Units	Sample Result	Dup Result	RPD	Spiked Sample	Spike Conc	% Rec
TOTAL ORGANIC CARBON	510374-04	MG/L	1.0	1.2	18	22.1	20.0	106
TOTAL ORGANIC HALIDES	510374-01	MG/L	0.060	0.066	10	2.0	2.0	97

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

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



Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

BLANK SPIKE

Client : ANALYTICAL TECHNOLOGIES, INC.
Project # : 510424
Project Name: SEMI ANNUAL GWTR-GAINT

ATI I.D. : 510374

Parameters	Blank Spike ID#	Units	Blank Result	Spiked Sample	Spike Conc.	% Rec
TOTAL ORGANIC CARBON	60001	MG/L	<0.5	19.5	20.0	98
TOTAL ORGANIC HALIDES	59781	MG/L	<0.008	0.086	0.10	86

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

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



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Metals
QcLevel: II

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

Client ID: 510424-01

Lab ID:001

CHROMIUM (200.7)	MG/L	0.08	0.01	H0W239	
LEAD (200.7)	MG/L	ND	0.05	P0W239	

Comments:

Client ID: 510424-02

Lab ID:002

CHROMIUM (200.7)	MG/L	0.01	0.01	H0W239	
LEAD (200.7)	MG/L	ND	0.05	P0W239	

Comments:

Client ID: 510424-03

Lab ID:003

CHROMIUM (200.7)	MG/L	0.02	0.01	H0W239	
LEAD (200.7)	MG/L	ND	0.05	P0W239	

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Metals

Client Id:	Lab Matrix: Id:	Date/Time Sampled:	Date Received:
510424-01	001 WATER	26-OCT-95 N/S	31-OCT-95
510424-02	002 WATER	26-OCT-95 N/S	31-OCT-95
510424-03	003 WATER	26-OCT-95 N/S	31-OCT-95



Analytical**Technologies**, Inc.

"Method Report Summary"

Accession Number: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: Group of Single Metals

Client Sample Id:	Parameter:	Unit:	Result:
510424-01	CHROMIUM (200.7)	MG/L	0.08
510424-02	CHROMIUM (200.7)	MG/L	0.01
510424-03	CHROMIUM (200.7)	MG/L	0.02



Analytical Technologies, Inc.

"Metals Quality Control Report"

Parameter:	CHROMIUM	LEAD
Batch Id:	HOW239	POW239
Blank Result:	<0.01	<0.05
Anal. Method:	200.7	200.7
Prep. Method:	EPA 600	EPA 600
Analysis Date:	07-NOV-95	07-NOV-95
Prep. Date:	06-NOV-95	06-NOV-95

Sample Duplication

Sample Dup:	511080-4	511080-4
Rept Limit:	<0.01	<0.05

Sample Result:	1.8	1.8
Dup Result:	1.8	1.8
Sample RPD:	0	0
Max RPD:	20	20
Dry Weight%	N/A	N/A

Matrix Spike

Sample Spiked:	511080-4	511080-4
Rept Limit:	<0.01	<0.05
Sample Result:	<0.01	<0.05
Spiked Result:	1.8	1.8
Spike Added:	2.0	2.0
% Recovery:	90	90
% Rec Limits:	75-125	75-125
Dry Weight%	N/A	N/A

ICV

ICV Result:	4.8	4.8
True Result:	5.0	5.0
% Recovery:	96	96
% Rec Limits:	90-110	90-110

LCS

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



Analytical **Technologies, Inc.**

"Quality Control Comments"

Batch Id: Comments:

H0W239	ANALYST: JR
H0W239	The results reported under "Sample Duplication" are the MS/MSD.
P0W239	ANALYST: JR
P0W239	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.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 510424-01 *smw-3*
Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95
Batch: VIW083
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 06-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	ND	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 001
Client Sample Id: 510424-01

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

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	90	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	96	76-114	
TOLUENE-D8	%REC/SURR	107	88-110	
ANALYST	INITIALS	PL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 510424-02 *smw-4*
Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95
Batch: VIW083
Blank: A Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 07-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	54	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	3	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	2	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 002
Client Sample Id: 510424-02

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

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	95	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	97	76-114	
TOLUENE-D8	%REC/SURR	105	88-110	
ANALYST	INITIALS	PL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 510424-03 *smw-5*
Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95
Batch: VIW083
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 07-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	ND	10	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 003
Client Sample Id: 510424-03

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

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	96	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	95	76-114	
TOLUENE-D8	%REC/SURR	105	88-110	
ANALYST	INITIALS	PL		

Comments:



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004
Client Sample Id: 510424-04 *mw 1*
Sample Date/Time: 26-OCT-95 N/S
Received Date: 31-OCT-95
Batch: VIW083
Blank: A
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 07-NOV-95

Parameter:	Units:	Results:	Rpt Lmts:	Q:
ACETONE	UG/L	650	100	
ACROLEIN	UG/L	ND	100	
ACRYLONITRILE	UG/L	ND	100	
BENZENE	UG/L	ND	1	
BROMODICHLOROMETHANE	UG/L	ND	1	
BROMOFORM	UG/L	ND	2	
BROMOMETHANE	UG/L	ND	1	
2-BUTANONE (MEK)	UG/L	ND	3	
CARBON DISULFIDE	UG/L	ND	1	
CARBON TETRACHLORIDE	UG/L	ND	2	
CHLOROBENZENE	UG/L	ND	1	
CHLOROETHANE	UG/L	ND	1	
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5	
CHLOROFORM	UG/L	ND	2	
CHLOROMETHANE	UG/L	ND	2	
CHLORODIBROMOMETHANE	UG/L	ND	5	
DIBROMOMETHANE	UG/L	ND	5	
DICHLORODIFLUOROMETHANE	UG/L	ND	5	
1,1-DICHLOROETHANE	UG/L	ND	1	
1,2-DICHLOROETHANE	UG/L	ND	2	
1,1-DICHLOROETHENE	UG/L	ND	1	
TOTAL 1,2-DICHLOROETHYLENE	UG/L	ND	5	
1,2-DICHLOROPROPANE	UG/L	ND	2	
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1	
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1	
1,4-DICHLORO-2-BUTENE	UG/L	ND	5	
ETHYL BENZENE	UG/L	ND	1	
ETHYL METHACRYLATE	UG/L	ND	5	
2-HEXANONE	UG/L	ND	3	
IODOMETHANE	UG/L	ND	5	
METHYLENE CHLORIDE	UG/L	ND	3	
4-METHYL-2-PENTANONE	UG/L	ND	3	
STYRENE	UG/L	ND	2	
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2	
TETRACHLOROETHENE	UG/L	ND	1	
TOLUENE	UG/L	ND	5	
1,1,1-TRICHLOROETHANE	UG/L	ND	5	
1,1,2-TRICHLOROETHANE	UG/L	ND	2	
TRICHLOROETHENE	UG/L	ND	1	
TRICHLOROFLUOROMETHANE	UG/L	ND	1	



Analytical Technologies, Inc.

"FINAL REPORT FORMAT - SINGLE"

Accession: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id: 004
Client Sample Id: 510424-04

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

Parameter:	Units:	Results:	Rpt Lmts:	Q:
1,2,3 TRICHLOROPROPANE	UG/L	ND	5	
VINYL ACETATE	UG/L	ND	2	
VINYL CHLORIDE	UG/L	ND	1	
TOTAL XYLENES	UG/L	ND	2	
BROMOFLUOROBENZENE	%REC/SURR	97	86-115	
1,2-DICHLOROETHANE-D4	%REC/SURR	96	76-114	
TOLUENE-D8	%REC/SURR	103	88-110	
ANALYST	INITIALS	PL		

Comments:



Analytical**Technologies**, Inc.

"Method Report Summary"

Accession Number: 511032
Client: ANALYTICAL TECHNOLOGIES, INC.
Project Number: 510424
Project Name: GIANT
Project Location: SEMI-ANNUAL GWTR
Test: VOLATILES (8240)

Client Sample Id:	Parameter:	Unit:	Result:
510424-02	ACETONE	UG/L	54
	METHYLENE CHLORIDE	UG/L	3
	TRICHLOROFLUOROMETHANE	UG/L	2
510424-04	ACETONE	UG/L	650



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: VIW083
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Blank Id: A Date Analyzed: 06-NOV-95 Date Extracted: N/A

Parameters:	Units:	Results:	Reporting Limits:
ACETONE	UG/L	ND	10
ACETONITRILE	UG/L	ND	100
ACROLEIN	UG/L	ND	100
ACRYLONITRILE	UG/L	ND	100
ALLYL CHLORIDE	UG/L	ND	100
BENZENE	UG/L	ND	1
BIS (CHLOROMETHYL) ETHER	UG/L	ND	5
BROMODICHLOROMETHANE	UG/L	ND	1
BROMOFORM	UG/L	ND	2
BROMOMETHANE	UG/L	ND	1
CARBON DISULFIDE	UG/L	ND	1
CARBON TETRACHLORIDE	UG/L	ND	2
CHLOROBENZENE	UG/L	ND	1
CHLOROETHANE	UG/L	ND	1
2-CHLOROETHYL VINYL ETHER	UG/L	ND	5
CHLOROFORM	UG/L	ND	2
CHLOROMETHANE	UG/L	ND	2
CHLOROPRENE	UG/L	ND	5
DIBROMOCHLOROMETHANE	UG/L	ND	1
DIBROMOMETHANE	UG/L	ND	5
1,2-DIBROMO-3-CHLOROPROPANE	UG/L	ND	5
DICHLORODIFLUOROMETHANE	UG/L	ND	5
1,1-DICHLOROETHANE	UG/L	ND	1
1,2-DICHLOROETHANE	UG/L	ND	2
1,1-DICHLOROETHENE	UG/L	ND	1
1,2-DICHLOROETHENE (TOTAL)	UG/L	ND	2
1,2-DICHLOROPROPANE	UG/L	ND	2
CIS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,3-DICHLOROPROPENE	UG/L	ND	1
TRANS-1,4-DICHLORO-2-BUTENE	UG/L	ND	5
1,4-DIOXANE	UG/L	ND	10
ETHYLBENZENE	UG/L	ND	1
ETHYL METHACRYLATE	UG/L	ND	5
2-HEXANONE (MBK)	UG/L	ND	3
IODOMETHANE	UG/L	ND	5
ISOBUTYL ALCOHOL	UG/L	ND	10
METHACRYLONITRILE	UG/L	ND	5
METHYLENE CHLORIDE	UG/L	ND	3
METHYL ETHYL KETONE	UG/L	ND	3
METHYL METHACRYLATE	UG/L	ND	5
4-METHYL-2-PENTANONE (MIBK)	UG/L	ND	3
PROPIONITRILE	UG/L	ND	5
STYRENE	UG/L	ND	2
TETRACHLOROETHENE	UG/L	ND	1
1,1,1,2-TETRACHLOROETHANE	UG/L	ND	2
1,1,2,2-TETRACHLOROETHANE	UG/L	ND	2



Analytical Technologies, Inc.

"QC Report"

Title: Water Blank
Batch: VIW083
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Parameters:	Units:	Results:	Reporting Limits:
TOLUENE	UG/L	ND	5
1,1,1-TRICHLOROETHANE	UG/L	ND	5
1,1,2-TRICHLOROETHANE	UG/L	ND	2
TRICHLOROETHENE	UG/L	ND	1
TRICHLOROFLUOROMETHANE	UG/L	ND	1
1,2,3 TRICHLOROPROPANE	UG/L	ND	5
VINYL ACETATE	UG/L	ND	2
VINYL CHLORIDE	UG/L	ND	1
XYLENES (TOTAL)	UG/L	ND	2
BROMOFLUOROBENZENE	%REC/SURR	101	86-115
1,2-DICHLOROETHANE-D4	%REC/SURR	94	76-114
TOLUENE-D8	%REC/SURR	104	88-110
ANALYST	INITIALS	PL	

Comments:



Analytical Technologies, Inc.

"QC Report"

Title: Water Reagent
Batch: VIW083
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

RS Date Analyzed: 06-NOV-95
RSD Date Analyzed: 06-NOV-95

RS Date Extracted: N/A
RSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	RS Conc	RS %Rec	RSD Conc	RSD %Rec	RPD	Rec Lmts
1,1-DICHLOROETHENE	50	<1	50	100	50	100	0	81-115
TRICHLOROETHENE	50	<1	47	94	48	96	2	90-115
BENZENE	50	<1	49	98	51	102	4	84-116
TOLUENE	50	<5	49	98	48	96	2	90-119
CHLOROBENZENE	50	<1	49	98	48	96	2	87-115

Surrogates:	RS	RSD	Rec Lmts
1,2-DICHLOROETHANE-D4	95	99	76-114
TOLUENE-D8	91	91	88-110
BROMOFLUOROBENZENE	104	100	86-115

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: VIW083
Analysis Method: 8240 / SW-846, 3rd Edition, September 1986 and Rev. 1, July 1992
Extraction Method: N/A

Dry Weight %: N/A
Sample Spiked: 510501-3
MS Date Analyzed: 07-NOV-95
MSD Date Analyzed: 07-NOV-95
MS Date Extracted: N/A
MSD Date Extracted: N/A

Parameters:	Spike Added	Sample Conc	MS Conc	MS %Rec	MSD Conc	MSD %Rec	RPD	Rec Lmts
1,1-DICHLOROETHENE	50	<1	51	102	50	100	2	78-119
TRICHLOROETHENE	50	<1	48	96	47	94	2	90-116
BENZENE	50	<1	51	102	50	100	2	84-118
TOLUENE	50	<5	53	106	52	104	2	84-129
CHLOROBENZENE	50	<1	50	100	49	98	2	87-117

Surrogates:	MS %Rec	MSD %Rec	Rec Lmts
1,2-DICHLOROETHANE-D4	100	98	76-114
TOLUENE-D8	96	95	88-110
BROMOFLUOROBENZENE	101	101	86-115

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.

Common notation for Organic reporting

N/S = NOT SUBMITTED
N/A = NOT APPLICABLE
D = DILUTED OUT
UG/L = PARTS PER BILLION.
UG/KG = PARTS PER BILLION.
MG/KG = PARTS PER MILLION.
MG/L = PARTS PER MILLION.
MG/M3 = MILLIGRAMS PER CUBIC METER.
NG = NANOGRAMS.
UG = MICROGRAMS.
PPBV = PARTS PER BILLION/VOLUME.
< = LESS THAN DETECTION LIMIT.
* = VALUES OUTSIDE OF QUALITY CONTROL LIMITS
J = THE REPORTED VALUE IS EITHER LESS THAN THE REPORTING LIMIT BUT
GREATER THAN ZERO, OR QUANTITATED AS A TIC; THEREFORE, IT IS
ESTIMATED.
JJ = REPORTED VALUE IS ESTIMATED DUE TO MATRIX INTERFERENCE.
ND = NOT DETECTED ABOVE REPORT LIMIT.
RPT LIMIT = REPORTING LIMITS BASED ON METHOD DETECTION LIMIT STUDIES.
RPD = RELATIVE PERCENT DIFFERENCE (OR DEVIATION)

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

ORGANIC SOILS ARE REPORTED ON A DRY WEIGHT BASIS.

DUE TO THE NATURE OF THE SAMPLE MATRIX, MATRIX SPIKE/MATRIX SPIKE
DUPLICATE ANALYSIS CANNOT BE PERFORMED FOR AIR ANALYSIS.

LP = LEVERNE PETERSON	RW = RITA WINGO
DWB = DAVID BOWERS	LD = LARRY DILMORE
DB = DENNIS BESON	DC = DAVID CELESTIAL
LL = LANCE LARSON	RB = RAFAEL BARRAZA
JA = JENNIFER ALEXANDER	PL = PAUL LESCHENSKY

CHAIN OF CUSTODY

ATI LAB I.D.

31D.

DATE: 10-27-95 PAGE 1 OF 1

PROJECT MANAGER:

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

BILL TO: GIANT REFINING
COMPANY: DAVE PAVUCH
ADDRESS: RT 3 BOX 7
CALLER, NM 87301

SAMPLEID	DATE	TIME	MATRIX	LABID
1	2010-01-01	10:00	Matrix	LabID

smw-3	10-26	H2O	-01
smw-4	}	}	-02
smw-5			-03
mw-1			-04
OW-24 *	}	}	-05
TRP Burn			-06
	10/20	AG	

PROJECT INFORMATION

PROJ. NO.:	NO. CONTAINERS	37
PROJ. NAME: SEMI ANNUAL CWT	CUSTODY SEALS	N / NA
P.O. NO.:	RECEIVED INTACT	Y
SHIPPED VIA: FEDEX	RECEIVED COLD	

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:

SEE ATTACHED LIST
#24 not present # TRIP BUREAU BUCKEN

ANALYSIS REQUEST

[illegible]

SAMPLED & RELINQUISHED BY: 1: RELINQUISHED BY:

RECEIVED BY:		1.		RECEIVED BY:		2.		RECEIVED BY: (LAB)		3.	
Signature:	Time:	Signature:	Time:	Signature:	Time:	Signature:	Time:	Signature:	Time:	Signature:	Time:
<i>[Signature]</i>	3:00 AM					<i>[Signature]</i>	16:30			<i>[Signature]</i>	
Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:	Printed Name:	Date:
LSAHEARN	10-22-95					ANALYST	10/28/95			ANALYST	
Company:	Phone:	Company:		Company:		Company:		Company:		Company:	
CIA	722 3833									Analytical Technologies, Inc.	

PROJECT MANAGER: Kim McNeill

COMPANY: ATI-ALB

ADDRESS: _____

PHONE: _____

FAX: _____

BILL TO:		

COMPANY:

ADDRESS: _____

[illegible]

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJ. NO.:	510424	NO. CONTAINERS	16
PROJ. NAME:	Semi Annual I & TR - 61007	CUSTODY SEALS	Y (N) NA
P.O. NO.:		RECEIVED INTACT	Y
SHIPPED VIA:		RECEIVED COLD	2.0°C

• PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒ 2 WEEK
 Due: ~~10/20/99~~ 11/9
 Discount: Quote
 Route only to (circle one):
 Portland
 Renton
 San Diego
 Pensacola
 Ft. Collins
 LAB
 USE
 ONLY
 Iwo #: K-11056

ANALYSIS REQUEST

[illegible]

SAMPLED & RELINQUISHED BY: 1.		RELINQUISHED BY: 2.		RELINQUISHED BY: 3.	
Signature: <i>Andrew Parker</i>	Time: 1700	Signature:	Time:	Signature:	Time:
Printed Name: Andrew Parker	Date: 10/30	Printed Name:	Date:	Printed Name:	Date:
Company:	Phone:	Company:		Company:	
RECEIVED BY: 1.		RECEIVED BY: 2.		RECEIVED BY: (LAB) 3.	
Signature: <i>Lucy Quirior</i>	Time: 9:10AM	Signature:	Time:	Signature:	Time:
Printed Name: Lucy Quirior	Date: 10/31/95	Printed Name:	Date:	Printed Name:	Date:
Company: A-T-I - S-D		Company:		Analytical Technologies, Inc.	

PROJECT MANAGER: Kim McNeil

COMPANY: ALB-ATI

ADDRESS:

PHONE:

FAX:

BILL TO:

COMPANY:

ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
510424-01	10/26	✓	AQ	1
-02	✓	✓	✓	2
-03	✓	✓	✓	3
-04	✓	✓	✓	4

ANALYSIS REQUEST		NUMBER OF CONTAINERS	
Petroleum Hydrocarbons (418.1)			
(MOD 8015) Gas/Diesel			
Diesel/Gasoline/BTBE (MOD 8015/8020)			
BTBE/MTBE (8020)			
Pb, Cr			
8240			
Chlorinated Hydrocarbons (601/8010)			
Aromatic Hydrocarbons (602/8020)			
SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.			
PH, etc			
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.: 510424

PROJ. NAME: Semi Annual 644 TR-6101

P.O. NO.:

SHIPPED VIA:

SAMPLE RECEIPT

NO. CONTAINERS

CUSTODY SEALS

RECEIVED INTACT

RECEIVED COLD

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Route only to (circle one):

Portland San Diego Pensacola

LAB USE ONLY

FL Collins

De: 11/9 - biscant: Quote Two # 1057

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

Signature: Andrew Parker Time: 1200 Signature: Signature: Signature:

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

Company: Company: Company: Company:

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

Signature: Signature: Signature: Signature:

Printed Name: Printed Name: Printed Name: Printed Name:

Company: Company: Company: Company:

Analytical Technologies, Inc.

DATE LISTING FOR INORGANICS FOR PROJECT ID ANATEC01
FOR ACCESSIONS RECEIVED WITHIN THE LAST 90 DAYS
ACCESSION # 510374

Project Id: ANATEC01
Proj Num : 510424

Proj Name : SEMI ANNUAL GWTR-GAINT
Accession : 510374

Test: EPA 415.2 (TOTAL ORGANIC CARBON)

ATI #	Matrix	Client ID	Sampled	Received	Analyzed	Prep Date
1	WATER	510424-01	26-OCT-95	31-OCT-95	13-NOV-95	N/A
2	WATER	510424-02	26-OCT-95	31-OCT-95	13-NOV-95	N/A
3	WATER	510424-03	26-OCT-95	31-OCT-95	13-NOV-95	N/A
4	WATER	510424-04	26-OCT-95	31-OCT-95	13-NOV-95	N/A

Test: EPA 9020 (TOTAL ORGANIC HALIDE)

ATI #	Matrix	Client ID	Sampled	Received	Analyzed	Prep Date
1	WATER	510424-01	26-OCT-95	31-OCT-95	03-NOV-95	N/A
2	WATER	510424-02	26-OCT-95	31-OCT-95	03-NOV-95	N/A
3	WATER	510424-03	26-OCT-95	31-OCT-95	03-NOV-95	N/A
4	WATER	510424-04	26-OCT-95	31-OCT-95	03-NOV-95	N/A