GW - 32

REPORTS

YEAR(S):

1994 GW

GIANT
INDUSTRIES, INC.

Route 3, Box 7
Gallup, New Mexico
87301

February 3, 1995

Benito Garcia
Bureau Chief
Hazardous and Radioactive Materials Bureau
New Mexico Environment Department
525 Camino De Los Marquez
Suite 4
Santa Fe, New Mexico 87502

Re: Annual Groundwater Report
Giant Refining Company - Ciniza
Permit No. NMD000333211-2

Dear Mr. Garcia:

Pursuant to the requirements of the indicated permit, the **Annual Groundwater Report**, for sampling performed in 1994, is enclosed.

If you require additional information, please contact me at (505) 722-0227.

Sincerely,

Lynn Shelton
Senior Environmental Coordinator

TLS:sp

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

Kim Bullerdick - Corporate Counsel
Giant Industries Arizona, Inc.

cc w/attachment: Roger Anderson- Oil Conservation Division

ANNUAL GROUNDWATER REPORT

TABLE OF CONTENTS

February 1, 1995

Prepared by:

Lynn Shelton
Senior Environmental Coordinator
Giant Refining Company
Ciniza

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	Parameter:	pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	9.15	0.0000
2	9.14	0.0001
3	9.16	0.0001
4	9.15	0.0000
Total 1	36.6	Total 2 0.0002

Mean value X(m)	9.15	t(m)=	5.841
Variance S(m)2	0.0001	W(m)=	0.000016

t(*)=	20.7190
t(c)=	2.9976

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	Parameter:	pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

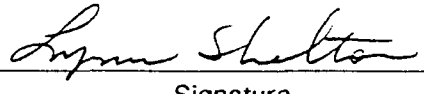
Please list the current values for this monitoring well.

	Value	(Value – X(m))2
1	9.2	0.0025
2	9.2	0.0025
3	9.19	0.0016
4	9.21	0.0036
Total 1	35.22	Total 2 0.0102

Mean value X(m)	9.2	t(m)=	5.841
Variance S(m)2	0.0034	W(m)=	0.00085

t(*)=	16.3202
t(c)=	4.3232

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	Parameter:	pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	8.84	0.0961
2	8.85	0.0900
3	8.84	0.0961
4	8.84	0.0961
Total 1	33.83	Total 2 0.3783

Mean value X(m)	8.8425	t(m)=	5.841
Variance S(m)2	0.1261	W(m)=	0.031525

t(*)=	1.8454
t(c)=	5.7574

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	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	1110	6.25
3	1120	56.25
4	1110	6.25
Total 1	4570	Total 2 75.00

Mean value X(m)	1112.5	t(m)=	4.541
Variance S(m)2	25.0000	W(m)=	6.25

t(*)=	12.9025
t(c)=	2.7242

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	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	1120	56.25
2	1120	56.25
3	1120	56.25
4	1110	6.25
Total 1	4570	Total 2 175.00

Mean value X(m)	1117.5	t(m)=	4.541
Variance S(m)2	58.3333	W(m)=	14.58333

t(*)=	12.8746
t(c)=	2.8650

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	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	1140	756.25
2	1150	1406.25
3	1150	1406.25
4	1150	1406.25
Total 1	4570	Total 2 4975.00

Mean value X(m)	1147.5	t(m)=	4.541
Variance S(m)2	1658.3333	W(m)=	414.5833

t(*)=	7.2576
t(c)=	4.1859

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Spring, 94	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	1110	6.25
2	1130	306.25
3	1120	56.25
4	1120	56.25
Total 1	4570	Total 2 425.00

Mean value X(m)	1120	t(m)=	4.541
Variance S(m)2	141.6667	W(m)=	35.41666

t(*)=	12.0042
t(c)=	3.1370

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

Lynn Shelton

Signature

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall,1994	Parameter:	pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	8.97	0.0324
2	9	0.0225
3	9.03	0.0144
4	9.05	83.7225

Total 1	27	Total 2	83.7918

Mean value X(m)	6.75	t(m)=	5.841
Variance S(m)2	27.9306	W(m)=	6.98265

t(*)=	-0.6660
t(c)=	5.8406

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall,1994	Parameter:	: pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	9.06	0.0081
2	9.07	0.0064
3	9.06	0.0081
4	9.08	0.0049

Total 1	36.27	Total 2	0.0275

Mean value X(m)	9.0675	t(m)=	5.841
Variance S(m)2	0.0092	W(m)=	0.002291

t(*)=	9.8107
t(c)=	5.0008

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall,1994	Parameter:	: pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	8.77	0.1444
2	8.77	0.1444
3	8.78	0.1369
4	8.77	0.1444
Total 1	35.09	Total 2 0.5701

Mean value X(m)	8.7725	t(m)=	5.841
Variance S(m)2	0.1900	W(m)=	0.047508

t(*)=	1.1926
t(c)=	5.7850

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall,1994	Parameter:	: pH
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)=	8.51	S(b)2=	0.015	t(b)=	2.947
W(b)=	0.000937	n(b)=	16		

Please list the current values for this monitoring well.

	Value	(Value - X(m))2
1	9.09	0.0036
2	9.09	0.0036
3	9.09	0.0036
4	9.11	0.0016
Total 1	36.38	Total 2 0.0124

Mean value X(m)	9.095	t(m)=	5.841
Variance S(m)2	0.0041	W(m)=	0.001033

t(*)=	13.1774
t(c)=	4.4644

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

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

Prepared by:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall, 94	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
	1090		506.25
	1080		1056.25
	1080		1056.25
	1100		156.25
	4350	Total 2	2775.00

Mean value X(m)	1087.5	t(m)=	4.541
Variance S(m)2	925	W(m)=	231.25

t(*)=	5.7483
t(c)=	3.9851

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall,94	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
1130		306.25
1100		156.25
1110		6.25
1110		6.25
4450	Total 2	475.00

Mean value X(m)	1112.5	t(m)=	4.541
Variance S(m)2	158.33333	W(m)=	39.58333

t(*)=	11.1625
t(c)=	3.1812

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall, 1994	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
1140	756.25
1150	1406.25
1150	1406.25
1160	2256.25
4600 Total 2	5825.00

Mean value X(m)	1150	t(m)=	4.541
Variance S(m)2	1941.6666	W(m)=	485.4166

t(*)=	6.9026
t(c)=	4.2294

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:	Lynn Shelton	Telephone:	722-0227
Facility Name:	GIANT CINIZA	EPA ID #:	NMD000333211-2
Date:	Fall, 94	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
2120		1015056.25
2180		1139556.25
2190		1161006.25
2190		1161006.25
8680	Total 2	4476625.00

Mean value X(m)	2170	t(m)=	4.541
Variance S(m)2	1492208.3	W(m)=	373052.0

t(*)=	1.9415
t(c)=	4.5405

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

Signature

TOLERANCE INTERVAL

1994

LEAD

SMW-3	10-94	MEAN-	0.0055	SD	0.012

DATE	RESULT		TOL LIMIT	UNITS	
4-94	0.0025	*	0.005	ppm	Does not exceed the tolerance limit.
10-94	0.043		0.030	ppm	Exceeds the tolerance limit by 143%.

SMW-4	10-94	MEAN-	0.0019	SD	0.0014

DATE	RESULT		TOL LIMIT	UNITS	
4-94	0.0025	*	0.005	ppm	Does not exceed the tolerance limit.
10-94	0.0025	*	0.005	ppm	Does not exceed the tolerance limit.

SMW-5	10-94	MEAN-	0.0017	SD	0.0015

DATE	RESULT		TOL LIMIT	UNITS	
4-94	0.0025	*	0.005	ppm	Does not exceed the tolerance limit.
10-94	0.0025	*	0.005	ppm	Does not exceed the tolerance limit.

SMW-6	10-94	MEAN-	0.0017	SD	0.0015

DATE	RESULT	TOL LIMIT	UNITS	
4-94	0.0025	0.005	ppm	Does not exceed the tolerance limit.
10-94	0.0025	0.005	ppm	Does not exceed the tolerance limit.

* 1/2 of Reporting Limit.

TLS95

TOLERANCE INTERVAL

CHROME

SMW-3	10-94	MEAN-	0.0693	SD	0.2052

DATE	RESULT		TOL LIMIT	UNITS	
4-94	0.062		0.013	ppm	Exceeds the tolerance limit by 477%.
10-94	0.718		0.480	ppm	Exceeds the tolerance limit by 150%.

SMW-4	10-94	MEAN-	0.0065	SD	0.0076

DATE	RESULT		TOL LIMIT	UNITS	
4-94	0.005	*	0.012	ppm	Does not exceed the tolerance limit.
10-94	0.03		0.022	ppm	Exceeds the tolerance limit by 136%.

SMW-5	10-94	MEAN-	0.0173	SD	0.0329

DATE	RESULT	TOL LIMIT	UNITS	
4-94	0.094	0.062	ppm	Exceeds the tolerance limit by 152%.
10-94	0.094	0.083	ppm	Exceeds the tolerance limit by 113%.

SMW-6	10-94	MEAN-	0.0705	SD	0.1568

DATE	RESULT	TOL LIMIT	UNITS	
4-94	0.442	0.283	ppm	Exceeds the tolerance limit by 156%.
10-94	0.434	0.384	ppm	Exceeds the tolerance limit by 113%.

* 1/2 of reporting limit.

TLS95

TOLERANCE INTERVAL

pH

SMW-3

10-94	MEAN-	7.83	SD	0.1438

DATE	RESULT	TOL LIMIT	UNITS	
4-94	7.81	8.130	---	Does not exceed the tolerance limit.
10-94	7.70	8.118	---	Does not exceed the tolerance limit.

SMW-4

10-94	MEAN-	8.35	SD	0.1648

DATE	RESULT	TOL LIMIT	UNITS	
4-94	8.49	8.671	---	Does not exceed the tolerance limit.
10-94	8.50	8.680	---	Does not exceed the tolerance limit.

SMW-5

10-94	MEAN-	8.50	SD	0.329

DATE	RESULT	TOL LIMIT	UNITS	
4-94	8.85	9.169	---	Does not exceed the tolerance limit.
10-94	8.60	9.158	---	Does not exceed the tolerance limit.

SMW-6

10-94	MEAN-	7.93	SD	0.4357

DATE	RESULT	TOL LIMIT	UNITS	
4-94	7.24	8.714	---	Does not exceed the tolerance limit.
10-94	6.975	8.801	---	Exceeds the tolerance limit by 126%.

TLS95

TOLERANCE INTERVAL

EC

SMW-3

10-94	MEAN-	3238.32	SD	306.95

DATE	RESULT	TOL LIMIT	UNITS	
4-94	3160	3850.330	---	Does not exceed the tolerance limit.
10-94	3430	3852.220	---	Does not exceed the tolerance limit.

SMW-4

10-94	MEAN-	1228.27	SD	96.38

DATE	RESULT	TOL LIMIT	UNITS	
4-94	1190	1425.690	---	Does not exceed the tolerance limit.
10-94	1257.5	1421.030	---	Does not exceed the tolerance limit.

SMW-5

10-94	MEAN-	1135.23	SD	75.26

DATE	RESULT	TOL LIMIT	UNITS	
4-94	1130	1292.290	---	Does not exceed the tolerance limit.
10-94	1130	1285.750	---	Does not exceed the tolerance limit.

SMW-6

10-94	MEAN-	3635.96	SD	4966.07

DATE	RESULT	TOL LIMIT	UNITS	
4-94	16900	11320.96	---	Exceeds the tolerance limit by 149%.
10-94	13425	13568.10	---	Does not exceed the tolerance limit.

TLS95

TOLERANCE INTERVAL

TEMPERATURE

SMW-3	10-94	MEAN-	54.73	SD	2.43

DATE	RESULT	TOL LIMIT	UNITS	
4-94	52	59.89	degrees	Does not exceed the tolerance limit.
10-94	54	59.59	degrees	Does not exceed the tolerance limit.

SMW-4	10-94	MEAN-	55.45	2.67	2.76

DATE	RESULT	TOL LIMIT	UNITS	
4-94	53	60.80	degrees	Does not exceed the tolerance limit.
10-94	57	60.97	degrees	Does not exceed the tolerance limit.

SMW-5	10-94	MEAN-	54.4	SD	2.86

DATE	RESULT	TOL LIMIT	UNITS	
4-94	50	60.46	degrees	Does not exceed the tolerance limit.
10-94	54	60.12	degrees	Does not exceed the tolerance limit.

SMW-6	10-94	MEAN-	54.73	SD	3.86

DATE	RESULT	TOL LIMIT	UNITS	
4-94	48	61.81	degrees	Does not exceed the tolerance limit.
10-94	59	62.45	degrees	Does not exceed the tolerance limit.

TLS95

TOLERANCE INTERVAL

WATER LEVEL

SMW-3	10-94	MEAN-	6851.64	SD	2.24

DATE	RESULT	TOL LIMIT	UNITS	
4-94	6855.35	6856.18	feet	Does not exceed the tolerance limit.
10-94	6952.76	6856.12	feet	Does not exceed the tolerance limit.

SMW-4	10-94	MEAN-	6848.95	SD	1.4

DATE	RESULT	TOL LIMIT	UNITS	
4-94	6850.29	6851.73	feet	Does not exceed the tolerance limit.
10-94	6849.88	6851.75	feet	Does not exceed the tolerance limit.

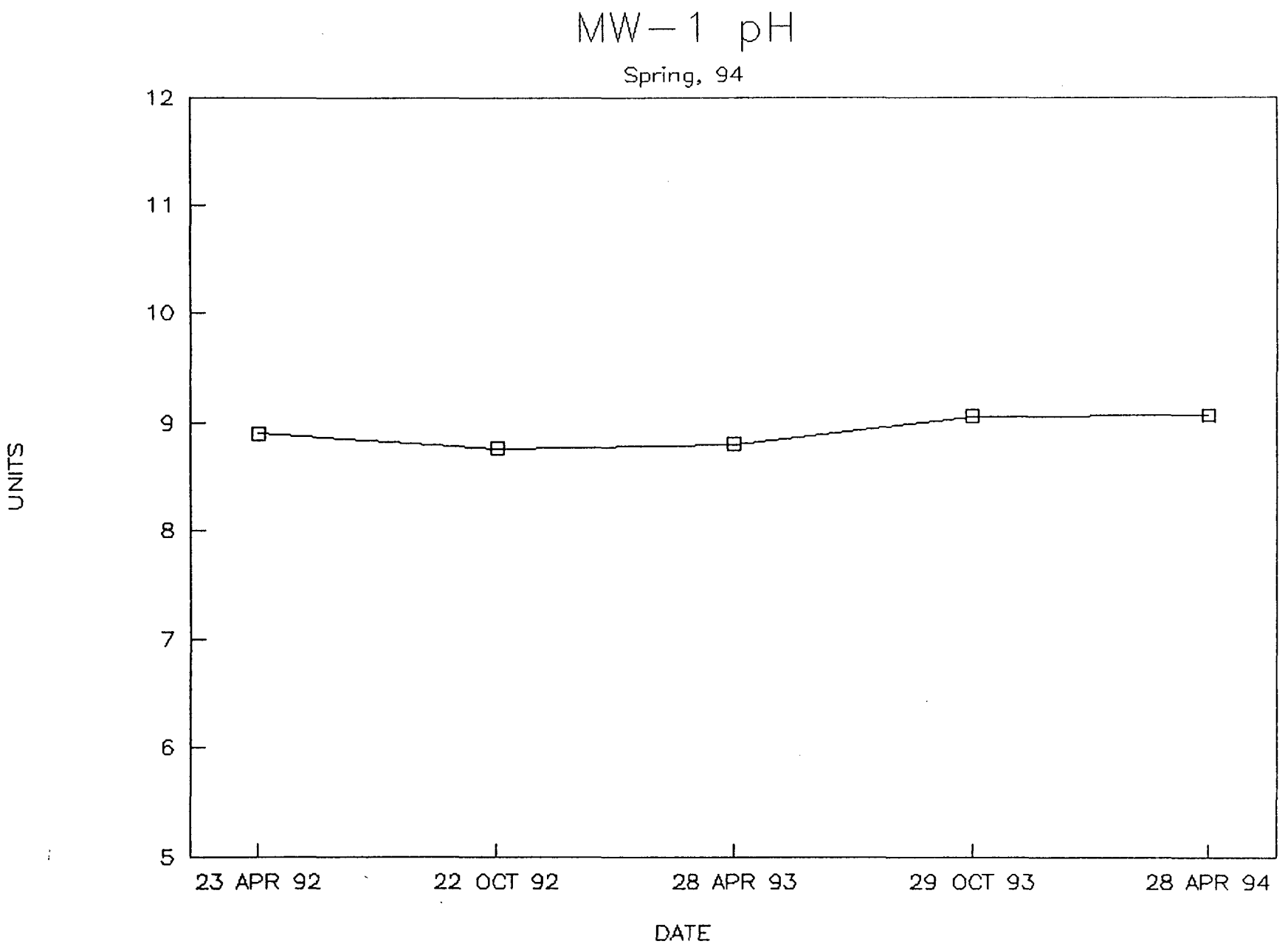
SMW-5	10-94	MEAN-	6847.38	SD	1.11

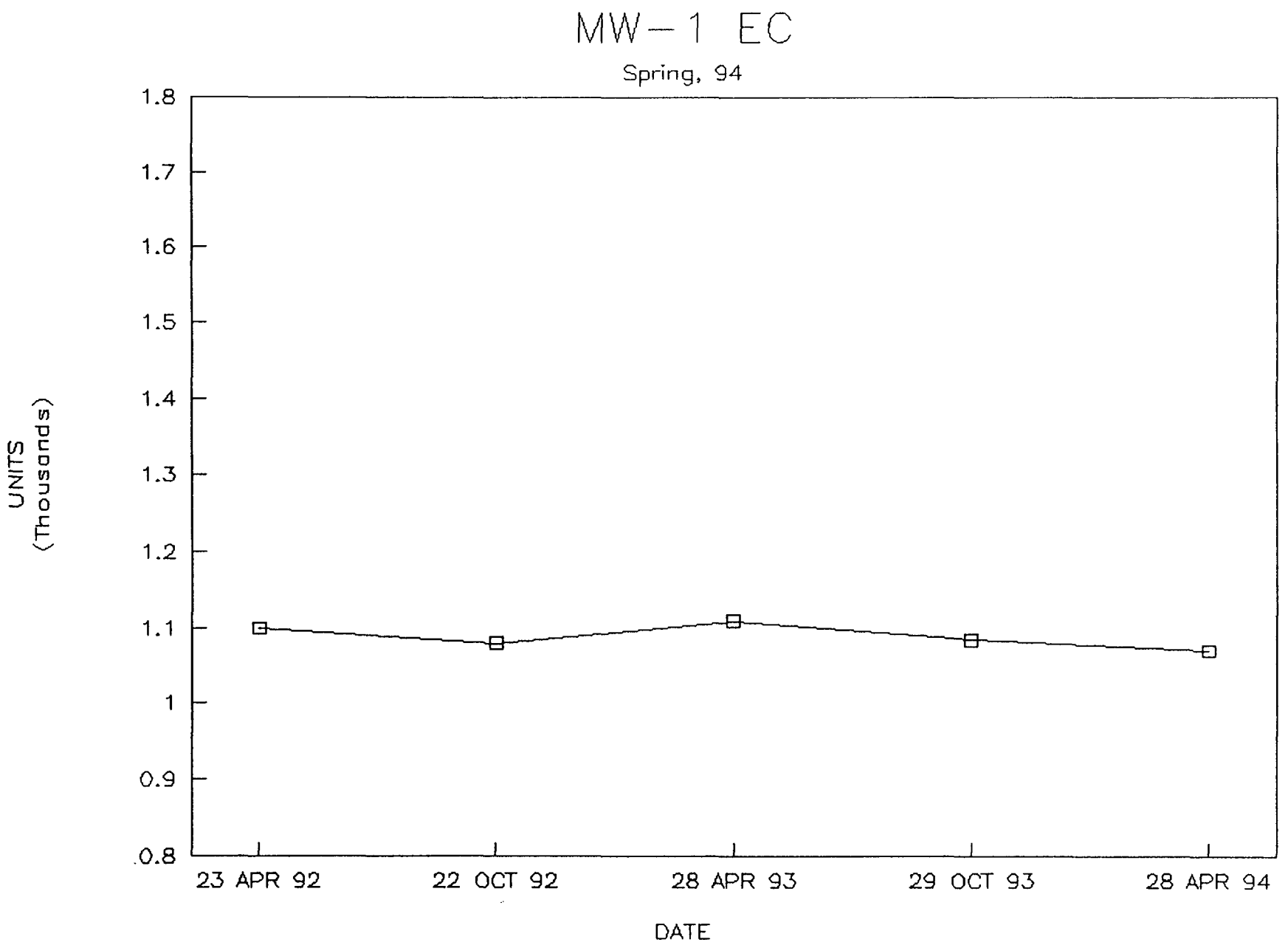
DATE	RESULT	TOL LIMIT	UNITS	
4-94	6848.13	6849.60	feet	Does not exceed the tolerance limit.
10-94	6848.02	6849.60	feet	Does not exceed the tolerance limit.

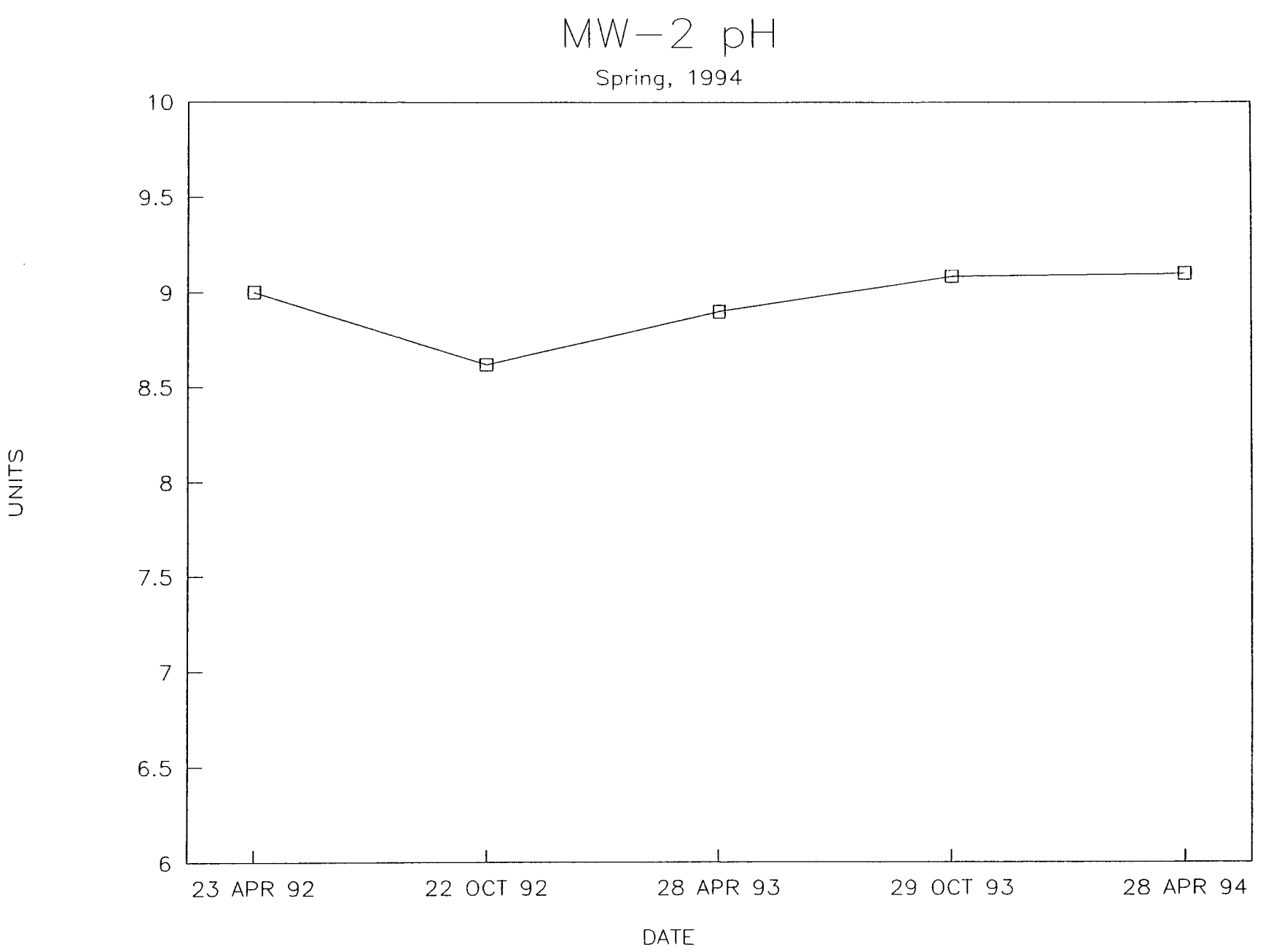
SMW-6	10-94	MEAN-	6855.04	SD	8.41

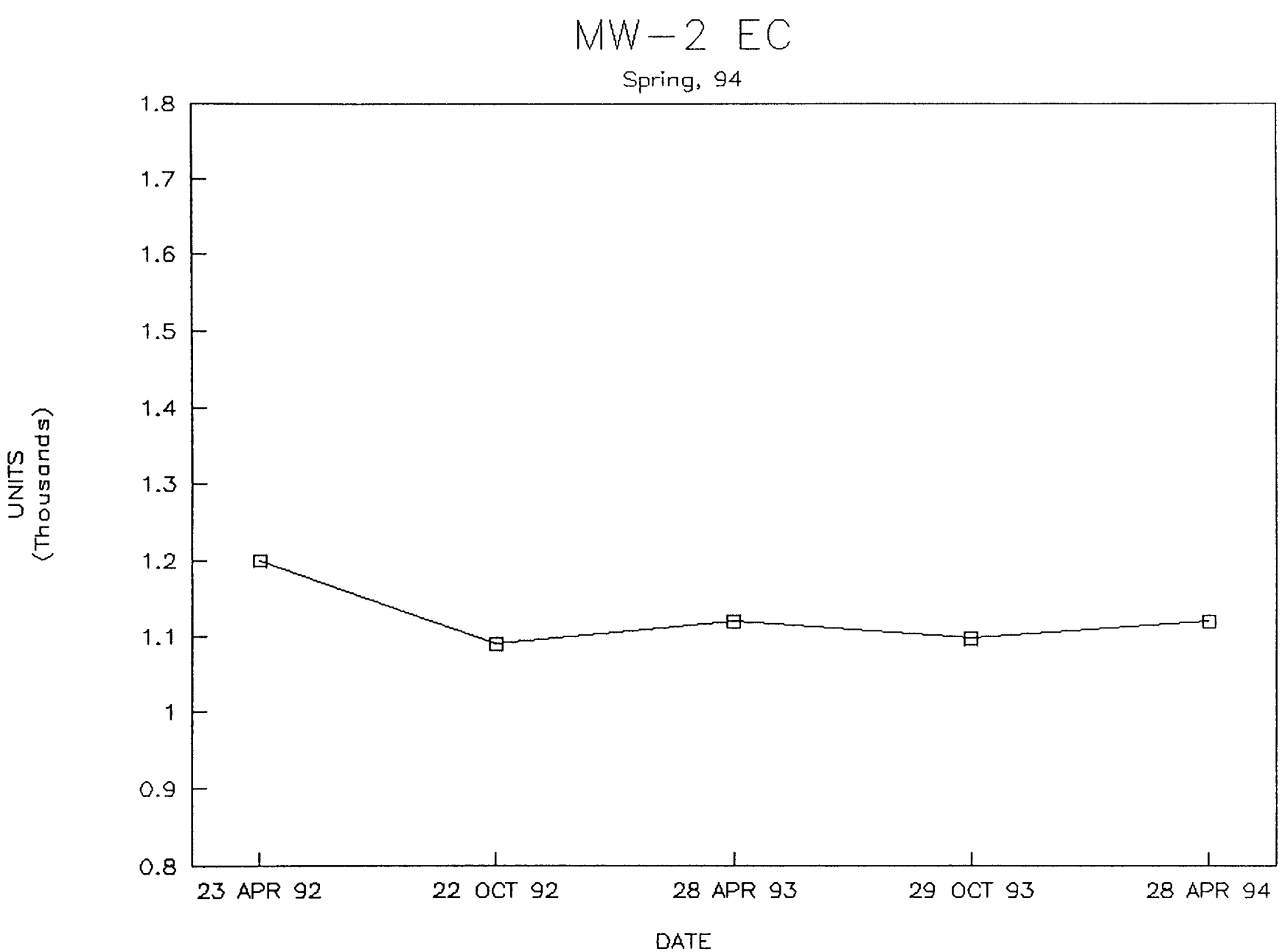
DATE	RESULT	TOL LIMIT	UNITS	
4-94	6875.88	6872.91	feet	Exceeds the tolerance limit by >.01%.
10-94	6848.94	6871.86	feet	Does not exceed the tolerance limit.

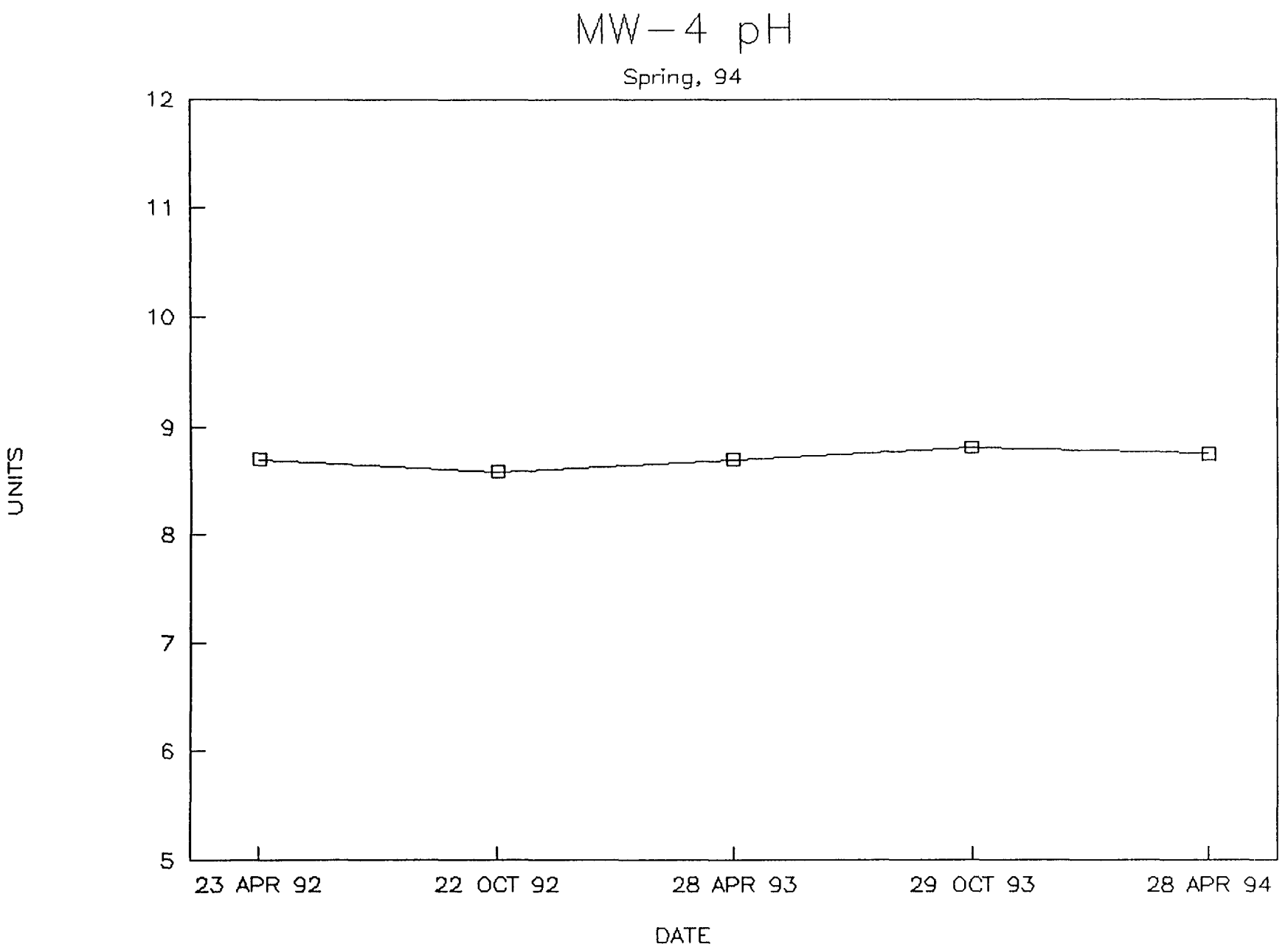
TLS95

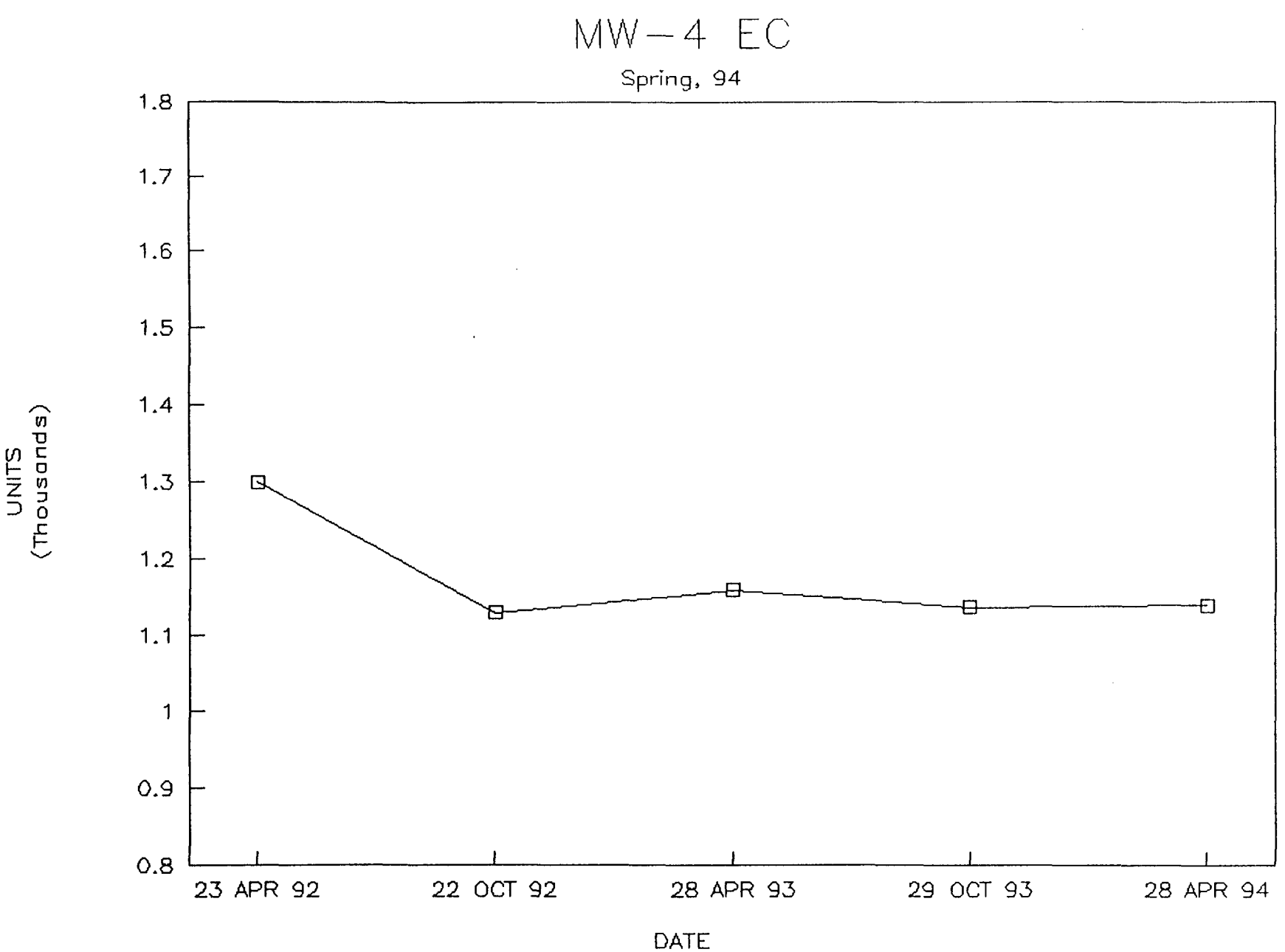

MW-1 pH
Spring, 94
12
11
10
9
8
7
6
5
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

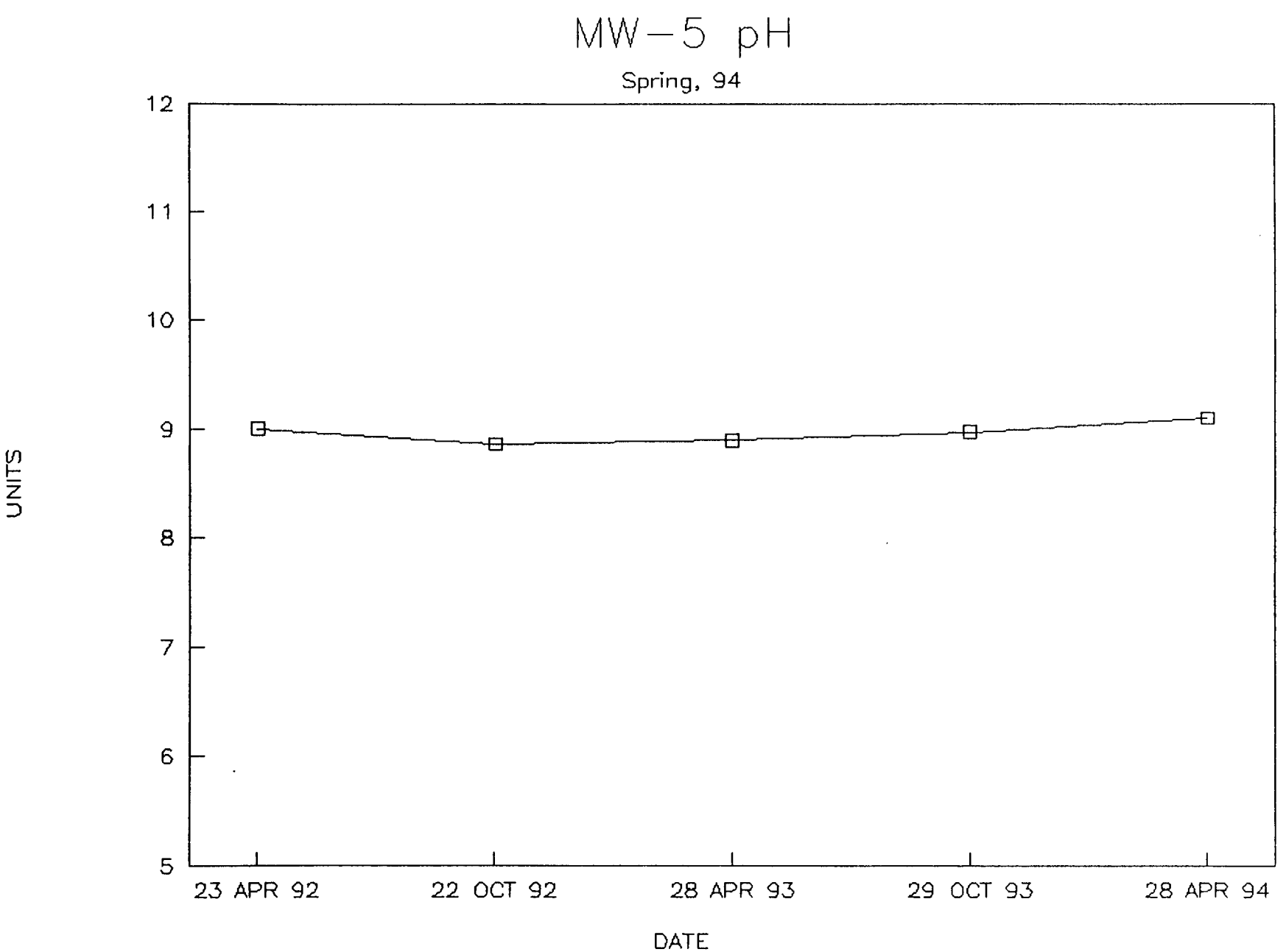

MW-1 EC
Spring, 94
UNITS
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

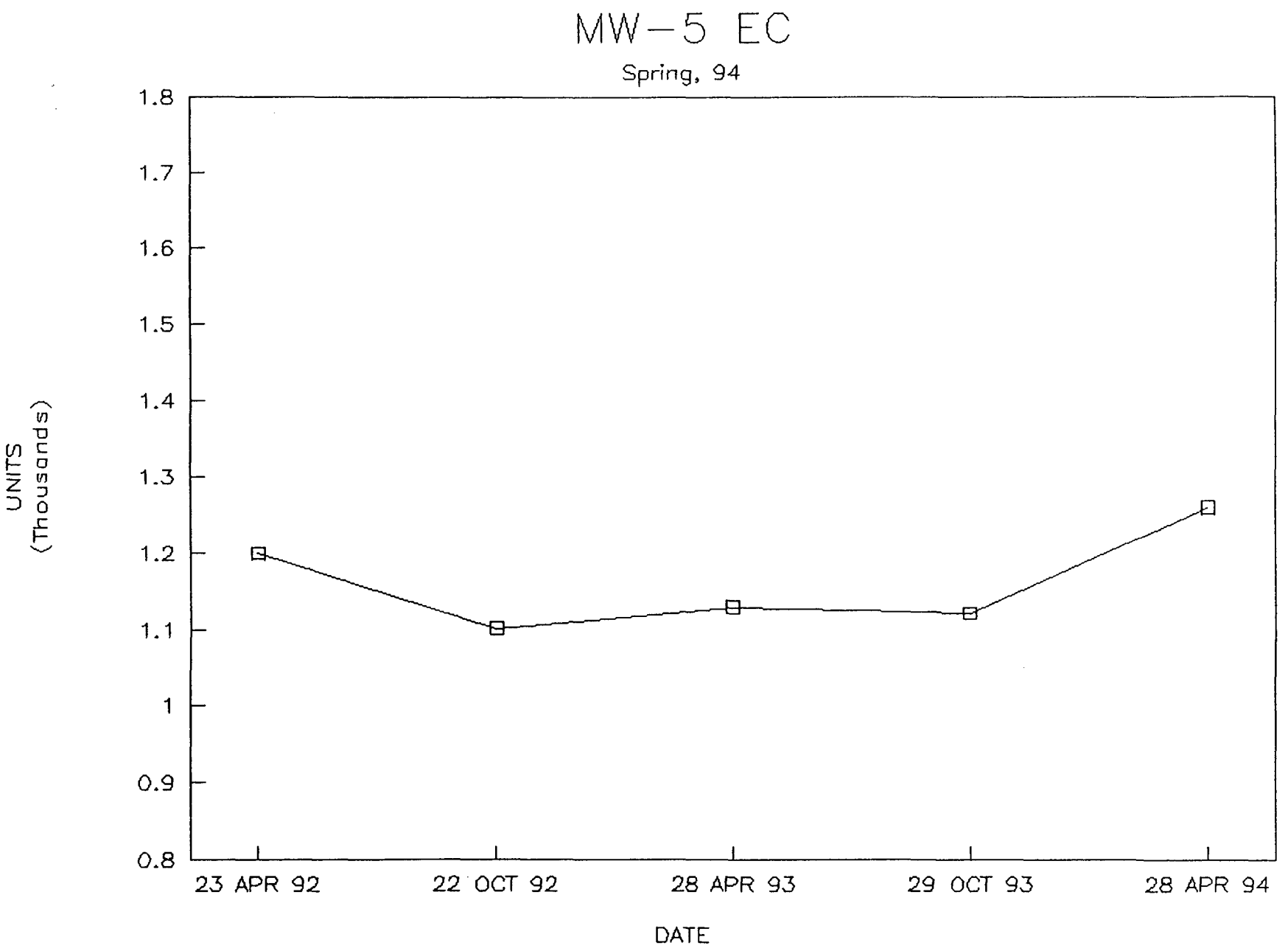

MW-2 pH
Spring, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

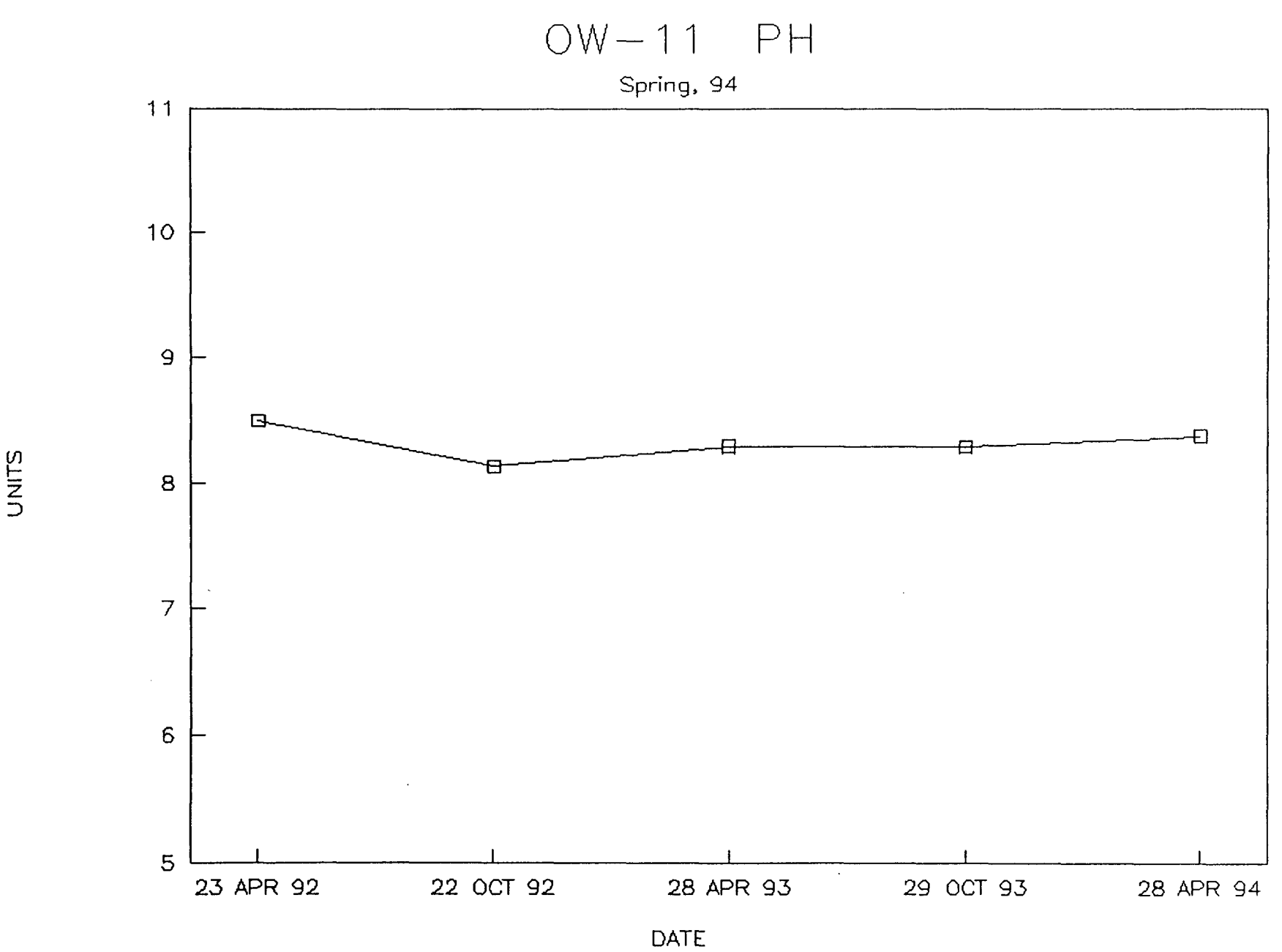

MW-2 EC
Spring, 94
UNITS
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

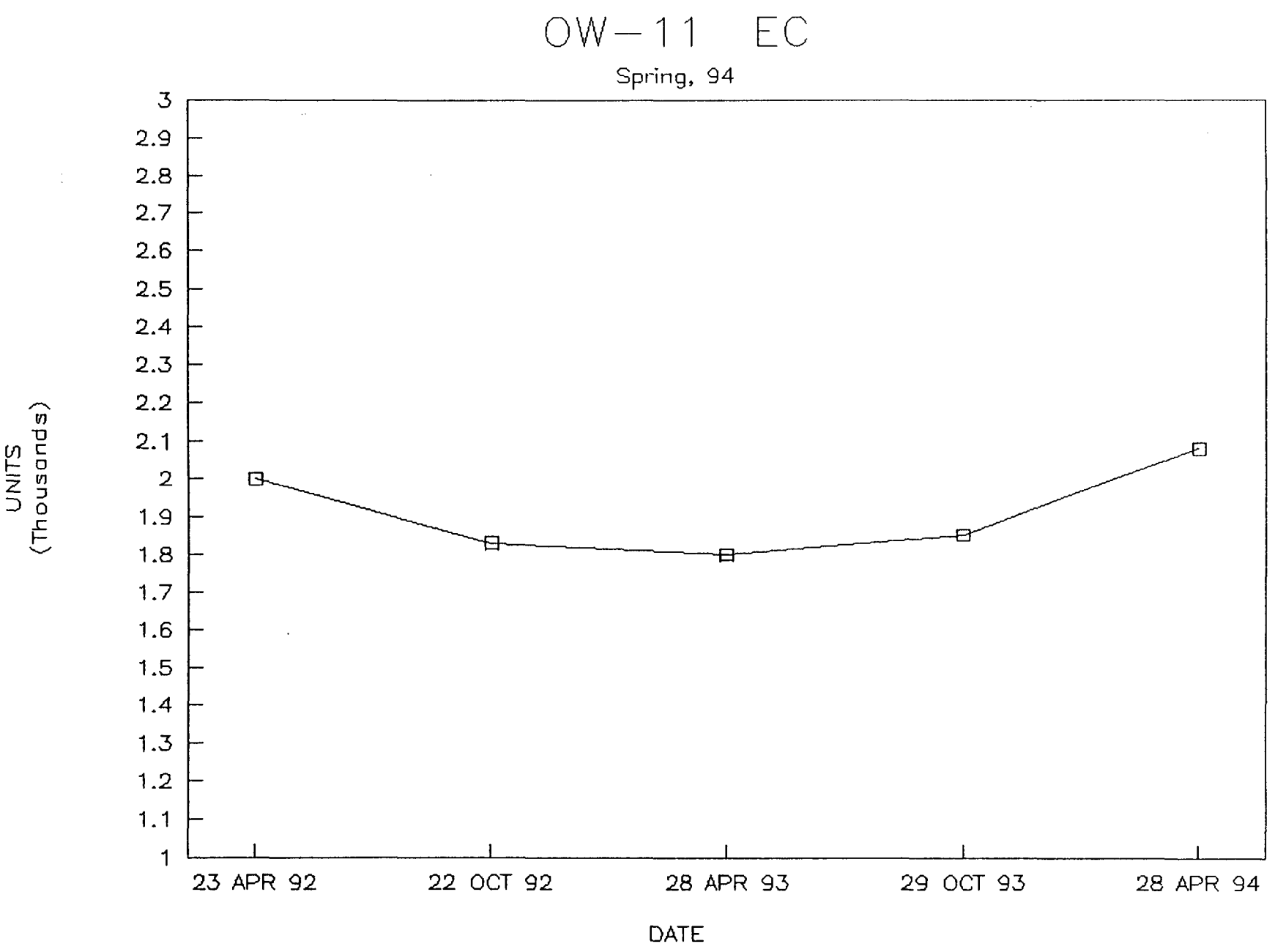

MW-4 pH
Spring, 94
12
11
10
9
8
7
6
5
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

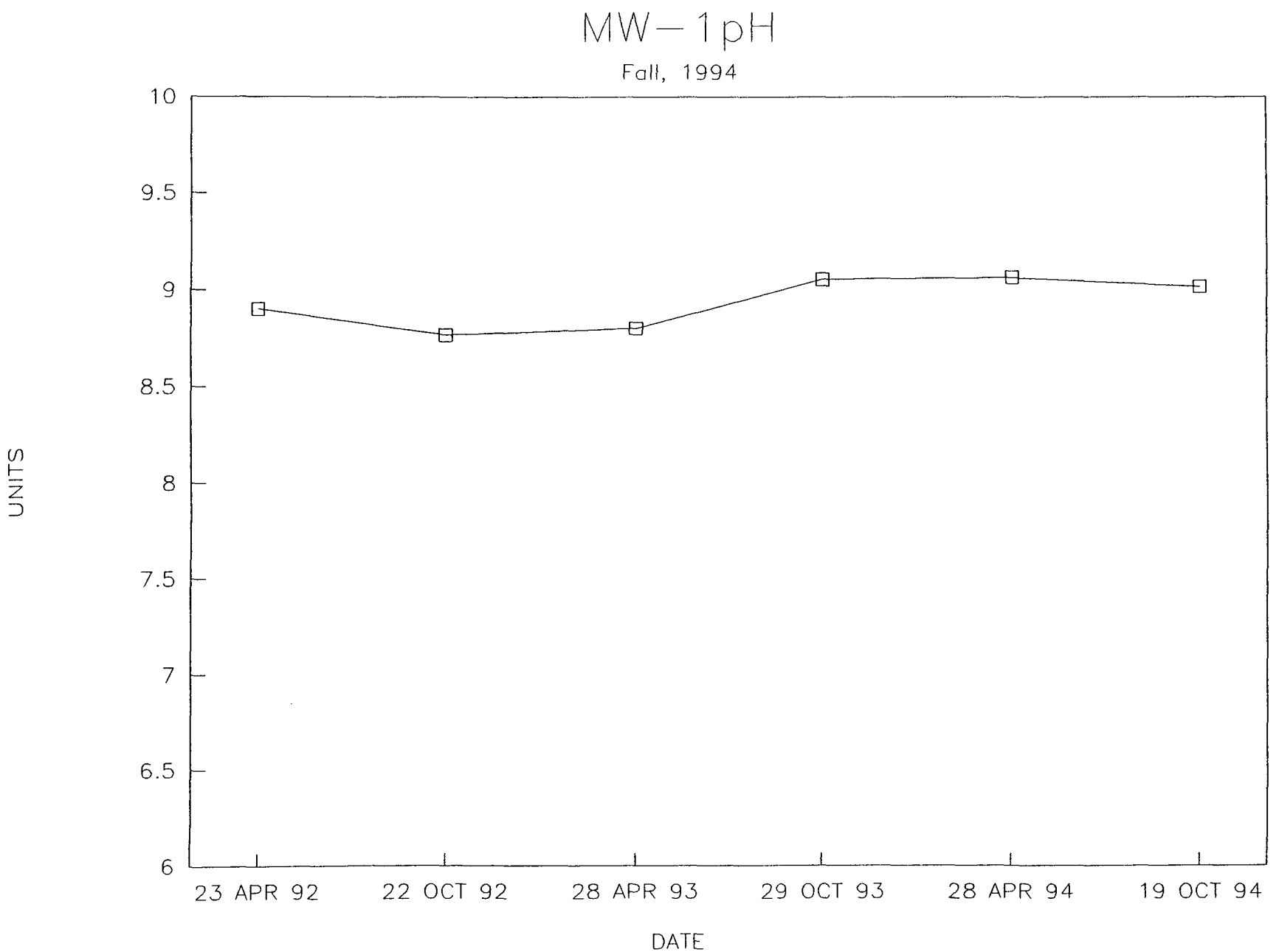

MW-4 EC
Spring, 94
UNITS
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE


MW-5 pH
Spring, 94
12
11
10
9
8
7
6
5
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE


MW-5 EC
Spring, 94
UNITS
(Thousands)
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
0.9
0.8
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

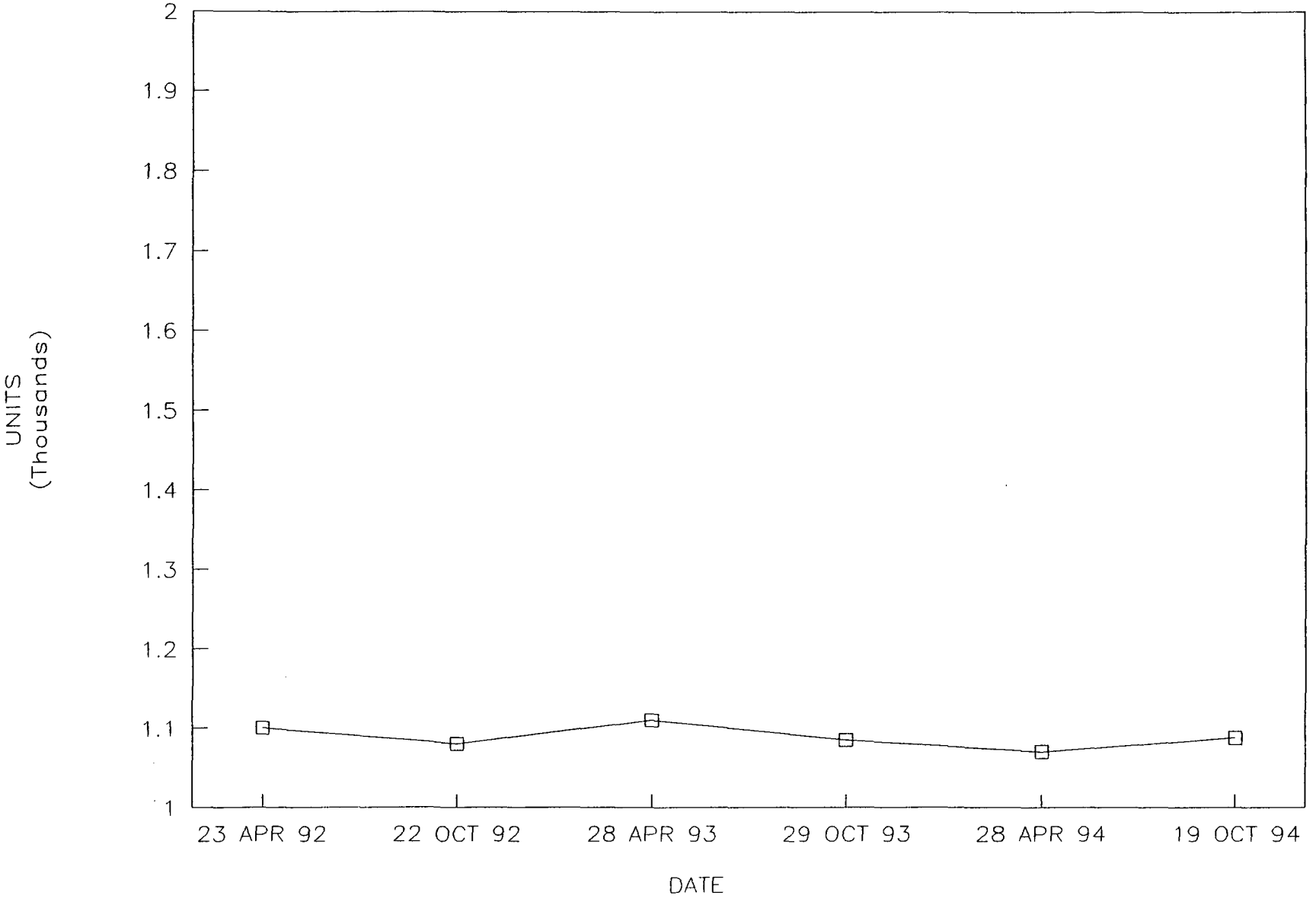

OW-11 PH
Spring, 94
11
10
9
8
7
6
5
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE

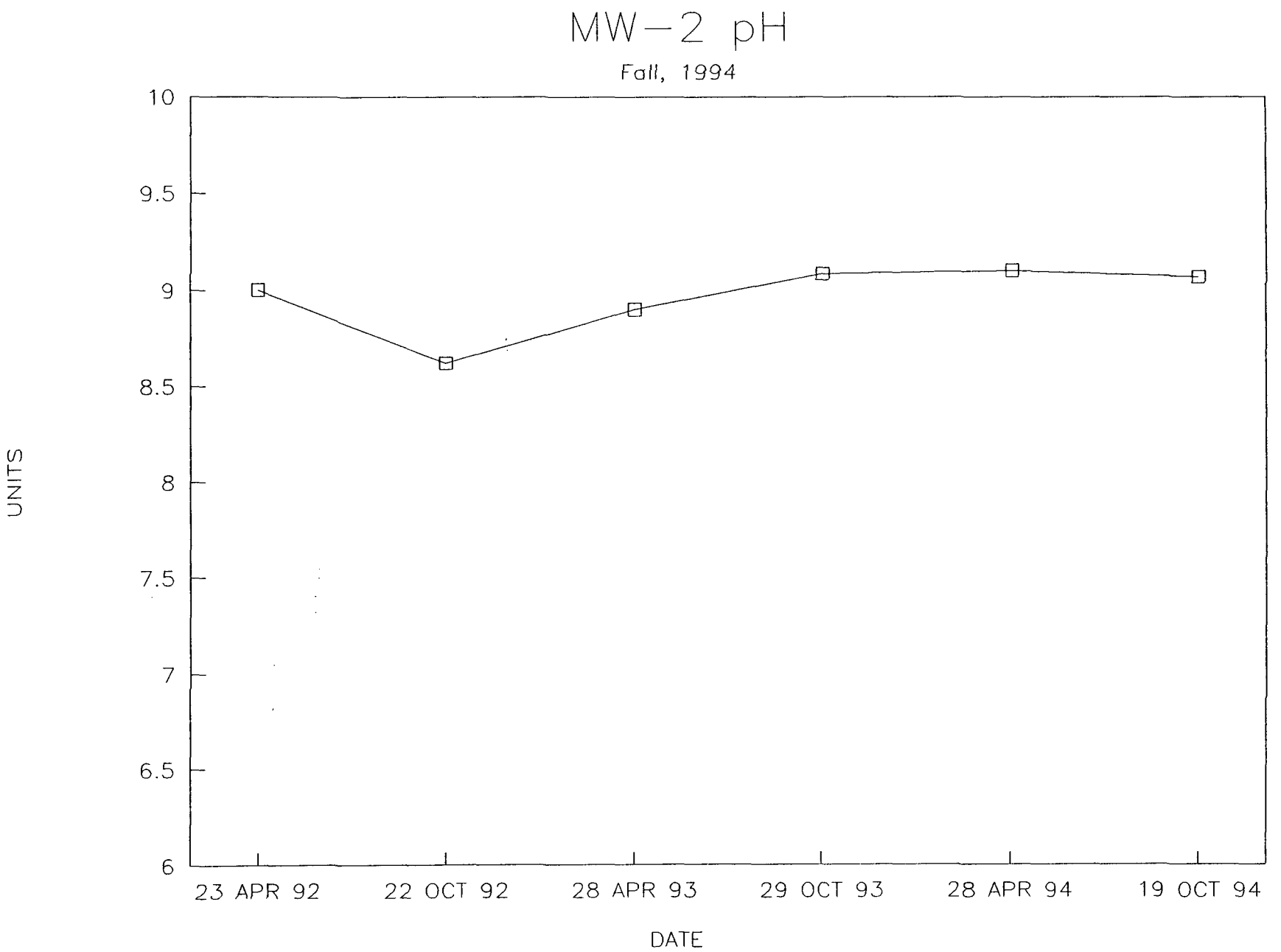

OW-11 EC
Spring, 94
UNITS
(Thousands)
3
2.9
2.8
2.7
2.6
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
1.4
1.3
1.2
1.1
1
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
DATE


MW-1pH
Fall, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE

MW-1 EC

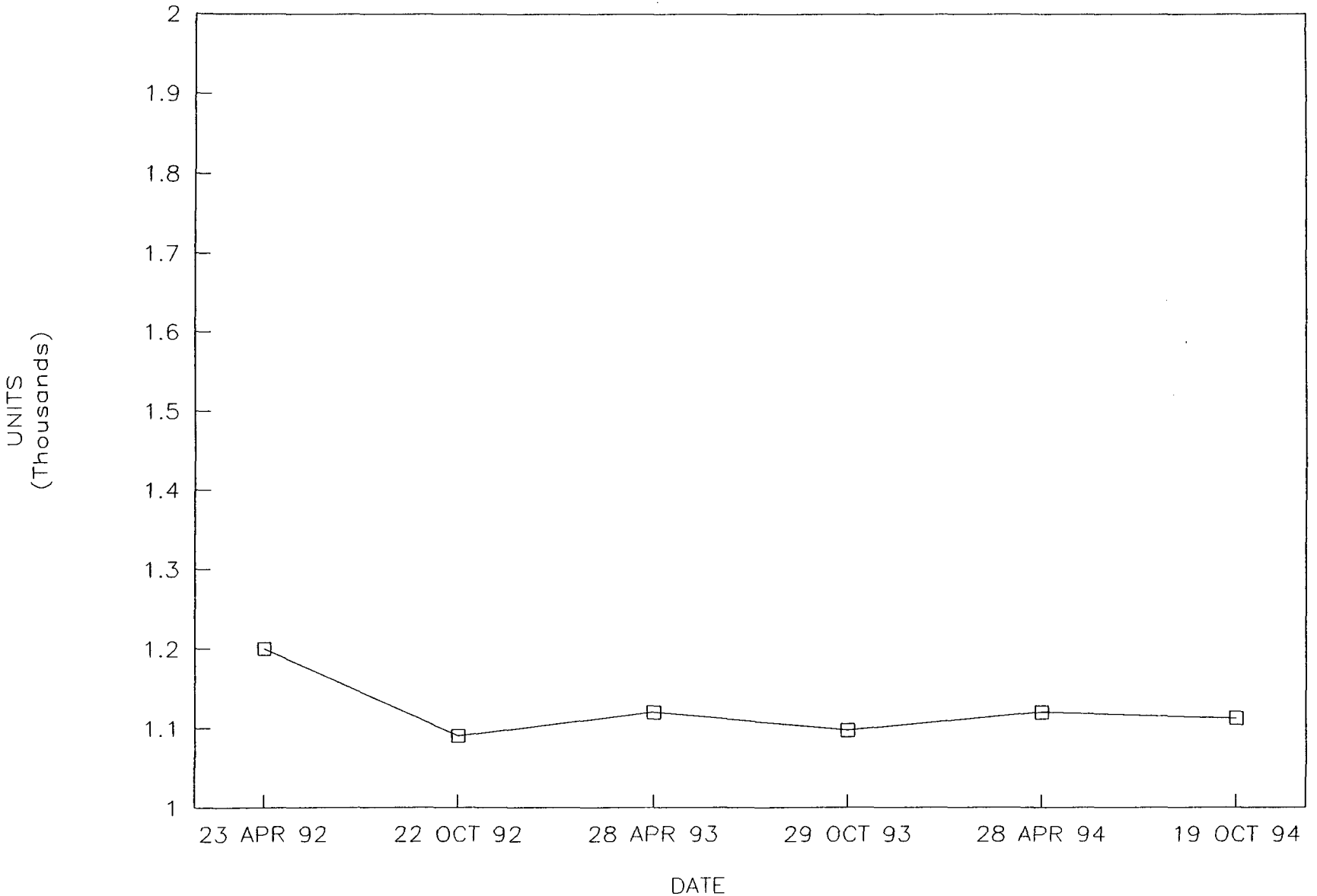
Fall, 1994

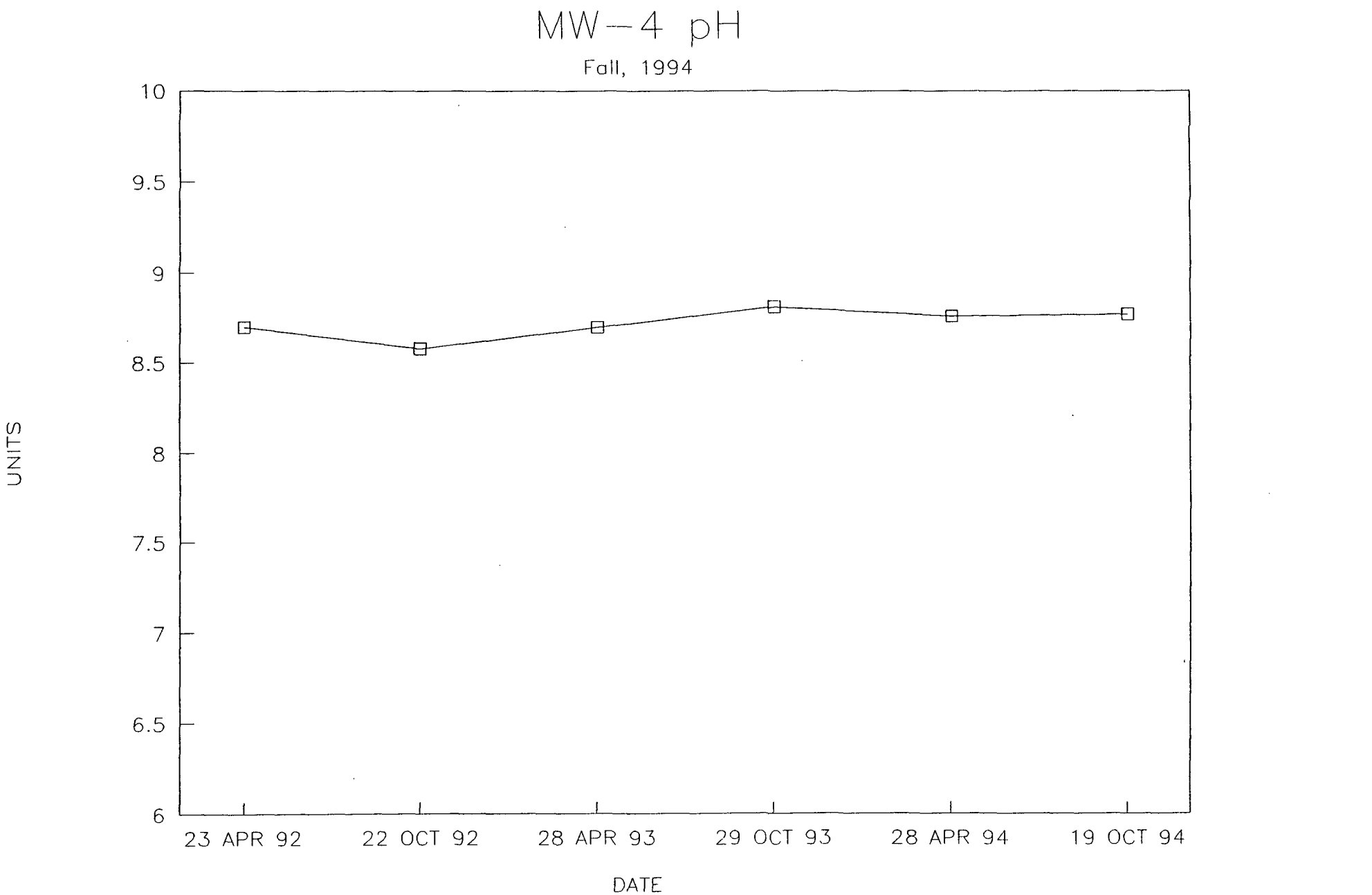



MW-2 pH
Fall, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE

MW-2 EC

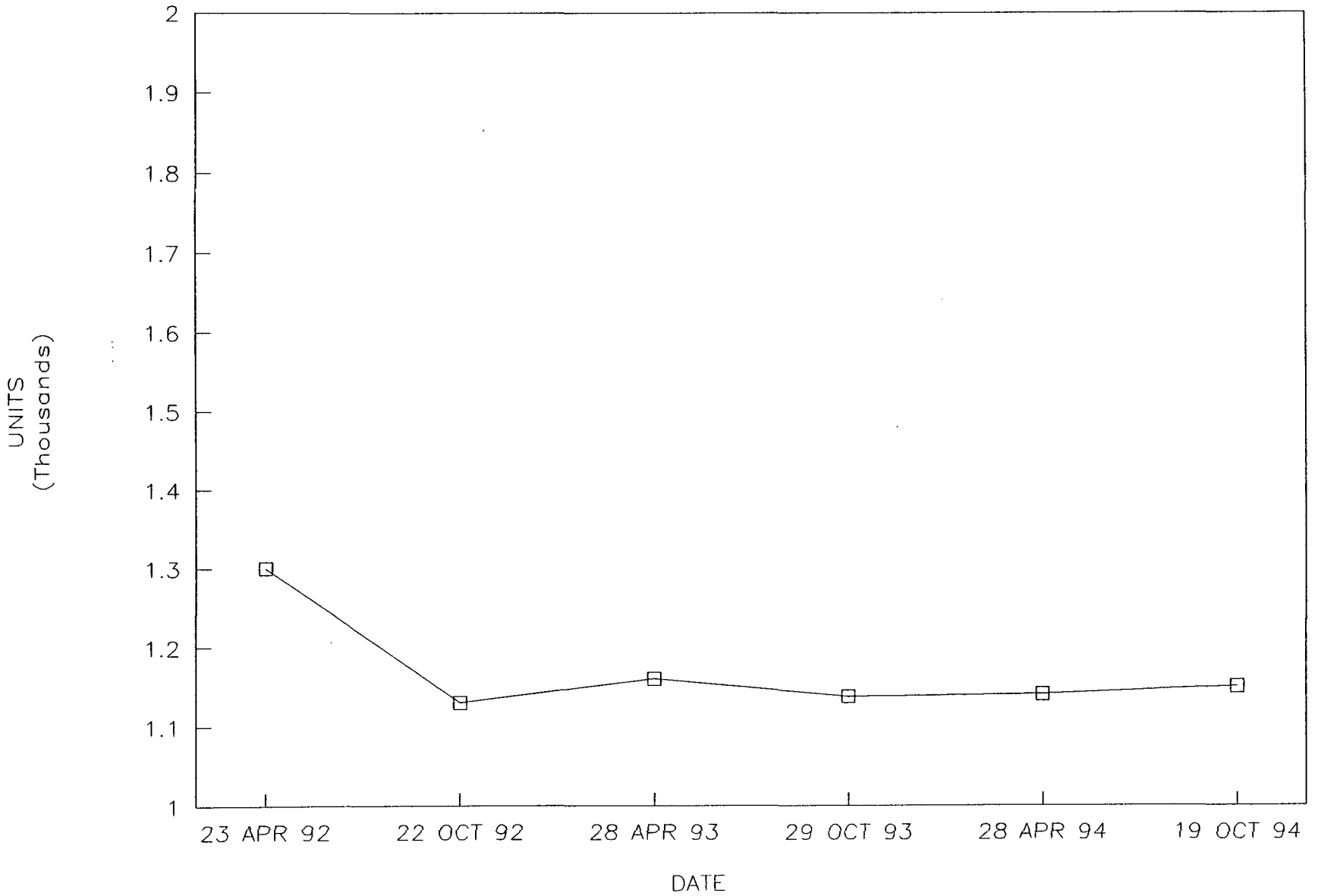
Fall, 1994

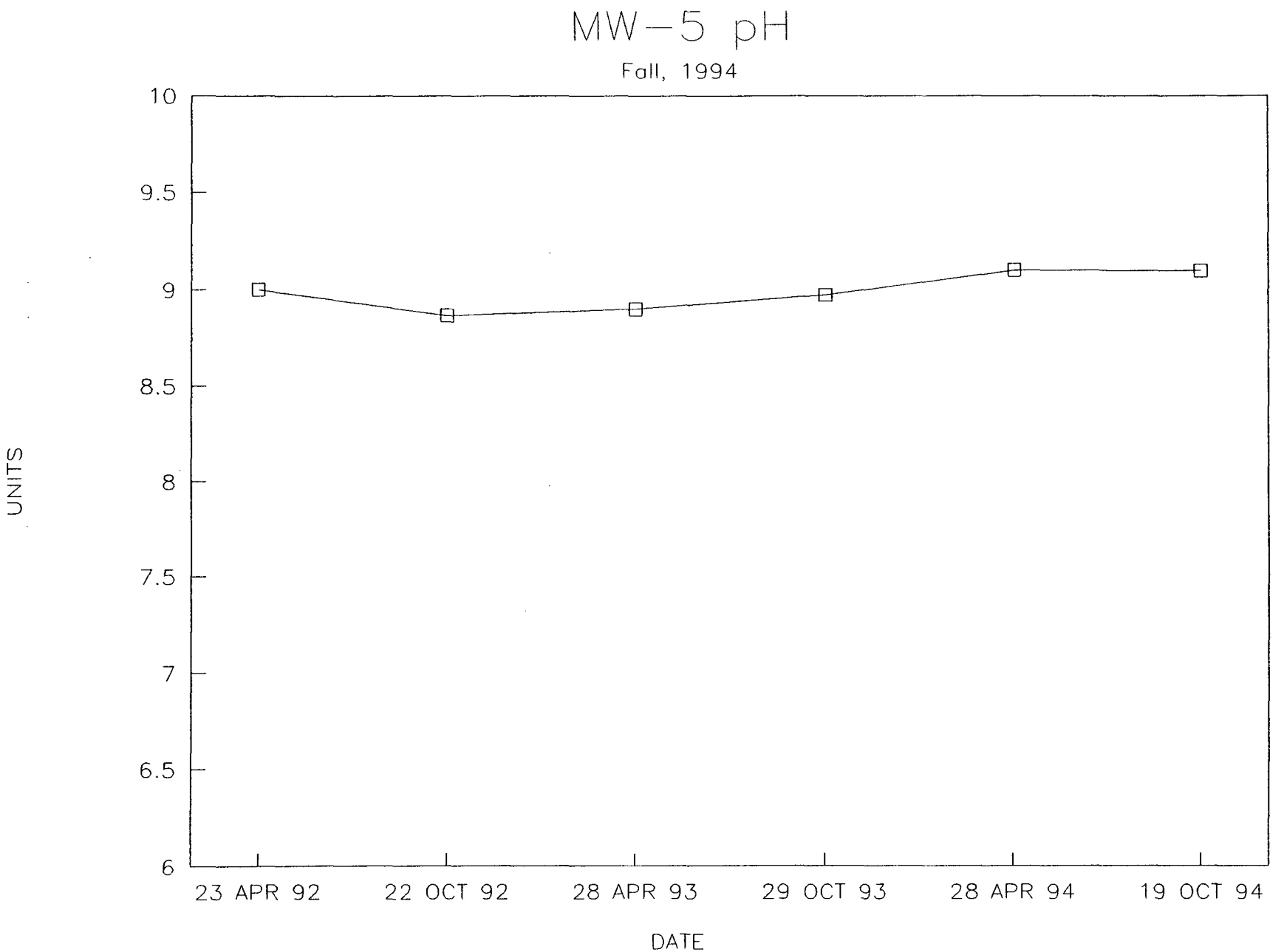



MW-4 pH
Fall, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE

MW-4 EC

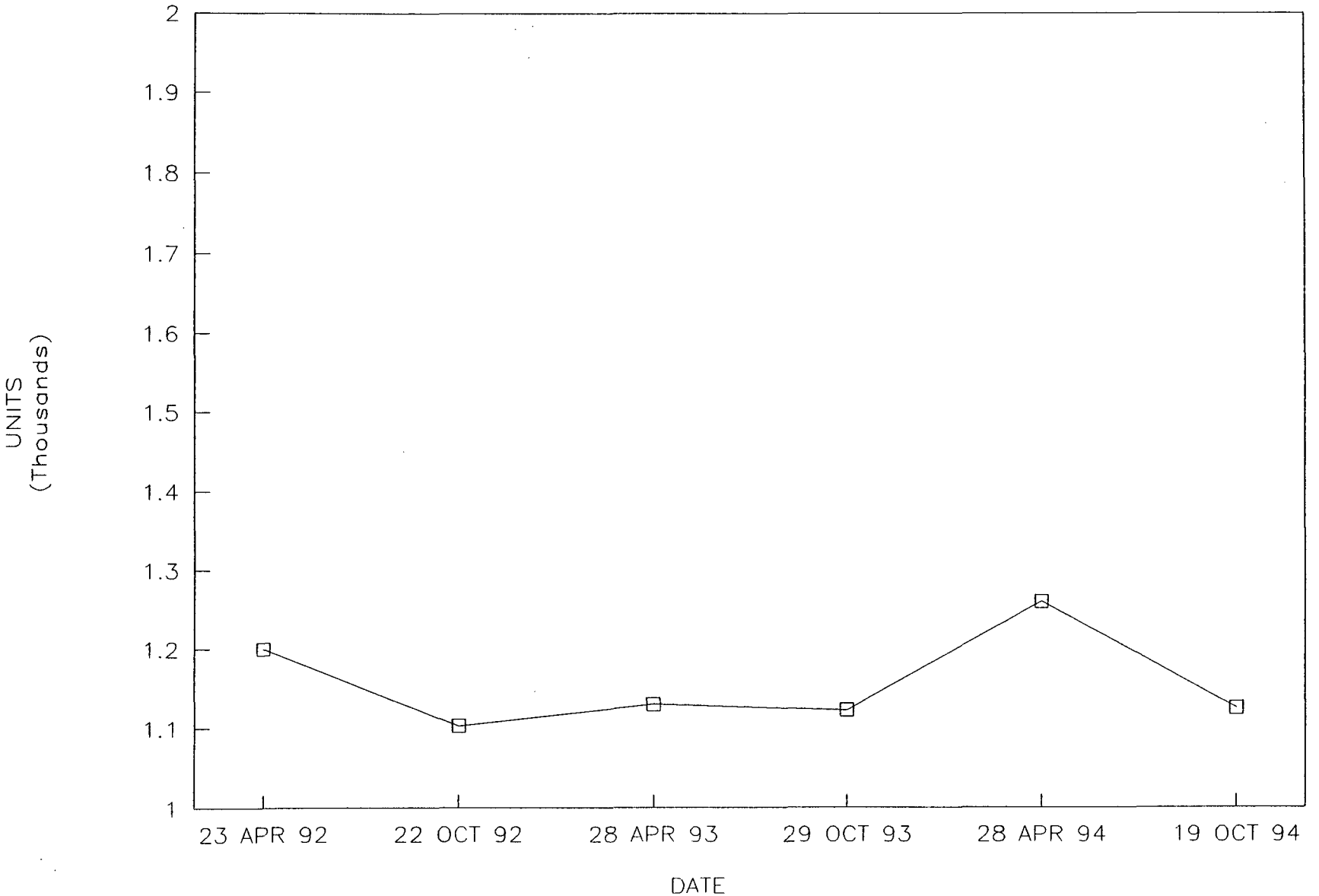
Fall, 1994

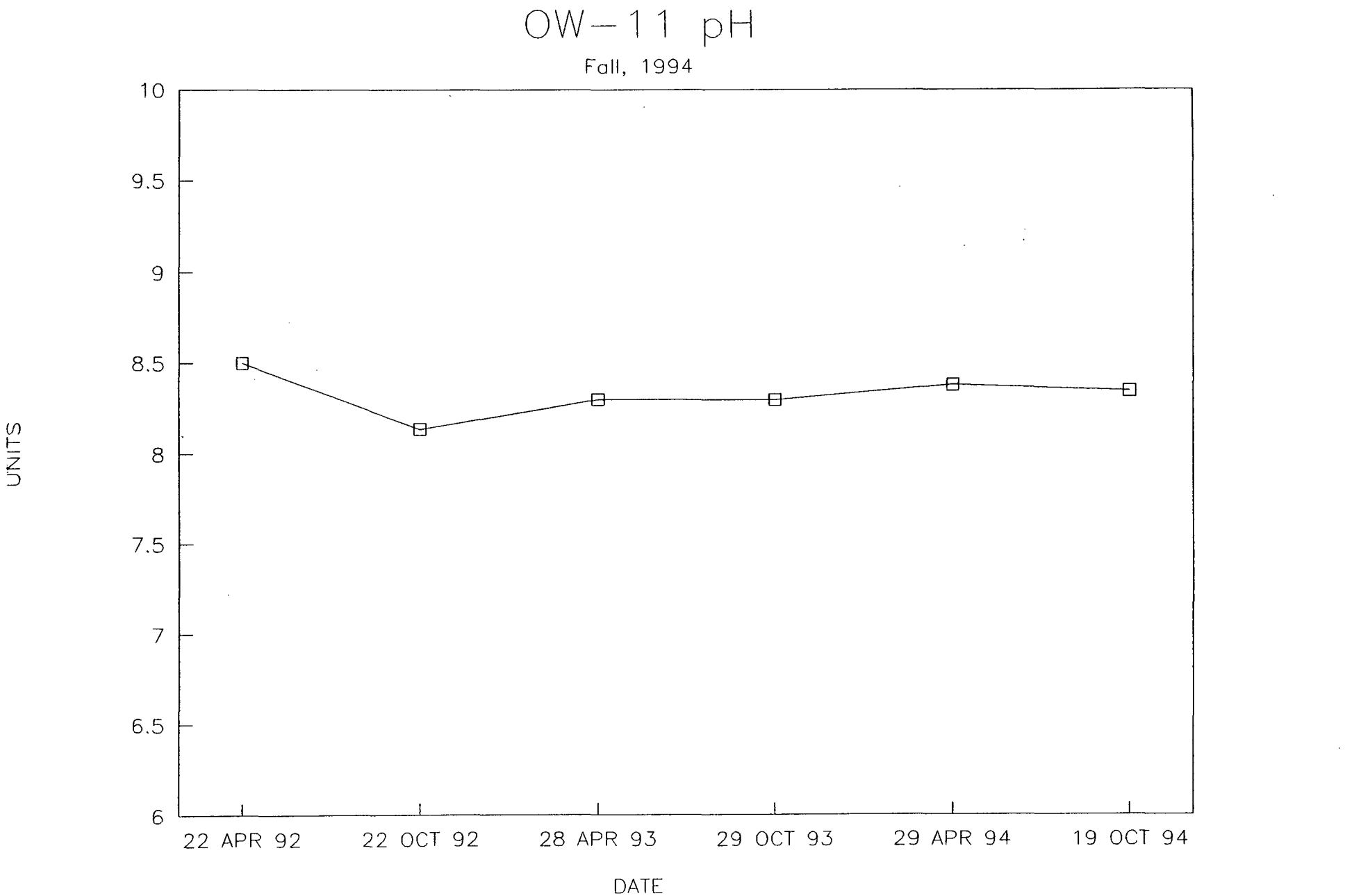


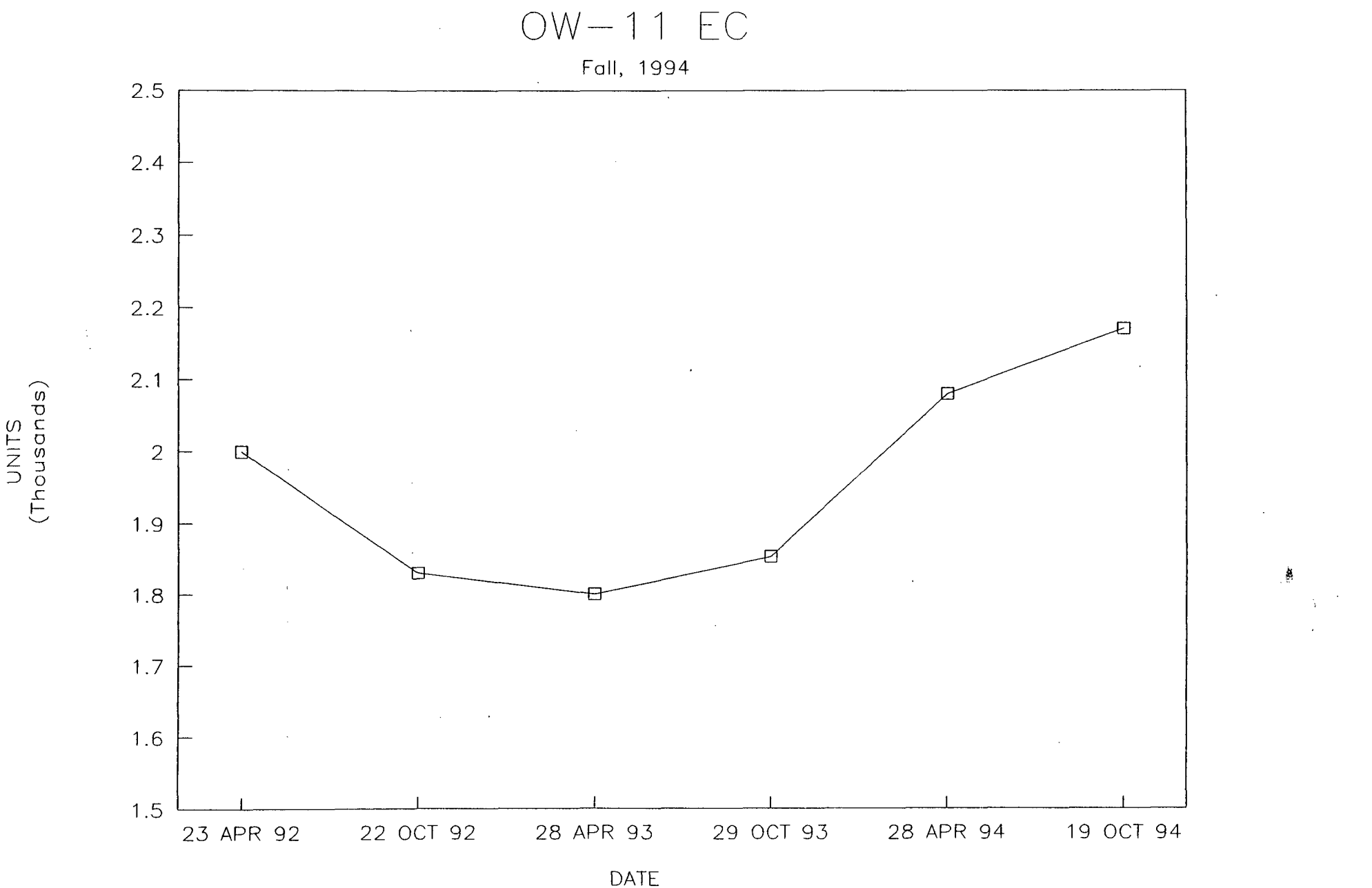

MW-5 pH
Fall, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE

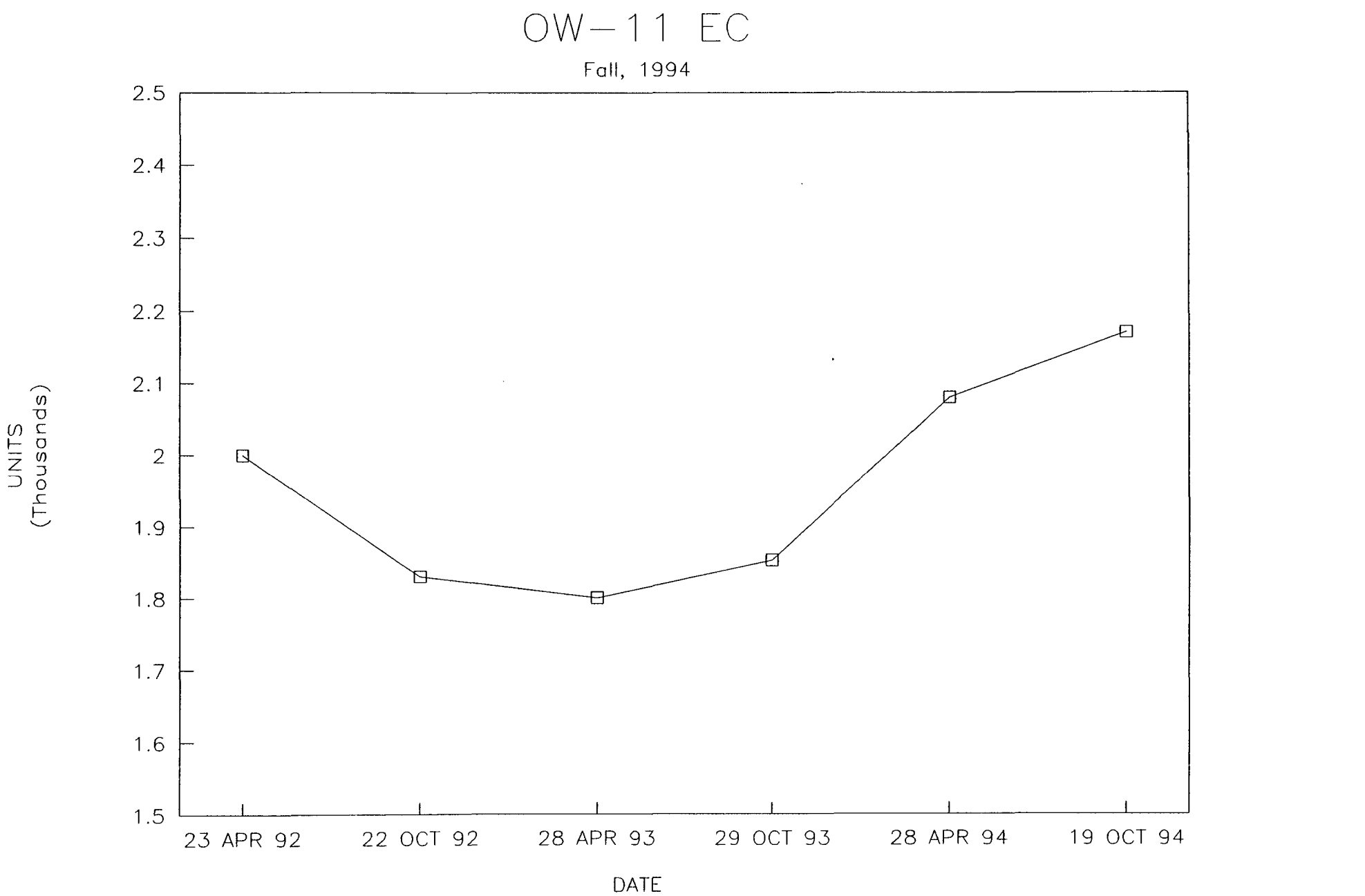
MW-5 EC

Fall, 1994




OW-11 pH
Fall, 1994
10
9.5
9
8.5
8
7.5
7
6.5
6
UNITS
22 APR 92
22 OCT 92
28 APR 93
29 OCT 93
29 APR 94
19 OCT 94
DATE


OW-11 EC
Fall, 1994
UNITS
(Thousands)
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE


OW-11 EC
Fall, 1994
UNITS
(Thousands)
2.5
2.4
2.3
2.2
2.1
2
1.9
1.8
1.7
1.6
1.5
23 APR 92
22 OCT 92
28 APR 93
29 OCT 93
28 APR 94
19 OCT 94
DATE

GIANT REFINING CO.-CINIZA

ANNUAL GROUNDWATER MEASUREMENT

Well No.	Date	Casing Elevation	Depth to Water	Groundwater Elevation
MW-1	4-94	6878.52	5.18	6873.34
	10-94		5.55	6872.97
MW-2	4-94	6880.84	7.22	6873.62
	10-94		10.83	6870.01
MW-4	4-94	6882.54	5.78	6876.76
	10-94		6.48	6876.06
MW-5	4-94	6883.32	9.49	6873.83
	10-94		13.93	6869.39
OW-11	4-94	6923.89	19.18	6904.71
	10-94		19.14	6904.75
SMW-3	4-94	6884.56	29.21	6855.35
	10-94		31.80	6852.76
SMW-4	4-94	6880.08	29.79	6850.29
	10-94		30.20	6849.88
SMW-5	4-94	6878.02	29.89	6848.13
	10-94		30.00	6848.02
SMW-6	4-94	6880.71	4.83	6875.88
	10-94		31.78	6848.93
OW-1	4-94	6868.00	0.00	6868.00
OW-2	4-94	6871.00	28.58	6842.42

GROUNDWATER VELOCITY

SONSELA AQUIFER

superficial

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

~ not a "true velocity"

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

* I should be $\left[\frac{ft}{ft}\right]$ not ft/day

REFERENCE DRAWINGS

1994

GROUNDWATER ELEVATION CONTOUR MAP

2-95 TLS

MW-1	6872.97
MW-2	6870.01
MW-4	6876.06
MW-5	6869.39
OW-11	6904.75

2" IP SET IN CONCRETE, NE CORNER OF PROPERTY

MARKED ROCK IN ROCK MOUND SE CORNER OF SECTION 33, T15N, R15W

RAILROAD LOADING RACK

OFF OIL TANK FARM PROCESS AREA & BUILDINGS

COMPANY HOUSING

INCOMING CRUDE MANIFOLD

API SEPARATOR FLARE

EVAPORATION LAGOONS

LAND TREAT AREA

OW-11

MW-4

MW-5

MW-2

MW-1

WEST I-40

EAST I-40

EXIT 39

6873.00

6870.00

6876.00

6879.00

6882.00

6885.00

6888.00

6891.00

6894.00

6897.00

6900.00

6904.00

6903.00

GIANT

MW-1 GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	29 OCT 93 Result	28 APR 94 Result	10 OCT 94 Result	Units
Chloromethane	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ug/L
Vinyl chloride	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ug/L
Methylene chloride	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ug/L
Carbon disulfide	ND	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ug/L
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ND	ug/L
Vinyl acetate	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ND	ug/L
2-Chloroethyl vinyl ether	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ND	ug/L
2-Hexanone	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ug/L
Tetrachoroethene	ND	ND	ND	ug/L
Toluene	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ug/L
Stryene	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ug/L

MW-1 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	23 APR 92 Result	28 APR 93 Result	29 APR 94 Result	Units
Arsenic	ND	ND	ND	mg/L
Barium	0.09	ND	0.016	mg/L
Cadmium	0.0012	ND	ND	mg/L
Calcium	1.8	1.1	1.2	mg/L
Magnesium	0.26	0.2	0.3	mg/L
Manganese	0.10	ND	0.016	mg/L
Potassium	ND	ND	ND	mg/L
Selenium	ND	ND	ND	mg/L
Silver	ND	ND	ND	mg/L
Sodium	72		254	mg/L

MW-1 GIANT REFINING - CINIZA

Total Metals

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Chromium	ND	ND	ND	.021	mg/L
Lead	ND	.036	ND	.004	mg/L
Mercury	ND	---	ND	---	mg/L

MW-1 GIANT REFINING - CINIZA

General Inorganics

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	322	---	301	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	26	---	48	---	mg/L
Chloride	49	---	52	---	mg/L
pH	8.8	9.05	9.06	8.97	units
pH	---	9		9	units
pH	---	9.08		9.03	units
pH	---	9.08		9.05	units
	8.8	9.0525	9.06	9.0125	
Phenolics	ND	ND	ND	---	mg/L
Sulfate	150	---	160	---	mg/L
Specific Conductance at 25 deg.C	1110	1090	1070	1090	umhos/cm
Specific Conductance at 25 deg.C	---	1080	---	1080	umhos/cm
Specific Conductance at 25 deg.C	---	1080	---	1080	umhos/cm
Specific Conductance at 25 deg.C	---	1090	---	1100	umhos/cm
	1110	1085	1070	1087.5	
Total Organic Carbon	ND	ND	ND	1.0	mg/L
Total Organic Carbon	---	ND	ND	1.0	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Halogen as Cl	ND	ND	ND	ND	ug/L
Total Organic Halogen as Cl	---	ND	20	ND	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Dissolved Solids	690	---	720	---	mg/L
Water Elevation	6873.52	6864.61	6873.34	6872.97	ft

MW-2 GIANT REFINING - CINIZA

Volatile Organics

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Chloromethane	ND	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ND	ug/L
Vinyl chloride	ND	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ND	ug/L
Methylene chloride	ND	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ND	ug/L
Carbon disulfide	ND	ND	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ND	ug/L
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ND	ND	ug/L
Vinyl acetate	ND	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ND	ND	ug/L
2-Hexanone	ND	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L
Tetrachoroethene	ND	ND	ND	ND	ug/L
Toluene	ND	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ug/L
Stryene	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ND	ug/L

MW-2 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	23 APR 92 Result	28 APR 93 Result	28 APR 94 Result	Units
Arsenic	ND	ND	ND	mg/L
Barium	ND	0.015	0.021	mg/L
Cadmium	ND	ND	ND	mg/L
Calcium	1.6	0.9	0.6	mg/L
Magnesium	0.18	0.1	ND	mg/L
Manganese	ND	ND	ND	mg/L
Potassium	ND	ND	ND	mg/L
Selenium	ND	ND	ND	mg/L
Silver	ND	ND	ND	mg/L
Sodium	78		257	mg/L

MW-2 GIANT REFINING - CINIZA

Total Metals

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Chromium	ND	ND	0.011	ND	mg/L
Lead	ND	.003	ND	ND	mg/L
Mercury	ND	---	ND	---	mg/L

MW-2 GIANT REFINING - CINIZA

General Inorganics

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	303	---	294	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	33	---	42	---	mg/L
Chloride	57	---	61	---	mg/L
pH	8.9	9.09	9.10	9.06	units
pH		9.08		9.07	units
pH		9.1		9.06	units
pH		9.07		9.08	units
	8.9	9.085	9.1	9.0675	
Phenolics	ND	---	ND	---	mg/L
Sulfate	160	---	160	---	mg/L
Specific Conductance at 25 deg.C	1120	1100	1120	1130	umhos/cm
Specific Conductance at 25 deg.C		1110		1100	umhos/cm
Specific Conductance at 25 deg.C		1090		1110	umhos/cm
Specific Conductance at 25 deg.C		1090		1110	umhos/cm
	1120	1097.5	1120	1112.5	
Total Organic Carbon	1	ND	ND	ND	mg/L
Total Organic Carbon		ND	ND	ND	mg/L
Total Organic Carbon		---	---	---	mg/L
Total Organic Carbon		---	---	---	mg/L
Total Organic Halogen as Cl	ND	ND	20	ND	ug/L
Total Organic Halogen as Cl		ND	20	ND	ug/L
Total Organic Halogen as Cl		---	---	---	ug/L
Total Organic Halogen as Cl		---	---	---	ug/L
Total Dissolved Solids	680	---	700	---	mg/L
Water Elevation	6872.62	6872.65	6873.62	6870.01	ft

MW-4 GIANT REFINING - CINIZA

Volatile Organics

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Chloromethane	ND	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ND	ug/L
Vinyl chloride	ND	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ND	ug/L
Methylene chloride	ND	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ND	ug/L
Carbon disulfide	ND	ND	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ND	ug/L
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ND	ND	ug/L
Vinyl acetate	ND	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ND	ND	ug/L
2-Hexanone	ND	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L
Tetrachoroethene	ND	ND	ND	ND	ug/L
Tolukebe	ND	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ug/L
Stryene	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ND	ug/L

MW-4 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	23 APR 92 Result	28 APR 93 Result	28 APR 94 Result	Units
Arsenic	ND	ND	ND	mg/L
Barium	0.06	0.015	0.019	mg/L
Cadmium	ND	ND	ND	mg/L
Calcium	1.5	1.5	0.8	mg/L
Magnesium	0.24	0.3	0.8	mg/L
Manganese	0.08	ND	0.010	mg/L
Potassium	ND	ND	ND	mg/L
Selenium	ND	ND	ND	mg/L
Silver	ND	ND	ND	mg/L
Sodium	78	295	283	mg/L

MW-4 GIANT REFINING - CINIZA

Total Metals

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Chromium	ND	ND	ND	.013	mg/L
Lead	ND	ND	ND	ND	mg/L
Mercury	ND	---	ND	---	mg/L

MW-4 GIANT REFINING - CINIZA

General Inorganics

Parameter	28 APR 93 Result	29 OCT 93 Result	28 APR 94 Result	19 OCT 94 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	426	---	431	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	26	---	33	---	mg/L
Chloride	18	---	17	---	mg/L
pH	8.7	8.82	8.76	8.77	units
pH	---	8.83	---	8.77	units
pH	---	8.8	---	8.78	units
pH	---	8.8	---	8.77	units
	8.7	8.8125	8.76	8.7725	
Phenolics	ND	ND	ND	---	mg/L
Sulfate	140	---	150	---	mg/L
Specific Conductance at 25 deg.C	1160	1140	1140	1140	umhos/cm
Specific Conductance at 25 deg.C	---	1130		1150	umhos/cm
Specific Conductance at 25 deg.C	---	1130		1150	umhos/cm
Specific Conductance at 25 deg.C	---	1150		1160	umhos/cm
	1160	1137.5	1140	1150	
Total Organic Carbon	1	ND	ND	ND	mg/L
Total Organic Carbon	---	ND	ND	ND	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Halogen as Cl	ND	ND	20	ND	ug/L
Total Organic Halogen as Cl	---	ND	40	ND	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Dissolved Solids	730	---	740	---	mg/L
Water Elevation	6876.57	6877.10	6876.76	6876.06	ft

MW-5 GIANT REFINING - CINIZA

Volatile Organics

Parameter	28 APR 93 Result	29 OCT 93 Result	27 APR 94 Result	19 OCT 94 Result	Units
Chloromethane	ND	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ND	ug/L
Vinyl chloride	ND	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ND	ug/L
Methylene chloride	ND	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ND	ug/L
Carbon disulfide	ND	ND	ND	ND	ug/L
1,1-Dichloroethene	ND	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ND	ug/L
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L
Carbon tetrachloride	ND	ND	ND	ND	ug/L
Vinyl acetate	ND	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ND	ug/L
trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ND	ug/L
Chlorodibromomethane	ND	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ND	ug/L
cis-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ND	ug/L
4-Methyl-2-pentanone	ND	ND	ND	ND	ug/L
2-Hexanone	ND	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L
Tetrachoroethene	ND	ND	ND	ND	ug/L
Tolukebe	ND	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ug/L
Stryene	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ND	ug/L

MW-5 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	23 APR 92 Result	28 APR 93 Result	27 APR 94 Result	Units
Arsenic	ND	ND	ND	mg/L
Barium	ND	0.015	0.018	mg/L
Cadmium	ND	ND	ND	mg/L
Calcium	1.1	1.4	1.4	mg/L
Magnesium	0.15	0.2	0.1	mg/L
Manganese	ND	ND	ND	mg/L
Potassium	ND	1.5	ND	mg/L
Selenium	ND	ND	ND	mg/L
Silver	ND	ND	0.010	mg/L
Sodium	64	269	263	mg/L

MW-5 GIANT REFINING - CINIZA

Total Metals

Parameter	28 APR 93 Result	29 OCT 93 Result	27 APR 94 Result	19 OCT 94 Result	Units
Chromium	ND	ND	ND	ND	mg/L
Lead	ND	.002	ND	ND	mg/L
Mercury	ND	---	ND	---	mg/L

MW-5 GIANT REFINING - CINIZA

General Inorganics

Parameter	28 APR 93 Result	29 OCT 93 Result	27 APR 94 Result	19 OCT 94 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	295	---	289	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	29	---	42	---	mg/L
Chloride	66	---	66	---	mg/L
pH	8.9	8.96	9.10	9.09	units
pH	---	8.96		9.09	units
pH	---	9		9.09	units
pH	---	8.97		9.11	units
	8.9	8.9725	9.1	9.095	
Phenolics	ND	---	ND	ND	mg/L
Sulfate	160	---	170	ND	mg/L
Specific Conductance at 25 deg.C	1130	1110	1260	1120	umhos/cm
Specific Conductance at 25 deg.C	---	1130	---	1130	umhos/cm
Specific Conductance at 25 deg.C	---	1120	---	1130	umhos/cm
Specific Conductance at 25 deg.C	---	1130	---	1120	umhos/cm
	1130	1122.5	1260	1125	
Total Organic Carbon	1	ND		ND	mg/L
Total Organic Carbon	---	ND		ND	mg/L
Total Organic Carbon	---	---		---	mg/L
Total Organic Carbon	---	---		---	mg/L
Total Organic Halogen as Cl	50	ND		ND	ug/L
Total Organic Halogen as Cl	---	ND		ND	ug/L
Total Organic Halogen as Cl	---	---		---	ug/L
Total Organic Halogen as Cl	---	---		---	ug/L
Total Dissolved Solids	700	---	700	---	mg/L
Water Elevation	6871.51	6873.53	6873.83	6869.39	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	Units
1,1-Dichloroethene	ND	ND	ND	ND	ug/L
2-Butanone	ND	ND	ND	ND	ug/L
1,1,1-Trichloroethane	ND	ND	ND	ND	ug/L
Benzene	ND	ND	ND	ND	ug/L
Tetrachloroethene	ND	ND	ND	ND	ug/L
Toluene	ND	ND	ND	ND	ug/L
Ethylbenzene	ND	ND	ND	ND	ug/L
Xylenes (total)	ND	ND	ND	ND	ug/L
Acetone	ND	ND	ND	ND	ug/L
Carbon Disulfide	ND	ND	ND	ND	ug/L
Chloromethane	ND	ND	ND	ND	ug/L
Bromomethane	ND	ND	ND	ND	ug/L
Vinyl Chloride	ND	ND	ND	ND	ug/L
Chloroethane	ND	ND	ND	ND	ug/L
Methylene Chloride	ND	ND	ND	ND	ug/L
Carbon Disulfide	ND	ND	ND	ND	ug/L
1,1-Dichloroethane	ND	ND	ND	ND	ug/L
1,2-Dichloroethene (Total)	ND	ND	ND	ND	ug/L
Chloroform	ND	ND	ND	ND	ug/L
1,2-Dichloroethane	ND	ND	ND	ND	ug/L
Carbon Tetrachloride	ND	ND	ND	ND	ug/L
Vinyl Acetate	ND	ND	ND	ND	ug/L
Bromodichloromethane	ND	ND	ND	ND	ug/L
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ug/L
1,2-Dichloropropane	ND	ND	ND	ND	ug/L
Trans-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
Trichloroethene	ND	ND	ND	ND	ug/L
Dibromochloromethane	ND	ND	ND	ND	ug/L
1,1,2-Trichloroethane	ND	ND	ND	ND	ug/L
Cis-1,3-Dichloropropene	ND	ND	ND	ND	ug/L
2-Chloroethylvinylether	ND	ND	ND	ND	ug/L
Bromoform	ND	ND	ND	ND	ug/L
2-Hexanone (MBK)	ND	ND	ND	ND	ug/L
4-Methyl-2-Pentanone (MIBK)	ND	ND	ND	ND	ug/L
Chlorobenzene	ND	ND	ND	ND	ug/L
Styrene	ND	ND	ND	ND	ug/L
Acrolein	---	---	---	ND	ug/L
Acrylonitrile	---	---	---	ND	ug/L
Dibromomethane	---	---	---	ND	ug/L
Dichlorodiflouromethane	---	---	---	ND	ug/L
Methyl Iodide	---	---	---	ND	ug/L
Trans-1,4-Dichloro-2-Butene	---	---	---	ND	ug/L
Trichloromonoflouromethane	---	---	---	ND	ug/L
1,2,3-Trichloropropane	---	---	---	ND	ug/L
Ethyl Methacrylate	---	---	---	ND	ug/L
Ethanol	---	---	---	ND	ug/L
1,4-Dichloro-2-Butane	---	---	---	ND	ug/L

OW-11 GIANT REFINING - CINIZA

Dissolved Metals

Parameter	22 APR 92 Result	28 APR 93 Result	29 APR 94 Result	Units
Arsenic	ND	ND	ND	mg/L
Barium	ND	ND	0.015	mg/L
Cadmium	ND	ND	ND	mg/L
Calcium	7.1	4.8	5.5	mg/L
Copper	---	---	---	mg/L
Manganese	ND	ND	ND	mg/L
Nickel	---	---	---	mg/L
Selenium	ND	ND	ND	mg/L
Silver	ND	ND	ND	mg/L
Sodium	140	421	505	mg/L
Zinc	---	---	---	mg/L
Potassium	1.2	1.1	1.1	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	Units
Chromium	0.010	ND	ND	ND	ND	mg/L
Lead	ND	ND	ND	ND	ND	mg/L
Mercury	---	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	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	485	---	374	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	---	11	---	mg/L
Chloride	160	---	144	---	mg/L
pH	8.3	8.26	8.38	8.34	units
pH	---	8.31	---	8.34	units
pH	---	8.32	---	8.35	units
pH	---	8.3	---	8.35	units
		8.2975	8.38	8.345	
Phenolics	ND	ND	ND	---	mg/L
Sulfate	200	---	600	---	mg/L
Specific Conductance at 25 deg.C	1800	1840	2080	2120	mhos/c
Specific Conductance at 25 deg.C	---	1870	---	2180	mhos/c
Specific Conductance at 25 deg.C	---	1820	---	2190	mhos/c
Specific Conductance at 25 deg.C	---	1880	---	2190	mhos/c
		1852.5	2080	2170	
Total Organic Carbon	4	3	2	2	mg/L
Total Organic Carbon	---	3	2	2	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Halogen as Cl	30	200	30	ND	ug/L
Total Organic Halogen as Cl	---	200	ND	ND	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Dissolved Solids	1100	---	1400	---	mg/L
Water Elevation	6905.79	6905.62	6905.62	6890.82	ft

SMW-3 GIANT REFINING - CINIZA

Volatile Organics (8240)

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

SMW-3 GIANT REFINING - CINIZA

Total Metals

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Chromium	ND	0.062	.718	mg/L	0.010
Lead	ND	ND	.043	mg/L	0.0050

SMW-3 GIANT REFINING - CINIZA

General Inorganics

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Alkalinity, Bicarb. as CaCO3 at pH 4.5	---	660	---	mg/L	5.0
Alkalinity, Carb. as CaCO3 at pH 8.3	---	ND	---	mg/L	5.0
Chloride	---	83	---	mg/L	3.0
pH	7.66	7.81	7.63	units	---
pH	7.68	---	7.68	units	---
pH	7.71	---	7.7	units	---
pH	7.72	---	7.79	units	---
Average pH	7.6925		7.7	units	---
Sulfate	---	1000	---	mg/L	5.0
Specific Conductance at 25 deg.C	3220	3160	3360	umhos/cm	1.0
Specific Conductance at 25 deg.C	3250	---	3340	umhos/cm	1.0
Specific Conductance at 25 deg.C	3190	---	3500	umhos/cm	1.0
Specific Conductance at 25 deg.C	3230	---	3520	umhos/cm	1.0
Average Specific Conductance at 25 deg.C	3222.5		3430	umhos/cm	1.0
Total Organic Carbon	2	2	5	mg/L	0.50
Total Organic Carbon	2	2	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	ug/L	30
Total Organic Halogen as Cl	30	30	20	ug/L	30
Total Organic Halogen as Cl	---	---	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	ug/L	30
Total Dissolved Solids	---	2300	---	mg/L	10
Water Elevation	6852.43	6855.35	6852.76	ft	

SMW-4 GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 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 (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	ND	ND	ug/L	10.0
Acrolein	ND	ND	ND	ND	ug/L	20.0
Acrylonitrile	---	---	---	ND	ug/L	10.0
1,2-Dibromoethane	---	---	---	ND	ug/L	5.0
Dichlorodifluoromethane	---	---	---	ND	ug/L	5.0
Methyl Iodide	---	---	---	ND	ug/L	5.0
Trans-1,4-Dichloro-2-Butene	---	---	---	ND	ug/L	5.0
Trichloromonofluoromethane	---	---	---	ND	ug/L	5.0
1,2,3-Tichloropropane	---	---	---	ND	ug/L	5.0
Ethyl Methacrylate	---	---	---	ND	ug/L	5.0

SMW-4 GIANT REFINING – CINIZA

Total Metals

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Chromium	0.014	ND	ND	0.03	mg/L	0.010
Lead	ND	ND	ND	ND	mg/L	0.0050

SMW-4 GIANT REFINING – CINIZA

General Inorganics

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units
Alkalinity, Bicarb. as CaCO3 at pH 4.5	420	---	393	---	mg/L
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	---	18	---	mg/L
Chloride	61	---	56	---	mg/L
pH	8.2	8.52	8.49	8.53	units
pH	---	8.48	---	8.48	units
pH	---	8.48	---	8.51	units
pH	---	8.52	---	8.48	units
Average pH		8.5		8.5	units
Sulfate	180	---	160	---	mg/L
Specific Conductance at 25 deg.C	1310	1260	1190	1270	umhos/cm
Specific Conductance at 25 deg.C	---	1270	---	1280	umhos/cm
Specific Conductance at 25 deg.C	---	1280	---	1250	umhos/cm
Specific Conductance at 25 deg.C	---	1270	---	1230	umhos/cm
Average Specific Conductance at 25 deg.C		1270		1257.5	umhos/cm
Total Organic Carbon	3	ND	3	ND	mg/L
Total Organic Carbon	---	ND	3	ND	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Carbon	---	---	---	---	mg/L
Total Organic Halogen as Cl	40	ND	80	ND	ug/L
Total Organic Halogen as Cl	---	ND	50	ND	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Organic Halogen as Cl	---	---	---	---	ug/L
Total Dissolved Solids	840	---	760	---	mg/L
Water Elevation	6848.84	6848.99	6850.29	6849.88	ft

SMW-5 GIANT REFINING - CINIZA

Volatile Organics (8240)

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 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 (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
1,2-Dibromoethane	---	---	---	---	ug/L	5.0
Dibromomethane	---	---	---	---	ug/L	5.0
Dichlorodifluoromethane	---	---	---	---	ug/L	5.0
Methyl Iodide	---	---	---	---	ug/L	5.0
Trans-1,4-Dichloro-2-Butene	---	---	---	---	ug/L	5.0
Trichloromonofluoromethane	---	---	---	---	ug/L	5.0
1,2,3-Trichloropropane	---	---	---	---	ug/L	5.0
Ethyl Methacrylate	---	---	---	---	ug/L	5.0

SMW-5 GIANT REFINING - CINIZA

Total Metals

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	19 OCT 94 Result	Units	Reporting Limit
Chromium	0.012	ND	0.094	.076	mg/L	0.010
Lead	ND	ND	ND	.008	mg/L	0.0050

SMW-5 GIANT REFINING - CINIZA

General Organics

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Alkalinity, Bicarb. as CaCO3 at pH 4.5	335	---	349	---	mg/L	5.0
Alkalinity, Carb. as CaCO3 at pH 8.3	10	---	24	---	mg/L	5.0
Chloride	61	---	67	---	mg/L	3.0
pH	8.5	8.74	8.85	8.58	units	---
pH	---	8.71	---	8.6	units	---
pH	---	8.76	---	8.6	units	---
pH	---	8.76	---	8.64	units	---
Average pH		8.7425		8.605	units	---
Sulfate	140	---	150	---	mg/L	5.0
Specific Conductance at 25 deg.C	1130	1140	1130	1120	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1140	---	1130	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1150	---	1120	umhos/cm	1.0
Specific Conductance at 25 deg.C	---	1150	---	1150	umhos/cm	1.0
Average Specific Conductance at 25 deg.C		1145		1130	umhos/cm	1.0
Total Organic Carbon	8	ND	2	8	mg/L	0.50
Total Organic Carbon	---	ND	2	8	mg/L	0.50
Total Organic Carbon	---	---	---	---	mg/L	0.50
Total Organic Carbon	---	---	---	---	mg/L	0.50
Total Organic Halogen as Cl	90	ND	30	ND	ug/L	30
Total Organic Halogen as Cl	---	ND	ND	ND	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	ug/L	30
Total Organic Halogen as Cl	---	---	---	---	ug/L	30
Total Dissolved Solids	770	---	720	---	mg/L	10
Water Elevation	6847.02	6846.98	6848.13	6848.02	ft	

SMW-6 GIANT REFINING - CINIZA

Volatile Organics

Parameter	30 NOV 93 Result	29 APR 94 Result	6 JUL 94 Result	18 OCT 94 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	11.0	ND	ND	ug/L	10
Carbon disulfide	---	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	---	---	ND	ND	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	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	ug/L	5.0
Chlorodibromomethane	---	---	ND	ND	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	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	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	ug/L	5.0
Xylenes (total)	ND	ND	ND	ND	ug/L	5.0
Acetonitrile	---	---	---	ND	ug/L	10.0
Acrolein	---	---	---	ND	ug/L	20.0
Acrylonitrile	---	---	---	ND	ug/L	10.0
1,2-Dibromoethane	---	---	---	ND	ug/L	5.0
Dibromomethane	---	---	---	ND	ug/L	5.0
Dichlorodifluoromethane	---	---	---	ND	ug/L	5.0
Methyl Iodide	---	---	---	ND	ug/L	5.0
Trans-1,4-Dichloro-2-Butene	---	---	---	ND	ug/L	5.0
Trichloromonofluoromethane	---	---	---	ND	ug/L	5.0
1,2,3-Trichloropropane	---	---	---	ND	ug/L	5.0
Ethyl Methacrylate	---	---	---	ND	ug/L	5.0

SMW-6 GIANT REFINING - CINIZA

Total Metals

Parameter	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Chromium	ND	0.442	0.434	mg/L	0.010
Lead	ND	ND	ND	mg/L	0.0050

SMW-6 GIANT REFINING - CINIZA

General Inorganics

Parameter	29 APR 93 Result	30 NOV 93 Result	29 APR 94 Result	18 OCT 94 Result	Units	Reporting Limit
Alkalinity, Bicarb. as CaCO3 at pH 4.5	591	---	374	---	mg/L	10
Alkalinity, Carb. as CaCO3 at pH 8.3	ND	---	ND	---	mg/L	10 10
Chloride	90	---	5400	---	mg/L	5.0
pH	8.2	8.14	7.24	6.98	units	10
pH	---	8.15	---	6.98	units	5.0
pH	---	8.05	---	6.97	units	5.0
pH	---	8	---	6.97	units	5.0
Average pH		8.085		6.975	units	
Sulfate	220	---	2100	---	mg/L	5.0
Specific Conductance at 25 deg.C	1760	1670	16900	13600	umhos/cm	5.0
Specific Conductance at 25 deg.C	---	1650	---	13600	umhos/cm	10
Specific Conductance at 25 deg.C	---	1680	---	13300	umhos/cm	5.0
Specific Conductance at 25 deg.C	---	1670	---	13200	umhos/cm	5.0
Average Specific Conductance at 25 deg.C		1667.5		13425	umhos/cm	5.0
Total Organic Carbon	2	ND	32	23	mg/L	5.0
Total Organic Carbon	---	ND	31	22	mg/L	5.0
Total Organic Carbon	---	---	---	---	mg/L	5.0
Total Organic Carbon	---	---	---	---	mg/L	10
Total Organic Halogen as Cl	ND	20	290	130	ug/L	5.0 10
Total Organic Halogen as Cl	---	20	210	140	ug/L	10 5.0
Total Organic Halogen as Cl	---	---	---	---	ug/L	5.0 5.0
Total Organic Halogen as Cl	---	---	---	---	ug/L	5.0 5.0
Total Dissolved Halogen as Cl	---	---	---	---	ug/L	5.0
Total Dissolved Solids	1100	---	13000	---	mg/L	5.0
Water Elevation	6848.90	6849.01	6875.88	6848.93	ft	

Analytical Technologies, Inc.

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

ATI I.D. **405312**

June 9, 1994

Giant Refining
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: ANNUAL GDWTR

Attention: Lynn Shelton

On **05/03/94**, 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.

Please note on the Total Organic Halide analysis relatively high RPD's for duplicate results were observed for some samples. This is likely due to the following factors. One, when concentrations are near the detection limit of 20 mg/L the reproducability of the TOX measurements is in the range of approximately +/- 20 mg/L. Two, the samples contained a very fine particulate material. The particulates may have caused the samples to be heterogeneous since the particulates would not be evenly distributed throughout the sample.

All Total Organic Halide and Total Organic Carbon samples received at ATI, Albuquerque had headspace.

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

EPA Method 150.1 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

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

Analytical Technologies, Inc.

This is an amended report. Please note that for the EPA method 8240 analysis of sample SMW-6, the acetone concentration has changed from 17 µg/L to 11 µg/L. This amended report corrects a data entry error, the sample was not reanalyzed.

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure

Analytical Technologies, Inc.

CLIENT	: GIANT REFINING	DATE RECEIVED	: 05/03/94
PROJECT #	: (NONE)		
PROJECT NAME	: ANNUAL GDWTR	REPORT DATE	: 06/09/94

ATI ID: 405312

	ATI ID #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	405312-01	SMW-3	AQUEOUS	04/29/94
02	405312-02	SMW-4	AQUEOUS	04/29/94
03	405312-03	SMW-5	AQUEOUS	04/29/94
04	405312-04	SMW-6	AQUEOUS	04/29/94

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4

ATI STANDARD DISPOSAL PRACTICE

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING	ATI I.D.	: 405312
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	DATE ANALYZED	: 05/03/94

PARAMETER	UNITS	01	02	03	04
PH (150.1)	UNITS	7.81	8.49	8.85	7.24

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

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

ATI I.D. : 405312
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	40530101	9.06	9.07	0.1	NA	NA	NA

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 405312

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

DATE RECEIVED : 05/03/94
REPORT DATE : 06/09/94

PARAMETER	UNITS	01	02	03	04
CARBONATE (CACO3)	MG/L	<1	18	24	<1
BICARBONATE (CACO3)	MG/L	660	393	349	374
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	660	411	373	374
CHLORIDE (EPA 325.2)	MG/L	83	56	67	5400
CONDUCTIVITY, (UMHOS/CM)		3160	1190	1130	16900
SULFATE (EPA 375.2)	MG/L	1000	160	150	2100
T. DISSOLVED SOLIDS (160.1)	MG/L	2300	760	720	13000

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR ATI I.D. : 405312

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	40531202	18	18	0	NA	NA	NA
BICARBONATE	MG/L		393	389	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		411	407	1	NA	NA	NA
CHLORIDE	MG/L	40531201	83	82	1	161	80	98
CONDUCTIVITY(UMHOS/CM)		40561704	724	716	1	NA	NA	NA
SULFATE	MG/L	40530302	40	40	0	80	40	100
TOTAL DISSOLVED SOLIDS	MG/L	40530103	1400	1500	7	NA	NA	NA

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

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

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 405312

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

DATE RECEIVED : 05/03/94
REPORT DATE : 06/09/94

PARAMETER	UNITS	01	02	03	04
CALCIUM (EPA 200.7/6010)	MG/L	45.0	2.6	1.6	1140
CHROMIUM (EPA 200.7/6010)	MG/L	0.062	<0.010	0.094	0.442
POTASSIUM (EPA 200.7/6010)	MG/L	<1.0	<1.0	<1.0	4.6
MAGNESIUM (EPA 200.7/6010)	MG/L	13.9	0.7	0.7	221
SODIUM (EPA 200.7/6010)	MG/L	744	286	267	3120
LEAD (200.7/6010)	MG/L	<0.10	<0.10	<0.10	<0.10

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR ATI I.D. : 405312

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CALCIUM	MG/L	40531202	2.6	2.5	4	56.7	50.0	108
CHROMIUM	MG/L	40531201	0.062	0.061	2	0.973	1.00	91
POTASSIUM	MG/L	40531202	<1.0	<1.0	NA	49.3	50.0	99
MAGNESIUM	MG/L	40531202	0.7	0.7	0	26.0	25.0	101
SODIUM	MG/L	40531202	286	284	0.7	372	100	86
LEAD	MG/L	40531201	<0.10	<0.10	NA	0.90	1.00	90

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

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

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531201

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: SMW-3	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531201

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	99
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40531201

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531202

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: SMW-4	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531202

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BFB (%)	99
TOLUENE-D8 (%)	98

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531203

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: SMW-5	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531203

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BFB (%)	100
TOLUENE-D8 (%)	101

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40531204

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/29/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: SMW-6	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	11
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40531204

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

		ATI I.D.	: 405312
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 05/11/94
PROJECT #	: (NONE)	DATE ANALYZED	: 05/11/94
PROJECT NAME	: ANNUAL GDWTR	UNITS	: UG/L
CLIENT I.D.	: REAGENT BLANK	DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5
ETHANOL	<100

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 405312

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	101
BFB (%)	100
TOLUENE-D8 (%)	99

es, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

NICS (EPA 8240) APPENDIX IX

IING CO. ATI I.D : 405312

ollected: 04/29/94

Analyzed: 05/09/94

le Matrix: Water

RESULTS

INDS

C / G	RPD
0	N/A
	0
3	0
2	0
5	3

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 405312

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR
REF I.D. : 40530103

DATE ANALYZED : 05/11/94
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<5	50	51	102	48	96	6
TRICHLOROETHENE	<5	50	51	102	50	100	2
CHLOROBENZENE	<5	50	51	102	50	100	2
TOLUENE	<5	50	51	102	50	100	2
BENZENE	<5	50	50	100	49	98	2

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

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

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GRC -- 405312

Lab Workorder Number: 94-05-045

Date Collected: 04/29/94

Date Extracted: 05/11/94

Date Analyzed: 05/11/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-05-045	100	< 20	< 20	N/A
405312-1	94-05-045-01	100	30		
	94-05-045-01DUP	100	30	30	0
405312-2	94-05-045-02	100	80		
	94-05-045-02DUP	100	50	65	46
405312-3	94-05-045-03	100	30		
	94-05-045-03DUP	100	< 20	15	N/A
405312-4	94-05-045-04	50	290		
	94-05-045-04DUP	50	210	250	32

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: 94-04-307-02

Sample Matrix: Water

Sample ID

In House

Date Extracted: 05/11/94

Date Analyzed: 05/11/94

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	< 20	200	100

Analytical Technologies, Inc., Albuquerque, NM

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

CHAIN OF CUSTODY

DATE: 5-2-94 PAGE 1 OF 1

ATI LAB I.D. 405312

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

PROJECT MANAGER:

COMPANY:	Giant Refining
ADDRESS:	I-40, Exit 39
	Jamestown, NM 87347
PHONE:	505/722-3833
FAX:	505/722-0210

BILL TO:

COMPANY:	Same
ADDRESS:	Route 3, Box 7
	Gallup, NM 87301

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020) (MOD 8015) Gas/Diesel	BTXE/MTBE (8020)	[illegible] *	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	TDC	TOX	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240) *	Polynuclear Aromatics (610/8310)	TOTAL METALS (Cr, Pb)	DISSOLVED METALS**	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal	pH, EC, TDS, ALKALINITY	Cl, SO4	The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)	NUMBER OF CONTAINERS
smw-3	4-29	2:50	H_2O	01								X	X				X		X	X					X	X				11
smw-4	4-29	3:25	H_2O	02								X	X				X		X	X					X	X				11
smw-5	4-29	4:00	H_2O	03								X	X				X		X	X					X	X				11
smw-6	4-29	4:40	H_2O	04								X	X				X		X	X					X	X				11

PROJECT INFORMATION

PROJ. NO.:	
PROJ. NAME:	ANNUAL GDWTR
P.O. NO.:	997902394
SHIPPED VIA:	FED EX

SAMPLE RECEIPT

NO. CONTAINERS	44
CUSTODY SEALS	Y / N / (NA) *
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments: ¾ C.O.C. Seals intact on outside cooler.

* SEE ATTACHED LIST OF PARAMETERS

** Ca, Mg, K, Na

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature] Time: 11:10AM	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 5-2-94	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722-0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 0930
Printed Name: Date:	Printed Name: Date:	Printed Name: Terri Dettre Date: 5/3/94
Company:	Company:	Analytical Technologies, Inc.

AnalyticalTechnologies,Inc. Albuquerque, NM

Chain of Custody 94-05-045

DATE 5/4/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX - run duplicates	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - 02, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
405312-1	4/29/94	1450	AQ	01	X	X																			5
-2		1525		[illegible]	X	X																			5
-3		1600		03	X	X																			5
-4		1640		04	X	X																			5

PROJECT INFORMATION

PROJECT NUMBER: 405312
PROJECT NAME: GRC
QC LEVEL: STD. IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

DUE DATE: 5/17/94
RUSH SURCHARGE:
CLIENT DISCOUNT: on quote %

WO #LE720

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	20
CHAIN OF CUSTODY SEALS	N
INTACT?	N
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	94-05-045

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

RELINQUISHED BY: 1.
Signature: Terri Dettre Time: 1730
Printed Name: Terri Dettre Date: 5/4/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: John Whalen Time: 1000
Printed Name: John Whalen Date: 5/5/94
Company: ATI - CO

AnalyticalTechnologies,Inc. Albuquerque, NM

Chain of Custody

DATE 5/4/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: Analytical Technologies, Inc.

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	EC, Alk, TDS, Cl, SO4	632/632 MOD	619/619 MOD	610/8310	Dissolved Ca, Mg, K, Na	8240 (TCLP 1311) ZHE	Total Cr, Pb	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GCMS (624/8240) see att. list	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
405312-1	4/27/94	1450	AQ	1						X				X		X		X										5
-2		1525		2						X				X		X		X										5
-3		1100		3						X				X		X		X										5
-4		1010		4						X				X		X		X										5

PROJECT INFORMATION	
PROJECT NUMBER:	405312
PROJECT NAME:	GRC
QC LEVEL:	(STD.) IV
QC REQUIRED:	MS MSD BLANK
TAT:	(STANDARD) RUSH!

DUE DATE: 5/17/94

RUSH SURCHARGE:

CLIENT DISCOUNT: see quote

W.O.# 12719

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	20
CHAIN OF CUSTODY SEALS	N
INTACT?	N/A
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	405312

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

RELINQUISHED BY: 1.
Signature: Terri Dettre Time: 1730
Printed Name: Terri Dettre Date: 5/4/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: [signature] Time: 10:15
Printed Name: [illegible] Date: 5-5-94
Company: ATI

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

QUANT REPORT

Operator ID: QMW Date Acquired: 11 May 94 3:31 pm
Data File: C:\CHEMPC\DATA\MAY11II\0901009.D
Name: 405312-04
Misc: 0.5ML G624
Method: ATI8260.M
Title: VOA Standards for 5 point calibration
Last Calibration: Wed May 25 19:00:47 1994
Quantitated using Single Level Calibration

Internal Standards

Compound	R.T.	Qion	Area	Conc Unit	Dev(Min)
23) Pentafluorobenzene	10.93	168	1312457	50.00 ug/l	-0.02
28) 1,4-Difluorobenzene	12.43	114	2247775	50.00 ug/l	-0.03
45) Chlorobenzene-d5	18.73	117	1881927	50.00 ug/l	-0.02
67) 1,4-Dichlorobenzene-d4	24.16	152	939729	50.00 ug/l	-0.02
System Monitoring Compounds					%Recovery
21) Dibromofluoromethane	10.80	111	1400867	50.72 ug/l	101.44%
36) Toluene-d8	15.54	98	2240767	49.65 ug/l	99.30%
54) Bromofluorobenzene	21.43	95	1252056	49.94 ug/l	99.87%
Target Compounds					ISTD#
1) Dichlorodifluoromethane	0.00			**Not Found**	001
2) Chloromethane	0.00			**Not Found**	001
3) Vinyl Chloride	0.00			**Not Found**	001
4) Bromomethane	0.00			**Not Found**	001
5) Chloroethane	0.00			**Not Found**	001
6) Trichlorofluoromethane	0.00			**Not Found**	001
7) 1,1-Dichloroethene	0.00			**Not Found**	001
8) 1,1,2-TRICHLORO-1,2,2-TRIF	0.00			**Not Found**	001
9) Acetone	6.10	43	43420	10.74 ug/l	001m
10) Carbon Disulfide	0.00			**Not Found**	001
11) Methylene Chloride	0.00			**Not Found**	001
12) trans-1,2-Dichloroethene	0.00			**Not Found**	001
13) MTBE	0.00			**Not Found**	001
14) 1,1-Dichloroethane	0.00			**Not Found**	001
15) Vinyl Acetate	9.86	43	74028	2.21 ug/l	001#
16) 2,2-Dichloropropane	0.00			**Not Found**	001
17) cis-1,2-Dichloroethene	10.93	61	45848	1.27 ug/l	001#
18) 2-Butanone	9.86	43	74028	7.29 ug/l	001
19) Bromochloromethane	0.00			**Not Found**	001
20) Chloroform	0.00			**Not Found**	001
22) 1,1,1-Trichloroethane	0.00			**Not Found**	001
24) Carbon Tetrachloride	10.93	117	152869	6.60 ug/l	002#
25) 1,1-Dichloropropene	10.92	75	166938	6.36 ug/l	002#
26) Benzene	0.00			**Not Found**	002
27) 1,2-Dichloroethane	0.00			**Not Found**	002
29) Trichloroethene	12.44	95	61767	2.98 ug/l	002#
30) 1,2-Dichloropropane	0.00			**Not Found**	002
31) Dibromomethane	12.44	93	32450	1.63 ug/l	002#
32) Bromodichloromethane	0.00			**Not Found**	002
33) 2-Chloroethyl vinyl ether	0.00			**Not Found**	002
34) trans-1,3-Dichloropropene	18.73	75	34985	1.10 ug/l	002#
35) 4-Methyl-2-Pentanone	0.00			**Not Found**	002
37) Toluene	0.00			**Not Found**	002

(#) = qualifier out of range

QUANT REPORT

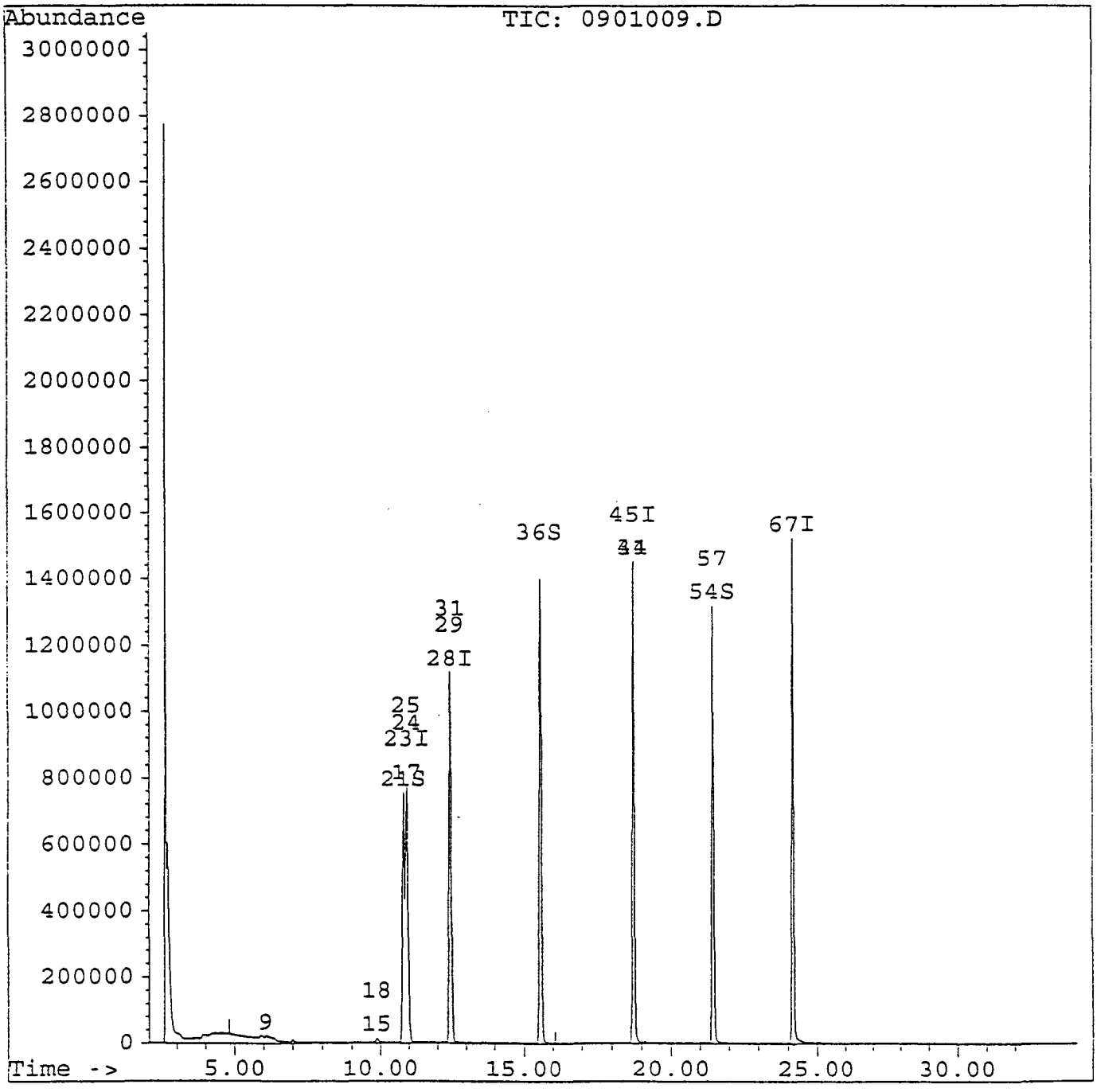
Operator ID: QMW Date Acquired: 11 May 94 3:31 pm
Data File: C:\CHEMPC\DATA\MAY11II\0901009.D
Name: 405312-04
Misc: 0.5ML G624
Method: ATI8260.M
Title: VOA Standards for 5 point calibration
Last Calibration: Wed May 25 19:00:47 1994
Quantitated using Single Level Calibration

	Compound	R.T.	Qion	Area	Conc Unit	Dev(Min)
38)	cis-1,3-Dichloropropene	0.00			**Not Found**	002
39)	1,1,2-Trichloroethane	0.00			**Not Found**	002
40)	Tetrachloroethene	0.00			**Not Found**	003
41)	1,3-Dichloropropane	18.73	76	105313	3.62 ug/l	003#
42)	2-Hexanone	0.00			**Not Found**	003
43)	Dibromochloromethane	0.00			**Not Found**	003
44)	1,2-Dibromoethane (EDB)	0.00			**Not Found**	002
46)	Chlorobenzene	0.00			**Not Found**	003
47)	1,1,1,2-Tetrachloroethane	0.00			**Not Found**	003
48)	Ethylbenzene	0.00			**Not Found**	003
49)	M&P Xylenes	0.00			**Not Found**	003
50)	O-Xylene	0.00			**Not Found**	003
51)	Styrene	0.00			**Not Found**	003
52)	Bromoform	0.00			**Not Found**	003
53)	Isopropyl benzene	0.00			**Not Found**	004
55)	Bromobenzene	0.00			**Not Found**	004
56)	1,1,2,2-Tetrachloroethane	0.00			**Not Found**	004
57)	1,2,3-Trichloropropane	21.44	75	582562	31.65 ug/l	004#
58)	n-Propylbenzene	0.00			**Not Found**	004
59)	2-Chlorotoluene	0.00			**Not Found**	004
60)	1,3,5-Trimethylbenzene	0.00			**Not Found**	004
61)	4-Chlorotoluene	0.00			**Not Found**	004
62)	tert-Butylbenzene	0.00			**Not Found**	004
63)	1,2,4-Trimethylbenzene	0.00			**Not Found**	004
64)	sec-Butylbenzene	0.00			**Not Found**	004
65)	1,3-Dichlorobenzene	0.00			**Not Found**	004
66)	p-Isopropyltoluene	0.00			**Not Found**	004
68)	1,4-Dichlorobenzene	0.00			**Not Found**	004
69)	1,2-Dichlorobenzene	0.00			**Not Found**	004
70)	n-Butylbenzene	0.00			**Not Found**	004
71)	1,2-Dibromo-3-Chloropropan	0.00			**Not Found**	004
72)	1,2,4-Trichlorobenzene	0.00			**Not Found**	004
73)	Hexachlorobutadiene	0.00			**Not Found**	004
74)	Naphthalene	0.00			**Not Found**	004
75)	1,2,3-Trichlorobenzene	0.00			**Not Found**	004

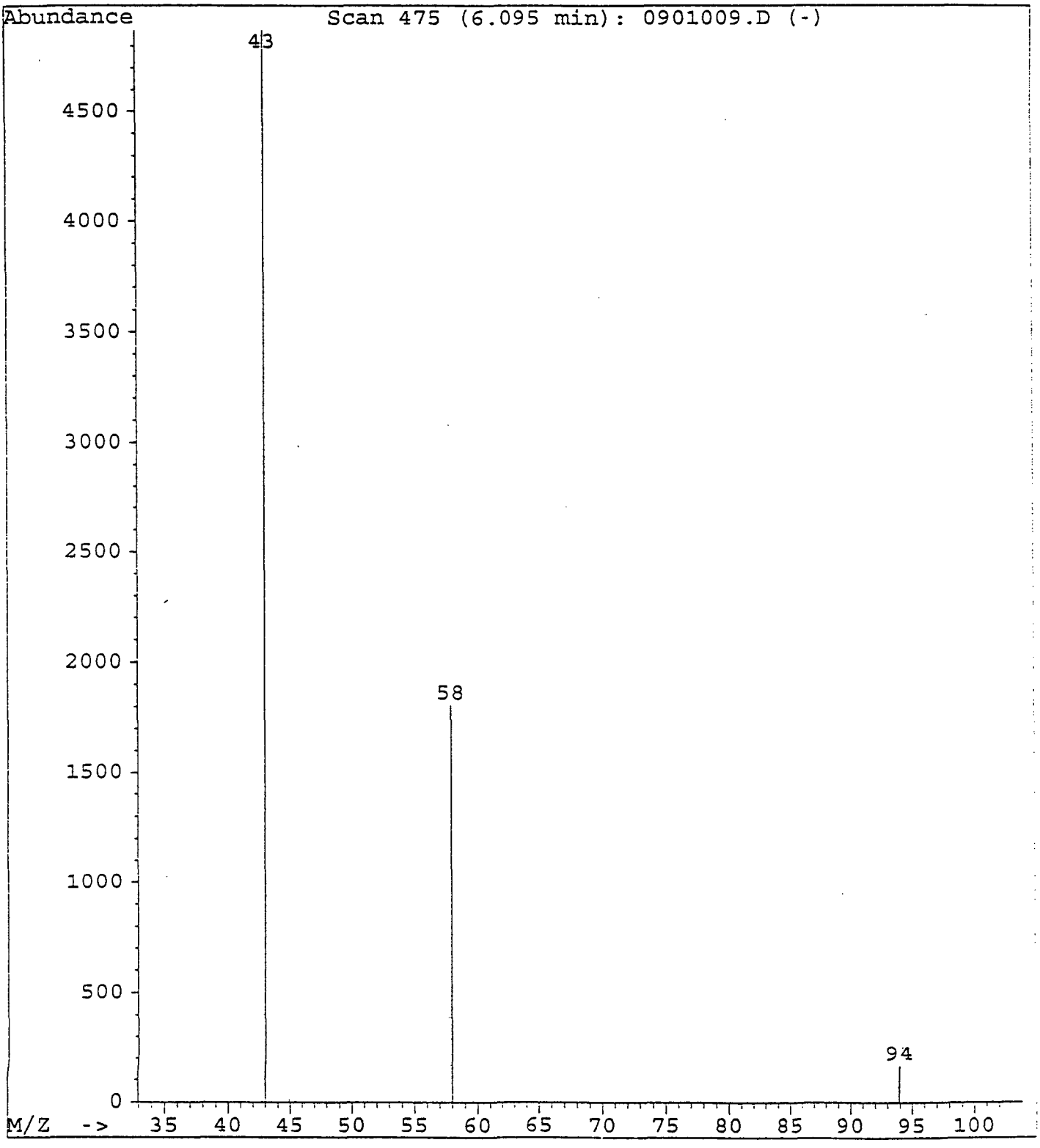
(#) = qualifier out of range

QUANT REPORT

Operator ID: QMW Date Acquired: 11 May 94 3:31 pm
Data File: C:\CHEMPC\DATA\MAY11II\0901009.D
Name: 405312-04
Misc: 0.5ML G624
Method: ATI8260.M
Title: VOA Standards for 5 point calibration
Last Calibration: Wed May 25 19:00:47 1994
Quantitated using Single Level Calibration



File: C:\CHEMPC\DATA\MAY11II\0901009.D
Operator: QMW
Date Acquired: 11 May 94 3:31 pm
Method File: ATI8260.M
Sample Name: 405312-04
Misc Info: 0.5ML G624
ALS vial: 9



Analytical Technologies, Inc.

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

ATI I.D. **405301**

May 26, 1994

Giant Refining
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: ANN GDWTR (NONE)

Attention: Lynn Shelton

On **05/02/94**, 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.

The Total Organic Halide analysis was run in duplicate for all samples as requested on the chain of custody. Please note on the Total Organic Halide analysis, the TOX results for all samples in this project were near the detection limit of 20 mg/L. When concentrations are near the detection limit, the reproducability of the TOX measurements is in the range of approximately +/- 20 mg/L. It is not possible to calculate the relative percent difference (RPD) between two values when one value is at or slightly above the detection limit and the other value is below the detection limit.

Sample OW-3 and all 8240 sample VOA vials arrived separately and were received at Albuquerque, NM on 05/03/94.

All Total Organic Halide and Total Organic Carbon sample bottles were received with headspace.

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

EPA Method 150.1 and 8020 analyses were performed by Analytical Technologies, Inc., Albuquerque, NM.

Analytical Technologies, Inc.

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

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Enclosure

Analytical Technologies, Inc.

CLIENT	: GIANT REFINING	DATE RECEIVED	: 05/02/94
PROJECT #	: (NONE)		
PROJECT NAME	: ANN GDWTR	REPORT DATE	: 05/26/94

ATI ID: 405301

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-1	AQUEOUS	04/29/94
02	MW-4	AQUEOUS	04/29/94
03	0W-11	AQUEOUS	04/29/94
04	0W-3	AQUEOUS	04/29/94

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4

ATI STANDARD DISPOSAL PRACTICE

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING	ATI I.D.	: 405301
PROJECT #	: (NONE)	DATE RECEIVED	: 05/03/94
PROJECT NAME	: ANN GDWTR	DATE ANALYZED	: 05/03/94

PARAMETER	UNITS	01	02	03	04
PH (150.1)	UNITS	9.06	8.76	8.38	7.88

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING
PROJECT # : (NONE)
PROJECT NAME : ANN GDWTR

ATI I.D. : 405301
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	40530101	9.06	9.07	0.1	NA	NA	NA

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

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

TOTAL ORGANIC CARBON

Method 415.2

Analytical Technologies, Inc.

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GRC -- 405301

Lab Workorder Number: 94-05-016

Date Collected: 04/28/94

Date Analyzed: 05/09/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 94-05-016	1	< 1.0	< 1.0	N/A
405301-1	94-05-016-01	1	< 1.0		
	94-05-016-01DUP	1	< 1.0	< 1.0	N/A
405301-2	94-05-016-02	1	< 1.0		
	94-05-016-02DUP	1	< 1.0	< 1.0	N/A
405301-3	94-05-016-03	1	2		
	94-05-016-03DUP	1	2	2	0

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GRC -- 405301

Lab Workorder Number: 94-05-016

Date Collected: 04/28/94

Date Extracted: 05/12/94

Date Analyzed: 05/12/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-05-016	100	< 20	< 20	N/A
405301-1	94-05-016-01	100	< 20		
	94-05-016-01DUP	100	20	10	N/A
405301-2	94-05-016-02	100	< 20		
	94-05-016-02DUP	100	40	20	N/A
405301-3	94-05-016-03	100	30		
	94-05-016-03DUP	100	< 20	15	N/A

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GRC -- 405301

Lab Workorder Number: 94-05-016

Date Collected: 04/28/94

Date Extracted: 05/12/94

Date Analyzed: 05/12/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-05-016	100	< 20	< 20	N/A
405301-1	94-05-016-01	100	< 20		
	94-05-016-01DUP	100	20	10	N/A
405301-2	94-05-016-02	100	< 20		
	94-05-016-02DUP	100	40	20	N/A
405301-3	94-05-016-03	100	30		
	94-05-016-03DUP	100	< 20	15	N/A

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: 94-04-307-02

Sample Matrix: Water

Sample ID

In House

Date Extracted: 05/11/94

Date Analyzed: 05/11/94

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	< 20	200	100

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 405301

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

DATE RECEIVED : 05/02/94
REPORT DATE : 05/26/94

PARAMETER	UNITS	01	02	03	04
CARBONATE (CACO3)	MG/L	48	33	11	<1
BICARBONATE (CACO3)	MG/L	301	431	374	662
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	349	464	385	662
CHLORIDE (EPA 325.2)	MG/L	52	17	144	42
CONDUCTIVITY, (UMHOS/CM)		1070	1140	2080	1240
PHENOLICS, TOTAL (EPA 420.1)	MG/L	<0.005	<0.005	<0.005	-
SULFATE (EPA 375.2)	MG/L	160	150	600	18
T. DISSOLVED SOLIDS (160.1)	MG/L	720	740	1400	800

Analytical Technologies, Inc

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANN GDWTR ATI I.D. : 405301

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	40443603	42	42	0	NA	NA	NA
BICARBONATE	MG/L		294	298	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		336	340	1	NA	NA	NA
CHLORIDE	MG/L	40550901	88	88	0	184	100	96
CONDUCTIVITY(UMHOS/CM)		40530103	2080	2120	2	NA	NA	NA
PHENOLICS, TOTAL	MG/L	40549908	<0.005	<0.005	NA	0.025	0.025	100
SULFATE	MG/L	40443601	20	20	0	40	20	100
TOTAL DISSOLVED SOLIDS	MG/L	40530103	1400	1500	7	NA	NA	NA

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

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

Analytical Technologies, Inc. METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANN GDWTR ATI I.D. : 405301

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	40530101	<0.010	<0.010	NA	0.995	1.00	100
ARSENIC (ICAP)	MG/L	40530101	<0.1	<0.1	NA	1.0	1.0	100
BARIUM	MG/L	40530101	0.016	0.016	0	0.992	1.00	98
CALCIUM	MG/L	40531102	47.6	47.9	0.6	101	50.0	107
CADMIUM	MG/L	40530102	<0.005	<0.005	NA	1.00	1.00	100
CHROMIUM	MG/L	40551301	<0.010	<0.010	NA	0.952	1.00	95
CHROMIUM	MG/L	40530103	<0.010	<0.010	NA	0.997	1.00	100
MERCURY	MG/L	40549906	0.0003	<0.0002	NA	0.0050	0.0050	94
MERCURY	MG/L	40554201	<0.0002	0.0003	NA	0.0046	0.0050	92
POTASSIUM	MG/L	40531102	4.0	3.9	3	53.9	50.0	100
MAGNESIUM	MG/L	40531102	17.0	17.2	1	42.0	25.0	100
MANGANESE	MG/L	40530101	0.016	0.016	0	1.01	1.00	99
SODIUM	MG/L	40531102	52.3	53.0	1	99.3	50.0	94
LEAD	MG/L	40530101	<0.10	<0.10	NA	0.97	1.00	97
SELENIUM (ICAP)	MG/L	40530101	<0.1	<0.1	NA	1.0	1.0	100

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

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)

CLIENT : GIANT REFINING ATI I.D.: 405301

PROJECT # : (NONE)

PROJECT NAME : ANN GDWTR

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
4	OW-3	AQUEOUS	04/29/94	NA	05/03/94	1

PARAMETER	UNITS	04
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:

BROMOFLUOROBENZENE (%) 103

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: BTEX, MTBE (EPA 8020)		
MSMSD #	: 40443315	ATI I.D.	: 405301
CLIENT	: GIANT REFINING	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 05/04/94
PROJECT NAME	: ANN GDWTR	SAMPLE MATRIX	: AQUEOUS
REF. I.D.	: 40443315	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	9.0	90	9.5	95	5
TOLUENE	<0.5	10	9.2	92	9.6	96	4
ETHYLBENZENE	<0.5	10	9.2	92	9.8	98	6
TOTAL XYLENES	<0.5	30	28	93	29	97	4
METHYL-t-BUTYL ETHER	<2.5	20	18	90	19	95	5

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

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

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40530101

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/28/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/94
PROJECT NAME	: ANN GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-1	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40530101

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40530102

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/28/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/94
PROJECT NAME	: ANN GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-4	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40530102

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BFB (%)	100
TOLUENE-D8 (%)	99

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40530103

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/28/94
PROJECT #	: (NONE)	DATE RECEIVED	: 05/02/94
PROJECT NAME	: ANN GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-11	DATE ANALYZED	: 05/11/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40530103

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	102
BFB (%)	100
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40530103

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 405301
PROJECT #	: (NONE)	DATE EXTRACTED	: 05/11/94
PROJECT NAME	: ANN GDWTR	DATE ANALYZED	: 05/11/94
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5
ETHANOL	<100

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO. ATI I.D : 405301

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 405301

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANN GDWTR
REF I.D. : 40530103

DATE ANALYZED : 05/11/94
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<5	50	51	102	48	96	6
TRICHLOROETHENE	<5	50	51	102	50	100	2
CHLOROBENZENE	<5	50	51	102	50	100	2
TOLUENE	<5	50	51	102	50	100	2
BENZENE	<5	50	50	100	49	98	2

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

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

Analytical Technologies, Inc., Albuquerque, NM

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

CHAIN OF CUSTODY

DATE: 4-29-94 PAGE 1 OF 1

ATI LAB I.D. 405301

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

PROJECT MANAGER:

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

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

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	8240 * SEE LIST	pH, EC, ALKALINITY, TDS	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	CHLORIDE, SULFATE	PHENOLS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	TOC	TOX	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal	DISSOLVED METALS	TOTAL METALS	The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
MW-1	4-29	9:40	H_2O	01					X	X				X	X						X	X					X	X				13
MW-4	4-29	11:10	H_2O	02					X	X				X	X						X	X					X	X				13
OW-11	4-29	1:00	H_2O	03					X	X				X	X						X	X					X	X				13
OW-3	4-29	3:00	H_2O	04				X		X				X													X					5

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME: ANN GOUTH
P.O. NO.: 997 902394
SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS: 33
CUSTODY SEALS: Y / N / (NA) *
RECEIVED INTACT: Y
RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:
* SEE ATTACHED LIST OF PARAMETERS

*C.O.C. Seals were intact on outside of cooler.

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Lynn Shelton Time: 8:00	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 4-29-94	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722-0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 1400
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 5/2/94
Company:	Company:	Analytical Technologies, Inc.

AnalyticalTechnologies,Inc. Albuquerque, NM

Chain of Custody

DATE 5/2/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER: [signature]

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	EC, Alk, TDS, Cl, SO4	632/632 MOD	619/619 MOD	610/8310	Dissolved As, Ba, Cd, Ca, Mg	Mg, K, Se, Ag, Na	8240 (TCLP 1311) ZHE	Total Phenolics (420.1)	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	Total Cr, Pb, Ag	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
405301-1	4/28/94	0940	AQ	1						X				X	X		X			X										5
-2	)	1110	)	2						X				X	X		X			X										5
-3	)	1300		3						X				X	X		X			X										5

PROJECT INFORMATION

PROJECT NUMBER: 405301
PROJECT NAME: GRC
QC LEVEL: STD. IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

DUE DATE: 5/16/94
RUSH SURCHARGE:
CLIENT DISCOUNT: per quote %

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	15
CHAIN OF CUSTODY SEALS	N/A
INTACT?	N/A
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	405301

W.O. #LE708

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

RELINQUISHED BY: 1.
Signature: [signature] Time: 1730
Printed Name: Teri Dattle Date: 5/2/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: [signature] Time: 10:45
Printed Name: [illegible] Date: 5-3-94
Company: ATI

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 5/3/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: Analytical Technologies, Inc.

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)		632/632 MOD	619/619 MOD	610/8310	EC, AIK, TDS, Cl, SO4	Dissolved - As, Ba, Cd, Ca, Mg, K, Se, Ag, Na	8240 (TCLP 1311) ZHE - See list	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)		NACE	ASBESTOS		BOD	TOTAL COLIFORM	FECAL COLIFORM		GROSS ALPHA/BETA	RADIUM 226/228		AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
405301-1	4/28/94	0940	AQ	1										X	X	X	X															2
-2		1110		2												X																2
-3		1300		3												X																2
-4		1500		4										X	X		X															2

PROJECT INFORMATION

PROJECT NUMBER: 405301
PROJECT NAME: CRC
QC LEVEL: (STD.) IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSHI

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	5
CHAIN OF CUSTODY SEALS	N
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	405301

DUE DATE: 5/17/94
RUSH SURCHARGE: ———
CLIENT DISCOUNT: ——— % see quote

W.O.# LK712

Second part on this acc.# 405301

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PHOENIX	X
BARRINGER	
FIBERQUANT	

RELINQUISHED BY: 1.

Signature: [signature] Time: 1730
Printed Name: Terri Dottre Date: 5/3/94
Analytical Technologies, Inc.
Albuquerque

RECEIVED BY: (LAB) 1.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 2.

Signature: Time:
Printed Name: Date
Company:

RECEIVED BY: (LAB) 2.

Signature: [signature] Time: 11:34
Printed Name: Date: 5-4-94
Company: ATI

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 5/2/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: Analytical Technologies, Inc.

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX - Run Duplicate	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 /TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
405301-1	4/28/94	0940	AQ	01	X	X																			5
-2	"	1110	"	02	X	X																			
-3	"	1300	"	03	X	X																			

Tox

PROJECT INFORMATION		SAMPLE RECEIPT	
PROJECT NUMBER:	40530	TOTAL NUMBER OF CONTAINERS	15
PROJECT NAME:	GRC	CHAIN OF CUSTODY SEALS	
QC LEVEL:	STD IV	INTACT?	Y
QC REQUIRED:	MS MSD BLANK	RECEIVED GOOD COND./COLD	Yes
TAT:	STANDARD RUSH!	LAB NUMBER	94-05-016

DUE DATE: 5/11/94 WORK ORDER 707

RUSH SURCHARGE:

CLIENT DISCOUNT: per quote %

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

RELINQUISHED BY: 1.
Signature: Time: 1730
Printed Name: Date 5/2/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: Time: 10:00
Printed Name: DEBI BURDICK Date: 5/3/94
Company: ATI

Analytical Technologies, Inc.

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

ATI I.D. **404436**

May 26, 1994

Giant Refining Company
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: ANNUAL GDWTR

Attention: Lynn Shelton

On **04/29/94**, 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.

For sample OW-2, the metals bottle was marked dissolved metals, filtered and preserved with nitric acid. The sample had a turbidity reading of >1 NTU and there was sediment present; therefore, the sample did not pass criteria for dissolved. The sample was digested and analyzed for total metals.

EPA Method 150.1 and 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., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

This report is being reissued to correct cover letter information.

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

Letitia Krakowski
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jd

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 404436
PROJECT #	: (NONE)	DATE RECEIVED	: 04/29/94
PROJECT NAME	: ANNUAL GDWTR	DATE ANALYZED	: 04/29/94

PARAMETER	UNITS	01	02	03	04
PH (150.1)	UNITS	8.04	8.82	9.10	9.10

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO. ATI I.D. : 404436

PROJECT # : (NONE) SAMPLE MATRIX : AQUEOUS

PROJECT NAME : ANNUAL GDWTR

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	40443601	8.04	8.01	0.4	NA	NA	NA

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

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

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

TEST : BTEX, MTBE (EPA 8020)

CLIENT : GIANT REFINING CO. ATI I.D.: 404436

PROJECT # : (NONE)

PROJECT NAME : ANNUAL GDWTR

SAMPLE ID. #	CLIENT I.D.	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
01	OW-2	AQUEOUS	04/27/94	NA	05/03/94	1
02	OW-1	AQUEOUS	04/27/94	NA	05/03/94	1

PARAMETER	UNITS	01	02
BENZENE	UG/L	<0.5	<0.5
TOLUENE	UG/L	<0.5	0.9
ETHYLBENZENE	UG/L	<0.5	<0.5
TOTAL XYLENES	UG/L	1.1	2.7
METHYL-t-BUTYL ETHER	UG/L	<2.5	<2.5
SURROGATE:			
BROMOFLUOROBENZENE (%)		99	101

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY RESULTS

REAGENT BLANK

TEST	: BTEX, MTBE (EPA 8020)	ATI I.D.	: 404436
BLANK I.D.	: 050394	MATRIX	: AQUEOUS
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 05/03/94
PROJECT NAME	: ANNUAL GDWTR	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:		
BROMOFLUOROBENZENE (%)		98

Analytical Technologies, Inc.

GAS CHROMATOGRAPHY - QUALITY CONTROL

MSMSD

TEST	: BTEX, MTBE (EPA 8020)		
MSMSD #	: 40443315	ATI I.D.	: 404436
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: NA
PROJECT #	: (NONE)	DATE ANALYZED	: 05/04/94
PROJECT NAME	: ANNUAL GDWTR	SAMPLE MATRIX	: AQUEOUS
REF. I.D.	: 40443315	UNITS	: UG/L

PARAMETER	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
BENZENE	<0.5	10	9.0	90	9.5	95	5
TOLUENE	<0.5	10	9.2	92	9.6	96	4
ETHYLBENZENE	<0.5	10	9.2	92	9.8	98	6
TOTAL XYLENES	<0.5	30	28	93	29	97	4
METHYL-t-BUTYL ETHER	<2.5	20	18	90	19	95	5

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 404436

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

DATE RECEIVED : 04/29/94
REPORT DATE : 05/20/94

PARAMETER	UNITS	01	02	03	04
CARBONATE (CACO3)	MG/L	<1	37	42	42
BICARBONATE (CACO3)	MG/L	668	388	294	289
HYDROXIDE (CACO3)	MG/L	<1	<1	<1	<1
TOTAL ALKALINITY (AS CACO3)	MG/L	668	425	336	331
CHLORIDE (EPA 325.2)	MG/L	46	55	61	66
CONDUCTIVITY, (UMHOS/CM)		1260	1270	1120	1130
PHENOLICS, TOTAL (EPA 420.1)	MG/L	-	-	<0.005	<0.005
SULFATE (EPA 375.2)	MG/L	20	210	160	170
T. DISSOLVED SOLIDS (160.1)	MG/L	890	840	700	730

GENERAL CHEMISTRY - QUALITY CONTROL

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR ATI I.D. : 404436

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CARBONATE	MG/L	40443602	37	35	6	NA	NA	NA
BICARBONATE	MG/L		388	383	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		425	418	2	NA	NA	NA
CARBONATE	MG/L	40443603	42	42	0	NA	NA	NA
BICARBONATE	MG/L		294	298	1	NA	NA	NA
HYDROXIDE	MG/L		<1	<1	NA	NA	NA	NA
TOTAL ALKALINITY	MG/L		336	340	1	NA	NA	NA
CHLORIDE	MG/L	40443601	46	45	2	93	50	94
CONDUCTIVITY(UMHOS/CM)		40443604	1130	1130	0	NA	NA	NA
PHENOLICS, TOTAL	MG/L	40549908	<0.005	<0.005	NA	0.025	0.025	100
SULFATE	MG/L	40443601	20	20	0	40	20	100
TOTAL DISSOLVED SOLIDS	MG/L	40443603	700	700	0	NA	NA	NA

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

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

METALS - QUALITY CONTROL

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR ATI I.D. : 404436

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SILVER	MG/L	40551301	<0.010	<0.010	NA	0.933	1.00	93
SILVER	MG/L	40530101	<0.010	<0.010	NA	0.995	1.00	100
ARSENIC (ICAP)	MG/L	40443601	<0.1	<0.1	NA	1.0	1.0	100
ARSENIC (ICAP)	MG/L	40530101	<0.1	<0.1	NA	1.0	1.0	100
BARIUM	MG/L	40443601	0.205	0.205	0	1.19	1.00	98
BARIUM	MG/L	40530101	0.016	0.016	0	0.992	1.00	98
CALCIUM	MG/L	40531102	47.6	47.9	0.6	101	50.0	107
CADMIUM	MG/L	40443601	<0.005	<0.005	NA	1.01	1.00	101
CADMIUM	MG/L	40443602	0.015	0.015	0	0.070	0.050	110
CADMIUM	MG/L	40530102	<0.005	<0.005	NA	1.00	1.00	100
CHROMIUM	MG/L	40551301	<0.010	<0.010	NA	0.952	1.00	95
MERCURY	MG/L	40411502	<0.0002	<0.0002	NA	0.0046	0.0050	92
POTASSIUM	MG/L	40531102	4.0	3.9	3	53.9	50.0	100
MAGNESIUM	MG/L	40531102	17.0	17.2	1	42.0	25.0	100
MANGANESE	MG/L	40443601	0.288	0.286	0.7	1.28	1.00	99
MANGANESE	MG/L	40530101	0.016	0.016	0	1.01	1.00	99
SODIUM	MG/L	40531102	52.3	53.0	1	99.3	50.0	94
LEAD	MG/L	40530101	<0.10	<0.10	NA	0.97	1.00	97
SELENIUM (ICAP)	MG/L	40443601	<0.1	<0.1	NA	1.05	1.00	105
SELENIUM (ICAP)	MG/L	40530101	<0.1	<0.1	NA	1.0	1.0	100

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

$$\text{RPD (Relative Percent Difference)} = \frac{(\text{Sample Result} - \text{Duplicate Result})}{\text{Average Result}} \times 1$$

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40443603

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/27/94
PROJECT #	: (NONE)	DATE RECEIVED	: 04/29/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 05/05/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<2
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40443603

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	99
BFB (%)	102
TOLUENE-D8 (%)	104

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40443603

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40443604

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/27/94
PROJECT #	: (NONE)	DATE RECEIVED	: 04/29/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-5	DATE ANALYZED	: 05/05/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<2
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40443604

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BFB (%)	105
TOLUENE-D8 (%)	102

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

Analytical Technologies, Inc.

TEST: VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40443604

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 40443605

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 04/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 04/29/94
PROJECT NAME	: ANNUAL GDWTR	DATE EXTRACTED	: N/A
CLIENT I.D.	: TRIP BLANK	DATE ANALYZED	: 05/05/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<2
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5

(CONTINUED NEXT PAGE)

GCMS - RESULTS

Analytical Technologies, Inc.

ATI I.D. : 40443605

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
ETHYL METHACRYLATE	<5
ETHANOL	<100
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	100
BFB (%)	101
TOLUENE-D8 (%)	104

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

Analytical Technologies, Inc.

TEST VOLATILE ORGANICS (EPA 8240) APPENDIX IX

ATI I.D. : 40443605

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 404436
PROJECT #	: (NONE)	DATE EXTRACTED	: 05/05/94
PROJECT NAME	: ANNUAL GDWTR	DATE ANALYZED	: 05/05/94
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
VINYL CHLORIDE	<0.5
CHLOROETHANE	<0.5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
TRANS-1,2-DICHLOROETHYLENE	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACROLEIN	<20
ACRYLONITRILE	<10
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5
ETHANOL	<100

(CONTINUED NEXT PAGE)

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ATI I.D. : 404436

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

COMPOUNDS	RESULTS
BROMOMETHANE	<10
2-CHLOROETHYLVINYLETHER	<5
1,4-DICHLORO-2-BUTANE	<5
SURROGATE PERCENT RECOVERIES	
1,2-DICHLOROETHANE-D4 (%)	106
BFB (%)	100
TOLUENE-D8 (%)	103

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO. ATI I.D : 404436

COMPOUNDS	RESULTS
NO ADDITIONAL COMPOUNDS	

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 404436

TEST : VOLATILE ORGANICS (EPA 8240) APPENDIX IX

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : ANNUAL GDWTR
REF I.D. : 40443604

DATE ANALYZED : 05/05/94
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<5	50	52	104	52	104	0
TRICHLOROETHENE	<5	50	52	104	52	104	0
CHLOROBENZENE	<5	50	51	102	51	102	0
TOLUENE	<5	50	52	104	53	106	2
BENZENE	<5	50	52	104	54	108	4

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

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

TOTAL ORGANIC CARBON

Method 415.2

Analytical Technologies, Inc.

Lab Name: Analytical Technologies, Inc.

Date Collected: 04/27/94

Client Name: ATI-NM

Date Analyzed: 05/09/94

Client Project ID: GRC -- 404436

Sample Matrix: Water

Lab Workorder Number: 94-04-307

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 94-04-307	1	< 1.0	< 1.0	N/A
404436-3	94-04-307-01	1	< 1.0		
	94-04-307-01DUP	1	< 1.0	< 1.0	N/A
404436-4	94-04-307-02	1	< 1.0		
	94-04-307-02DUP	1	< 1.0	< 1.0	N/A

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GRC -- 404436

Lab Workorder Number: 94-04-307

Date Collected: 04/27/94

Date Extracted: 05/11/94

Date Analyzed: 05/11/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-04-307	100	< 20	< 20	N/A
404436-3	94-04-307-01	100	20		
	94-04-307-01DUP	100	20	20	0
404436-4	94-04-307-02	100	< 20		
	94-04-307-02DUP	100	< 20	< 20	N/A

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: 94-04-307-02

Sample Matrix: Water

Sample ID

404436-4

Date Extracted: 05/11/94

Date Analyzed: 05/11/94

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	< 20	200	100

Analytical Technologies, Inc., Albuquerque, NM

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

CHAIN OF CUSTODY

DATE: 4-28-94 PAGE 1 OF

ATI LAB I.D. 404430

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

PROJECT MANAGER:

COMPANY: GIANT
ADDRESS: HWY 40 EXIT 39
JAMESTOWN, NM 87347
PHONE: (505) 722 3833
FAX: (505) 722 0210

BILL TO:
COMPANY: GIANT
ADDRESS: Rt 3 Box 7
GALLUP, NM 87301

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
OW-2	4-27	10:00	H2O	01
OW-1	4-27	11:45	H2O	02
MW-2	4-27	2:50	H2O	03
MW-5	4-27	5:00	H2O	04
Trip Blank	4/19/94		H2O	05

ANALYSIS REQUEST

	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	pH, EC, ALKALINITY, TDS	CHLORIDE, SULFATE	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	8240 VOLATILES *	DISSOLVED METALS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	TOC	TOX	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal	PHENOLS	TOTAL METALS	The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)	NUMBER OF CONTAINERS
OW-2				X	X	X					X																2
OW-1				X	X	X					X																2
MW-2				X	X	X				X	X						X	X					X	X			2
MW-5				X	X	X				X	X						X	X					X	X			2
Trip Blank				X						X																	1

PROJECT INFORMATION

PROJ. NO.: ~~[illegible]~~
PROJ. NAME: ANNUAL GDWTR
P.O. NO.: 997 9023 94
SHIPPED VIA: FEDEX

SAMPLE RECEIPT

NO. CONTAINERS	37
CUSTODY SEALS	Y / N (NA)
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:
* SEE ATTACHED LIST FOR PARAMETERS.
*C.O.C. Seals intact on outside of cooler.

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature] Time: 7:58AM	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 4-28-94	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722-0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 0900
Printed Name: Date:	Printed Name: Date:	Printed Name: Terri DeHre Date: 4/29/94
Company:	Company:	Analytical Technologies, Inc.

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

DISTRIBUTION: White, Canary - ATI • Pink - ORIGINATOR

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

Chain of Custody 94-04-307

DATE 4/29/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX - Run Duplicate	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
404436-3	4/27/94	1450	AQ	01	X	X																			6
-4	4/27/94	1700	AQ	02	X	X																			6

PROJECT INFORMATION

PROJECT NUMBER: 404436

PROJECT NAME: GRC

QC LEVEL: STD. IV

QC REQUIRED: MS MSD BLANK

TAT: STANDARD RUSH

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	10
CHAIN OF CUSTODY SEALS	N
INTACT?	N
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	94-04-307

SAMPLES SENT TO:

- SAN DIEGO
- FT. COLLINS
- RENTON
- PENSACOLA
- PHOENIX
- BARRINGER
- FIBERQUANT

RELINQUISHED BY: 1.

Signature: Time: 1730

Printed Name: Terri Dettre Date 4/29/94

Analytical Technologies, Inc.
Albuquerque

RECEIVED BY: (LAB) 1.

Signature: Time:

Printed Name: Date:

Company:

RELINQUISHED BY: 2.

Signature: Time:

Printed Name: Date

Company:

RECEIVED BY: (LAB) 2.

Signature: Time: 1000

Printed Name: John Whaley Date: 4/30/94

Company:

DUE DATE: 5/13/94

RUSH SURCHARGE:

CLIENT DISCOUNT: per quote %

60.0 = LK704

Analytical technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 4/29/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: BETH PROFFITT

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	EC, Alk, TDS, Cl, SO4	632/632 MOD	619/619 MOD	610/8310 Appendix IX	8240 - Deadlock List pn	Dissolved Pb, Ba, Cd, Ca, Mg, Mn	8240 (TCLP 1311) ZHE	K, Se, Ba, Na	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	Total Pb, Ba, Cd, Ca, Mg, Mn	K, Se, Ba, Na	ASBESTOS	Total Phenolics (420.1)	BOD	TOTAL COLIFORM	FECAL COLIFORM	Total Cr, Pb, Hg	GROSS ALPHA/BETA	RADIUM 226/228		AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
404436-1	4/27/94	1000	AQ	1						X					X		X																2
-2		1145		2						X					X		X			X													2
-3		1450		3						X				X	X		X			X	X		X				X	X					6
-4		1700		4						X				X	X		X			X	X		X				X	X					7
-5 (T.B.)	4/19/94			5										X																			1

PROJECT INFORMATION

PROJECT NUMBER: 404436
PROJECT NAME: GRC
QC LEVEL: STD IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

DUE DATE: 5/13/94
RUSH SURCHARGE:
CLIENT DISCOUNT: per quote %

WO# Lt 706

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	18
CHAIN OF CUSTODY SEALS	N
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	404434

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

RELINQUISHED BY: 1.
Signature: Terri Dattre Time: 1230
Printed Name: Terri Dattre Date: 4/29/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: A. Fortunato Time: 11:05
Printed Name: A Fortunato Date: 4-30-94
Company: ATI

Analytical Technologies, Inc.

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

ATI I.D. **410427**

December 9, 1994

Giant Refining Co.
I40 Exit 39
Jamestown, NM 87347

Project Name/Number: SEMI-ANNUAL GDWTR

Attention: Lynn Shelton

On **10/21/94**, 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.

This report is being reissued inpart to extend the EPA 8240 compound list.

EPA Method 150.1 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., 9830 S. 51st Street, Suite B-113, Phoenix, AZ.

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

Analytical Technologies, Inc.

CLIENT : GIANT REFINING CO. DATE RECEIVED : 10/21/94
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR REPORT DATE : 11/11/94
ATI I.D. : 410427

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-1	AQUEOUS	10/19/94
02	MW-2	AQUEOUS	10/19/94
03	MW-4	AQUEOUS	10/19/94
04	MW-5	AQUEOUS	10/19/94
05	OW-11	AQUEOUS	10/19/94
06	SMW-3	AQUEOUS	10/20/94

----- TOTALS -----

MATRIX	# SAMPLES
AQUEOUS	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.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	01A	01B	01C	01D
PH (150.1)	UNITS	8.97	9.00	9.03	9.05

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	02A	02B	02C	02D
PH (150.1)	UNITS	9.06	9.07	9.06	9.08

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	03A	03B	03C	03D
PH (150.1)	UNITS	8.77	8.77	8.78	8.77

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	04A	04B	04C	04D
PH (150.1)	UNITS	9.09	9.09	9.09	9.11

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	05A	05B	05C	05D
PH (150.1)	UNITS	8.34	8.34	8.35	8.35

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL GDWTR	DATE ANALYZED	: 10/25/94

PARAMETER	UNITS	06A	06B	06C	06D
PH (150.1)	UNITS	7.63	7.68	7.70	7.79

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO. ATI I.D. : 410427

PROJECT # : (NONE) SAMPLE MATRIX : AQUEOUS

PROJECT NAME : SEMI-ANNUAL GDWTR

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	41042701	8.97	9.00	0.3	NA	NA	NA

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO. ATI I.D. : 410427

PROJECT # : (NONE) SAMPLE MATRIX : AQUEOUS

PROJECT NAME : SEMI-ANNUAL GDWTR

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	410427-03	8.77	8.78	0.11	NA	NA	NA

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO. ATI I.D. : 410427

PROJECT # : (NONE) SAMPLE MATRIX : AQUEOUS

PROJECT NAME : SEMI-ANNUAL GDWTR

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	410427-06	7.68	7.70	0.26	NA	NA	NA

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 410427

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR

DATE RECEIVED : 10/21/94
REPORT DATE : 11/11/94

PARAMETER	UNITS	01	02	03	04	05
SPECIFIC CONDUCTANCE	MG/L	1090	1130	1140	1120	2120
REP 2	MG/L	1080	1100	1150	1130	2180
REP 3	MG/L	1080	1110	1150	1130	2190
REP 4	MG/L	1100	1110	1160	1120	2190

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 410427

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR

DATE RECEIVED : 10/21/94
REPORT DATE : 11/11/94

PARAMETER	UNITS	06
SPECIFIC CONDUCTANCE	MG/L	3360
REP 2	MG/L	3340
REP 3	MG/L	3500
REP 4	MG/L	3520

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR ATI I.D. : 410427

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SPECIFIC CONDUCTANCE -	MG/L	41042701	1090	1080	0.9	NA	NA	NA

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

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

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 410427

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR

DATE RECEIVED : 10/21/94
REPORT DATE : 11/11/94

PARAMETER	UNITS	01	02	03	04	05
CHROMIUM (EPA 200.7/6010)	MG/L	0.021	<0.010	0.013	<0.010	<0.010
LEAD (EPA 239.2/7421)	MG/L	0.004	<0.002	<0.002	<0.002	<0.005

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 410427

LIENT : GIANT REFINING CO.
ROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR

DATE RECEIVED : 10/21/94
REPORT DATE : 11/11/94

ARAMETER	UNITS	06
CHROMIUM (EPA 200.7/6010)	MG/L	0.718
EAD (EPA 239.2/7421)	MG/L	0.043

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR ATI I.D. : 410427

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CHROMIUM	MG/L	41042704	<0.010	<0.010	NA	0.938	1.00	94
LEAD	MG/L	41042704	<0.002	<0.002	NA	0.044	0.050	88

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

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

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 41042701

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-1	DATE ANALYZED	: 10/27/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

DIBROMOFLUOROMETHANE (%)	99
BROMOFLUOROBENZENE (%)	103
TOLUENE-D8 (%)	99

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042701

COMPOUNDS	RESULTS
ACROLEIN	ND
ACRYLONITRILE	ND
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	ND
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	ND
ETHANOL	ND
1,4-DICHLORO-2-BUTANE	ND

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 41042702

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-2	DATE ANALYZED	: 10/27/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

DIBROMOFLUOROMETHANE (%)	99
BROMOFLUOROBENZENE (%)	99
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042702

COMPOUNDS	RESULTS
ACROLEIN	ND
ACRYLONITRILE	ND
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	ND
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	ND
ETHANOL	ND
1,4-DICHLORO-2-BUTANE	ND

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 41042703

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-4	DATE ANALYZED	: 10/27/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

DIBROMOFLUOROMETHANE (%)	101
BROMOFLUOROBENZENE (%)	100
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042703

COMPOUNDS	RESULTS
ACROLEIN	ND
ACRYLONITRILE	ND
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	ND
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	ND
ETHANOL	ND
1,4-DICHLORO-2-BUTANE	ND

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 41042704

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL	DATE EXTRACTED	: N/A
CLIENT I.D.	: MW-5	DATE ANALYZED	: 10/27/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

DIBROMOFLUOROMETHANE (%)	101
BROMOFLUOROBENZENE (%)	100
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042704

COMPOUNDS	RESULTS
ACROLEIN	ND
ACRYLONITRILE	ND
IBROMOMETHANE	<5
ICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	ND
RICHLOROMONOFLUOROMETHANE	<5
,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	ND
THANOL	ND
,4-DICHLORO-2-BUTANE	ND

Analytical Technologies, Inc.

GCMS - RESULTS

ATI I.D. : 41042705

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/19/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/21/94
PROJECT NAME	: SEMI-ANNUAL	DATE EXTRACTED	: N/A
CLIENT I.D.	: OW-11	DATE ANALYZED	: 10/27/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
2-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1
SURROGATE PERCENT RECOVERIES	
DIBROMOFLUOROMETHANE (%)	102
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	100

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042705

COMPOUNDS	RESULTS
ACROLEIN	ND
ACRYLONITRILE	ND
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	ND
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	ND
ETHANOL	ND
1,4-DICHLORO-2-BUTANE	ND

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT	: GIANT REFINING CO.	ATI I.D.	: 410427
PROJECT #	: (NONE)	DATE EXTRACTED	: 10/27/94
PROJECT NAME	: SEMI-ANNUAL GRDWTR	DATE ANALYZED	: 10/27/94
CLIENT I.D.	: REAGENT BLANK	UNITS	: UG/L
		DILUTION FACTOR	: N/A

COMPOUNDS	RESULTS
CHLOROMETHANE	<10
BROMOMETHANE	<10
VINYL CHLORIDE	<1
CHLOROETHANE	<1
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<1
1,1-DICHLOROETHENE	<1
1,1-DICHLOROETHANE	<1
1,2-DICHLOROETHENE (TOTAL)	<1
CHLOROFORM	<1
1,2-DICHLOROETHANE	<1
2-BUTANONE (MEK)	<10
1,1,1-TRICHLOROETHANE	<1
CARBON TETRACHLORIDE	<1
VINYL ACETATE	<10
BROMODICHLOROMETHANE	<1
1,1,2,2-TETRACHLOROETHANE	<1
1,2-DICHLOROPROPANE	<1
TRANS-1,3-DICHLOROPROPENE	<1
TRICHLOROETHENE	<1
DIBROMOCHLOROMETHANE	<1
1,1,2-TRICHLOROETHANE	<1
BENZENE	<1
CIS-1,3-DICHLOROPROPENE	<1
2-CHLOROETHYLVINYLETHER	<10
BROMOFORM	<5
4-HEXANONE (MBK)	<10
4-METHYL-2-PENTANONE (MIBK)	<10
TETRACHLOROETHENE	<1
TOLUENE	<1
CHLOROBENZENE	<1
ETHYLBENZENE	<1
STYRENE	<1
TOTAL XYLENES	<1

SURROGATE PERCENT RECOVERIES

DIBROMOFLUOROMETHANE (%)	100
BROMOFLUOROBENZENE (%)	101
TOLUENE-D8 (%)	99

Analytical Technologies, Inc.

QUALITY CONTROL DATA

ATI I.D. : 410427

TEST : VOLATILE ORGANICS (EPA 8240)

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : SEMI-ANNUAL GRDWTR
REF I.D. : 41042701

DATE ANALYZED : 10/27/94
SAMPLE MATRIX : AQUEOUS
UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC. SPIKED	SPIKED SAMPLE	% REC.	DUP. SPIKED SAMPLE	DUP. % REC.	RPD
1,1-DICHLOROETHENE	<1	50	54	108	53	106	2
TRICHLOROETHENE	<1	50	53	106	49	98	8
CHLOROBENZENE	<1	50	50	100	49	98	2
TOLUENE	<1	50	53	106	50	100	6
BENZENE	<1	50	53	106	50	100	6

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

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

Analytical Technologies, Inc.

TOTAL ORGANIC CARBON

Method 415.2

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GII -- 410427

Lab Workorder Number: 94-10-263

Date Collected: 10/19,20/94

Date Analyzed: 10/31/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 94-10-263	1	< 1.0	< 1.0	N/A
MW-1	94-10-263-01	1	1		
	94-10-263-01DUP	1	1	1	0
MW-2	94-10-263-02	1	< 1.0		
	94-10-263-02DUP	1	< 1.0	< 1.0	N/A
MW-4	94-10-263-03	1	< 1.0		
	94-10-263-03DUP	1	< 1.0	< 1.0	N/A
MW-5	94-10-263-04	1	< 1.0		
	94-10-263-04DUP	1	< 1.0	< 1.0	N/A
DW-11	94-10-263-05	1	2		
	94-10-263-05DUP	1	2	2	0
SMW-3	94-10-263-06	1	5		
	94-10-263-06DUP	1	5	5	0

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GII -- 410427

Lab Workorder Number: 94-10-263

Date Collected: 10/19,20/94

Date Extracted: 10/31/94

Date Analyzed: 10/31/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-10-263	100	< 20	< 20	N/A
MW-1	94-10-263-01	100	< 20		
	94-10-263-01DUP	100	< 20	< 1.0	N/A
MW-2	94-10-263-02	100	< 20		
	94-10-263-02DUP	100	< 20	< 1.0	N/A
MW-4	94-10-263-03	100	< 20		
	94-10-263-03DUP	100	< 20	< 1.0	N/A
MW-5	94-10-263-04	100	< 20		
	94-10-263-04DUP	100	< 20	< 1.0	N/A
DW-11	94-10-263-05	100	< 20		
	94-10-263-05DUP	100	< 20	< 1.0	N/A
SMW-3	94-10-263-06	100	20		
	94-10-263-06DUP	100	20	20	0

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: 94-10-182-03

Sample Matrix: Water

Sample ID

In House

Date Extracted: 10/30/94

Date Analyzed: 10/30/94

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	30	210	90

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

CHAIN OF CUSTODY

DATE: 10-20-94 PAGE 1 OF 1

ATI LAB I.D. 410427

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

PROJECT MANAGER:

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

BILL TO: LYNN SHELTON
COMPANY: GIANT
ADDRESS: Rt 3 BOX 7
GALLUP, NM 87347

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	pH, EC *	TDC, TDX ***	Volatile Organics GC/MS (624/8240) ***	TOTAL Cr + Pb	NUMBER OF CONTAINERS
MW-1	10-19	9:45	H_2O	01	X	X	X	X	16
MW-2	10-19	10:10	H_2O	02	X	X	X	X	16
MW-4	10-19	1:20	H_2O	03	X	X	X	X	16
MW-5	10-19	4:40	H_2O	04	X	X	X	X	16
OW-11	10-19	3:05	H_2O	05	X	X	X	X	16
SMW-3	10-20	10:00	H_2O	06	X	X		X	13

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)
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.: 8
PROJ. NAME: SEMI-ANNUAL GW
P.O. NO.: 997 9023 05
SHIPPED VIA: FEDEX

SAMPLE RECEIPT

NO. CONTAINERS: 88
CUSTODY SEALS: (Y) N / NA
RECEIVED INTACT: N *
RECEIVED COLD: Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:
* 4 REPLICATES
** 2 REPLICATES
*** SEE ATTACHED LIST

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: [signature] Time: 3:00	Signature: Time:	Signature: Time:
Printed Name: LYNN SHELTON Date: 10-20-94	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722 0227	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: [signature] Time: 9:40
Printed Name: Date:	Printed Name: Date:	Printed Name: Dianne Lotter Date: 10/24/94
Company:	Company:	Analytical Technologies, Inc.

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

* MW-2, TDC & MW-2 TDX & MW-11 TDX - 1 sample of each brake in shipment

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 10/21/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: Analytical Technologies, Inc.

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS	
410427-01	10-19	0945	AQ	01	X	X																			8	8 TO
-02		1010		02	X	X																			6	6 TO
-03		1320		03	X	X																			7	7 TO
* -04		1640		04	X	X																			7	
-05	↓	1505		05	X	X																			7	
-06	10-20	1000	↓	06	X	X																			8	8 TO

PROJECT INFORMATION	
PROJECT NUMBER:	410427
PROJECT NAME:	GII
QC LEVEL:	(STD) IV
QC REQUIRED:	MS MSD BLANK
TAT:	(STANDARD) RUSHI

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	43
CHAIN OF CUSTODY SEALS	NA
INTACT?	NA
RECEIVED GOOD COND/(COLD)	Y
LAB NUMBER	

DUE DATE: 11/4
RUSH SURCHARGE:
CLIENT DISCOUNT: See Quote

2 replicates on TOX / TOC

* ONE CONTAINER BROKEN DURING SHIPPING — JR 10-22
WO# WK1070

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

RELINQUISHED BY: 1.	
Signature:	Time: 1730
Printed Name: Dianne Lutter	Date
Analytical Technologies, Inc. Albuquerque	
RECEIVED BY: (LAB) 1.	
Signature:	Time:
Printed Name:	Date:
Company: Airborne	

RELINQUISHED BY: 2.	
Signature:	Time:
Printed Name:	Date
Company: Airborne	
RECEIVED BY: (LAB) 2.	
Signature:	Time: 10:00
Printed Name: L. Kelly	Date: 10-22-94
Company: ATI	

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 10/21/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	EC	632/632 MOD	619/619 MOD	610/8310	Total Pb, Cr	8240	8240 (TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
410427-01	10-19	0945	AQ	1						X				X	X													6
-02		1010		2						X				X	X													6
-03		1320		3						X				X	X													4
-04		1640		4						X				X	X													6
-05	↓	1505		5						X				X	X													6
-06	10-20	1000	↓	6						X				X														3

PROJECT INFORMATION

PROJECT NUMBER: 410427
PROJECT NAME: GJI
QC LEVEL: (STD) IV
QC REQUIRED: MS MSD BLANK
TAT: (STANDARD) RUSHI

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	3/
CHAIN OF CUSTODY SEALS	NA
INTACT?	Y *
RECEIVED GOOD COND./COLD	Y *
LAB NUMBER	410427

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	X
FIBERQUANT	

RELINQUISHED BY: 1.
Signature: Time: 1730
Printed Name: Date: 10/21/94
Dianne Letter
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: Time: 1039
Printed Name: Date: 10/22/94
Linda Stelmon
Company: ATI

DUE DATE: 11/4
RUSH SURCHARGE: ∅
CLIENT DISCOUNT: See Quote

4 replicates on EC

* Sample #3 - metals Amber rec'd broke
Woff-LK1069

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

Analytical **Technologies,** Inc.

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

ATI I.D. 410422

January 10, 1995

Giant Refining
Route 3, Box 7
Gallup, NM 87301

Project Name/Number: (NONE)

Attention: Lynn Shelton

On **10/20/94**, 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.

This is an amended report. Per the client's request, the EPA method 8240 reporting limits have been changed to reflect those previously reported for this site. Only the method 8240 results are included in this amended report.

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

Letitia Krakowski, Ph.D.
Project Manager

H. Mitchell Rubenstein, Ph.D.
Laboratory Manager

MR:jt

Enclosure

Analytical Technologies, Inc.

CLIENT	: GIANT REFINING CO.	DATE RECEIVED	: 10/20/94
PROJECT #	: (NONE)		
PROJECT NAME	: (NONE)	REPORT DATE	: 01/10/95

ATI ID: 410422

ATI #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SMW-5	AQUEOUS	10/18/94
02	SMW-6	AQUEOUS	10/18/94
03	SMW-3	AQUEOUS	10/18/94
04	SMW-4	AQUEOUS	10/18/94

---TOTALS---

MATRIX	#SAMPLES
AQUEOUS	4

ATI STANDARD DISPOSAL PRACTICE

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING	ATI I.D.	: 410422
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE ANALYZED	: 10/20/94

PARAMETER	UNITS	01A	01B	01C	01D
PH (150.1)	UNITS	8.58	8.60	8.60	8.64

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING	ATI I.D.	: 410422
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE ANALYZED	: 10/20/94

PARAMETER	UNITS	02A	02B	02C	02D
PH (150.1)	UNITS	6.98	6.98	6.97	6.97

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT	: GIANT REFINING	ATI I.D.	: 410422
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE ANALYZED	: 10/20/94

PARAMETER	UNITS	04A	04B	04C	04D
PH (150.1)	UNITS	8.53	8.48	8.51	8.48

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

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

ATI I.D. : 410422
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	41042201	8.58	8.60	0.2	NA	NA	NA

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

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

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

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

ATI I.D. : 410422
SAMPLE MATRIX : AQUEOUS

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC.	% REC
PH	UNITS	410422-04	8.53	8.48	0.6	NA	NA	NA

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

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

Analytical Technologies, Inc.

TOTAL ORGANIC CARBON

Method 415.2

Lab Name: Analytical Technologies, Inc.

Date Collected: 10/18/94

Client Name: ATI-NM

Date Analyzed: 10/29/94

Client Project ID: GII --410422

Sample Matrix: Water

Lab Workorder Number: 94-10-250

Sample ID	Lab Sample ID	Volume Injected (mL)	TOC Conc. (mg/L)	TOC AVG	RPD
Reagent Blank	RB 94-10-250	1	< 1.0	< 1.0	N/A
SMW-5	94-10-250-01	1	8		
	94-10-250-01DUP	1	8	8	0
SMW-6	94-10-250-02	1	23		
	94-10-250-02DUP	1	22	22.5	4
SMW-4	94-10-250-03	1	< 1.0		
	94-10-250-03DUP	1	< 1.0	< 1.0	N/A

Analytical Technologies, Inc.

TOTAL ORGANIC HALIDE

Modified Method 9020 TOX

Lab Name: Analytical Technologies, Inc.

Client Name: ATI-NM

Client Project ID: GII -- 410422

Lab Workorder Number: 94-10-250

Date Collected: 10/18/94

Date Extracted: 10/28,29/94

Date Analyzed: 10/28,29/94

Sample Matrix: Water

Sample ID	Lab Sample ID	Sample Volume (mL)	TOX Conc. (ug/L)	TOX AVG	RPD
Reagent Blank	WRB94-10-250	100	< 20	< 20	N/A
SMW-5	94-10-250-01	100	< 20		
	94-10-250-01DUP	100	< 20	< 20	N/A
SMW-6	94-10-250-02	100	130		
	94-10-250-02DUP	100	140	135	7
SMW-4	94-10-250-03	100	< 20		
	94-10-250-03DUP	100	< 20	< 20	N/A

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: 94-10-120-02

Sample Matrix: Water

Sample ID

In House

Date Extracted: 10/28,29/94

Date Analyzed: 10/28,29/94

Analyte	Spike Added (ug/L)	Sample Concentration (ug/L)	MS Concentration (ug/L)	MS Percent Recovery
2,4,6-Trichlorophenol	200	40	260	110

Analytical Technologies, Inc.

GENERAL CHEMISTRY RESULTS

ATI I.D. : 410422

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

DATE RECEIVED : 10/20/94
REPORT DATE : 11/11/94

PARAMETER	UNITS	01	02	04
SPECIFIC CONDUCTANCE (EPA 12	MG/L	1120	13600	1270
REP 2	MG/L	1130	13600	1280
EP 3	MG/L	1120	13300	1250
EP 4	MG/L	1150	13200	1230

Analytical Technologies, Inc.

GENERAL CHEMISTRY - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : (NONE) ATI I.D. : 410422

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
SPECIFIC CONDUCTANCE -	MG/L	41042201	1120	1130	0.9			

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

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

Analytical Technologies, Inc.

METALS RESULTS

ATI I.D. : 410422

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

DATE RECEIVED : 10/20/94
REPORT DATE : 11/11/94

PARAMETER	UNITS	01	02	04
CHROMIUM (EPA 200.7/6010)	MG/L	0.076	0.434	0.030
LEAD (EPA 239.2/7421)	MG/L	0.008	<0.002	<0.002

Analytical Technologies, Inc.

METALS - QUALITY CONTROL

CLIENT : GIANT REFINING CO.
PROJECT # : (NONE)
PROJECT NAME : (NONE) ATI I.D. : 410422

PARAMETER	UNITS	ATI I.D.	SAMPLE RESULT	DUP. RESULT	RPD	SPIKED SAMPLE	SPIKE CONC	% REC
CHROMIUM	MG/L	41081601	0.203	0.193	5	1.19	1.00	99
LEAD	MG/L	41082901	<0.002	<0.002	NA	0.046	0.050	92

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

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

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

		ATI I.D.	: 41042201
CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/18/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE EXTRACTED	: NA
CLIENT I.D.	: SMW-5	DATE ANALYZED	: 10/31/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
BROMOMETHANE	<10
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D.: 41042201

COMPOUNDS	RESULTS
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACETONITRILE	<10
ACROLEIN	<20
ACRYLONITRILE	<10
1,2-DIBROMOETHANE	<5
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5

SURROGATE PERCENT RECOVERIES:

1,2-DICHLOROETHANE-D4 (%)	104
BFB (%)1	112
TOLUENE-D8 (%)	97

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042201

COMPOUNDS	RESULTS
ETHANOL	<1000

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

		ATI I.D.	: 41042202
CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/18/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE EXTRACTED	: NA
CLIENT I.D.	: SMW-6	DATE ANALYZED	: 10/31/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
BROMOMETHANE	<10
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D.: 41042202

COMPOUNDS	RESULTS
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACETONITRILE	<10
ACROLEIN	<20
ACRYLONITRILE	<10
1,2-DIBROMOETHANE	<5
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5

SURROGATE PERCENT RECOVERIES:

1,2-DICHLOROETHANE-D4 (%)	106
BFB (%)1	103
TOLUENE-D8 (%)	97

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042202

COMPOUNDS	RESULTS
ETHANOL	<1000

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

		ATI I.D.	: 41042203
CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/18/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE EXTRACTED	: NA
CLIENT I.D.	: SMW-3	DATE ANALYZED	: 10/31/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
BROMOMETHANE	<10
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D.: 41042203

COMPOUNDS	RESULTS
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	6
ACETONITRILE	<10
ACROLEIN	<20
ACRYLONITRILE	<10
1,2-DIBROMOETHANE	<5
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5
SURROGATE PERCENT RECOVERIES:	
1,2-DICHLOROETHANE-D4 (%)	106
BFB (%)1	107
TOLUENE-D8 (%)	98

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042203

COMPOUNDS	RESULTS
ETHANOL	<1000

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

		ATI I.D.	: 41042204
CLIENT	: GIANT REFINING CO.	DATE SAMPLED	: 10/18/94
PROJECT #	: (NONE)	DATE RECEIVED	: 10/20/94
PROJECT NAME	: (NONE)	DATE EXTRACTED	: NA
CLIENT I.D.	: SMW-4	DATE ANALYZED	: 10/31/94
SAMPLE MATRIX	: AQUEOUS	UNITS	: UG/L
		DILUTION FACTOR	: 1

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
BROMOMETHANE	<10
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5
CIS-1,3-DICHLOROPROPENE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D.: 41042204

COMPOUNDS	RESULTS
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACETONITRILE	<10
ACROLEIN	<20
ACRYLONITRILE	<10
1,2-DIBROMOETHANE	<5
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5
SURROGATE PERCENT RECOVERIES:	
1,2-DICHLOROETHANE-D4 (%)	106
BFB (%)1	108
TOLUENE-D8 (%)	97

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 41042204

COMPOUNDS	RESULTS
ETHANOL	<1000

Analytical Technologies, Inc.

GCMS - RESULTS
REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240)

		ATI I.D.	: 410422
CLIENT	: GIANT REFINING CO.	DATE EXTRACTED	: 10/31/94
PROJECT #	: (NONE)	DATE ANALYZED	: 10/31/94
PROJECT NAME	: (NONE)	UNITS	: UG/L
CLIENT I.D.	: SMW-4	DILUTION FACTOR	: NA

COMPOUNDS	RESULTS
CHLOROMETHANE	<5
BROMOMETHANE	<10
VINYL CHLORIDE	<5
CHLOROETHANE	<5
METHYLENE CHLORIDE	<5
ACETONE	<10
CARBON DISULFIDE	<5
1,1-DICHLOROETHENE	<5
1,1-DICHLOROETHANE	<5
1,2-DICHLOROETHENE (TOTAL)	<5
CHLOROFORM	<5
1,2-DICHLOROETHANE	<5
2-BUTANONE (MEK)	<5
1,1,1-TRICHLOROETHANE	<5
CARBON TETRACHLORIDE	<5
VINYL ACETATE	<5
BROMODICHLOROMETHANE	<5
1,1,2,2-TETRACHLOROETHANE	<5
1,2-DICHLOROPROPANE	<5
TRANS-1,3-DICHLOROPROPENE	<5
TRICHLOROETHENE	<5
DIBROMOCHLOROMETHANE	<5
1,1,2-TRICHLOROETHANE	<5
BENZENE	<5

Analytical Technologies, Inc.

GCMS - RESULTS

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D.: 410422

COMPOUNDS	RESULTS
BROMOFORM	<3
2-HEXANONE (MBK)	<5
4-METHYL-2-PENTANONE (MIBK)	<5
TETRACHLOROETHENE	<5
TOLUENE	<5
CHLOROBENZENE	<5
ETHYLBENZENE	<5
STYRENE	<5
TOTAL XYLENES	<5
ACETONITRILE	<10
ACROLEIN	<20
ACRYLONITRILE	<10
1,2-DIBROMOETHANE	<5
DIBROMOMETHANE	<5
DICHLORODIFLUOROMETHANE	<5
METHYL IODIDE	<5
TRANS-1,4-DICHLORO-2-BUTENE	<5
TRICHLOROMONOFLUOROMETHANE	<5
1,2,3-TRICHLOROPROPANE	<5
ETHYL METHACRYLATE	<5

SURROGATE PERCENT RECOVERIES:

1,2-DICHLOROETHANE-D4 (%)	106
BFB (%)1	107
TOLUENE-D8 (%)	98

Analytical Technologies, Inc.

ADDITIONAL COMPOUNDS (SEMI-QUANTITATED)

REAGENT BLANK

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 410422

COMPOUNDS	RESULTS
ETHANOL	<1000

Analytical Technologies, Inc.

QUALITY CONTROL DATA

TEST : VOLATILE ORGANICS (EPA 8240)

ATI I.D. : 410422

CLIENT : GIANT REFINING CO.

PROJECT # : (NONE)

DATE ANALYZED : 10/31/94

PROJECT NAME : (NONE)

SAMPLE MATRIX : AQUEOUS

REF. I.D. : 41149801

UNITS : UG/L

COMPOUNDS	SAMPLE RESULT	CONC SPIKE	SPIKED SAMPLE	% REC	DUP SPIKE	DUP % REC	RPD
1,1-DICHLOROETHENE	<1	50	54	108	51	102	6
TRICHLOROETHENE	<1	50	51	102	49	98	4
CHLOROBENZENE	<1	50	49	98	47	94	4
TOLUENE	<1	50	51	102	49	98	4
BENZENE	<1	50	53	106	55	110	4

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

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

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

CHAIN OF CUSTODY

DATE: 10/19/94 PAGE 2 OF 2

ATI LAB I.D. 41042

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

PROJECT MANAGER:

COMPANY: GIANT REFINING
ADDRESS: ROUTE 3, BOX 7
GALLUP, NM 87301
PHONE: (505) 722-0212
FAX: (505) 722-0210

BILL TO: WALT TOOMER
COMPANY: SAME
ADDRESS: SAME

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	TPC	TOX	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	EC	pH	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	CR # PR	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal		The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)		NUMBER OF CONTAINERS
SMW-3	10/18/94	1725	H2O	03															X												3
SMW-4	10/18/94	—	H2O	04					X	X				X	X				X		X										6

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME:
P.O. NO.:
SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS	9
CUSTODY SEALS	(Y) / N / NA
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:

SAMPLED & RELINQUISHED BY: 1.	RELINQUISHED BY: 2.	RELINQUISHED BY: 3.
Signature: Time: 1030	Signature: Time:	Signature: Time:
Printed Name: WALT TOOMER Date: 10/19/94	Printed Name: Date:	Printed Name: Date:
Company: GIANT Phone: 722-0212	Company:	Company:

RECEIVED BY: 1.	RECEIVED BY: 2.	RECEIVED BY: (LAB) 3.
Signature: Time:	Signature: Time:	Signature: Time: 1600
Printed Name: Date:	Printed Name: Date:	Printed Name: Date: 10/20/94
Company:	Company:	Analytical Technologies, Inc.

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

Analytical Technologies, Inc., Albuquerque, NM

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

CHAIN OF CUSTODY

DATE: 10/19/94 PAGE 1 OF 2

ATI LAB I.D. 410422

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

PROJECT MANAGER:

COMPANY: GIANT REFINING
ADDRESS: ROUTE 3, BOX 7
GALLUP, NM 87301
PHONE: (505) 722-0212
FAX: (505) 722-0210

BILL TO: WALT TOMER
COMPANY: SAME
ADDRESS: SAME

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Petroleum Hydrocarbons (418.1)	(MOD 8015) Gas/Diesel	Diesel/Gasoline/BTXE/MTBE (MOD 8015/8020)	BTXE/MTBE (8020)	TOC	TOX	Chlorinated Hydrocarbons (601/8010)	Aromatic Hydrocarbons (602/8020)	SDWA Volatiles (502.1/503.1), 502.2 Reg. & Unreg.	pH	EP	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	CR & PB	SDWA Primary Standards - Arizona	SDWA Secondary Standards - Arizona	SDWA Primary Standards - Federal	SDWA Secondary Standards - Federal			The 13 Priority Pollutant Metals	RCRA Metals by Total Digestion	RCRA Metals by TCLP (1311)	NUMBER OF CONTAINERS
SMW-5	10/19/94	—	H_2O	01					X	X				X	X				X		X										16
SMW-6	10/19/94	—	H_2O	02					X	X				X	X				X		X										16

PROJECT INFORMATION

PROJ. NO.:
PROJ. NAME:
P.O. NO.:
SHIPPED VIA: FED EX

SAMPLE RECEIPT

NO. CONTAINERS	30
CUSTODY SEALS (Y / N / NA)	Y
RECEIVED INTACT	Y
RECEIVED COLD	Y

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

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

Comments:
SMW-6 for TOC & TOX was crushed in delivery

SAMPLED & RELINQUISHED BY: 1.

Signature: Time: 1030
Printed Name: WALT TOMER Date: 10/19/94
Company: GIANT Phone: 722-0212

RELINQUISHED BY: 2.

Signature: Time:
Printed Name: Date:
Company:

RELINQUISHED BY: 3.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 1.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: 2.

Signature: Time:
Printed Name: Date:
Company:

RECEIVED BY: (LAB) 3.

Signature: Time: 1550
Printed Name: Diane Gutierrez Date: 10/20/94
Analytical Technologies, Inc.

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 10/20/14 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER:

SAMPLE ID	DATE	TIME	MATRIX	LAB ID
410422-01	10-18	—	AQ	1
-02	↓	—	↓	2
-03		1725		3
-04	↓	—	↓	4

ANALYSIS REQUEST

TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	EC	632/532 MOD	615/619 MOD	610/8310	Cr6+		8240	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)		NACE	ASBESTOS		BOD	TOTAL COLIFORM	FECAL COLIFORM		GROSS ALPHA/BETA	RADIUM 225/228		AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS
					X				X		X																4
					X				X		X																4
					X				X		X	1															4
					X				X		X																4

PROJECT INFORMATION	
PROJECT NUMBER:	410422
PROJECT NAME:	GLF
QC LEVEL:	(STD) IV
QC REQUIRED:	(MS) MSD BLANK
TAT:	(STANDARD) RUSH!

SAMPLE RECEIPT	
TOTAL NUMBER OF CONTAINERS	21
CHAIN OF CUSTODY SEALS	Y
INTACT?	Y
RECEIVED GOOD COND./COLD	Y
LAB NUMBER	410422

DUE DATE: 11/3
RUSH SURCHARGE: 0
CLIENT DISCOUNT: 10 %

LOG# LK10607

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

RELINQUISHED BY: 1.
Signature: D. Tuttle Time: 1730
Printed Name: Dianne Luther Date: 10/20/14
Analytical Technologies, Inc. Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Date: 10/21/14
Company:

Analytical Technologies, Inc. Albuquerque, NM

Chain of Custody

DATE 10/20/94 PAGE 1 OF 1

NETWORK PROJECT MANAGER: LETITIA KRAKOWSKI

COMPANY: **Analytical Technologies, Inc.**

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

CLIENT PROJECT MANAGER:

ANALYSIS REQUEST

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	TOX	TOC	ORGANIC LEAD	SULFIDE	SURFACTANTS (MBAS)	632/632 MOD	619/619 MOD	610/8310	8240 /TCLP 1311) ZHE	Diesel/Gasoline/BTXE/MTBE/ (MOD 8015/8020)	Volatile Organics GC/MS (624/8240)	NACE	ASBESTOS	BOD	TOTAL COLIFORM	FECAL COLIFORM	GROSS ALPHA/BETA	RADIUM 226/228	AIR - O2, CO2, METHANE	AIR/Diesel/Gasoline/BTXE/ (MOD 8015/8020)	NUMBER OF CONTAINERS	
410422-01	10/18	—	AQ	01	X	X																			8	TOX
-02	↓	—	↓	02	X	X																			6	TOX
-04	✓	—	↓	03	X	X																			8	TOX

PROJECT INFORMATION

PROJECT NUMBER: 410422
PROJECT NAME: GTE
QC LEVEL: STD IV
QC REQUIRED: MS MSD BLANK
TAT: STANDARD RUSH!

SAMPLE RECEIPT

TOTAL NUMBER OF CONTAINERS	22
CHAIN OF CUSTODY SEALS	
INTACT?	N
RECEIVED GOOD COND./COLD	V 22
LAB NUMBER	94-10-250

DUE DATE: 11/3
RUSH SURCHARGE: 0
CLIENT DISCOUNT: 10 %

WOFF LK 1068

SAMPLES SENT TO:

SAN DIEGO	
FT. COLLINS	X
RENTON	
PENSACOLA	
PORTLAND	
PHOENIX	
FIBERQUANT	

RELINQUISHED BY: 1.
Signature: D. Cutler Time: 1730
Printed Name: Dianne Cutler Date: 10/20/94
Analytical Technologies, Inc.
Albuquerque

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

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

RECEIVED BY: (LAB) 2.
Signature: Time:
Printed Name: Debi Bucek Date: 10/21/94
Company: ATI

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

SUMMARY AND DISCUSSION OF ANNUAL GROUNDWATER REPORT

The analytical data from the annual and semi-annual groundwater sampling events indicate that the monitoring and background wells completed in the "Sonsela" formation, the uppermost potential aquifer in this geographical area, have not been contaminated by refining activities.

Analytical data from the shallow monitoring wells, or early detection wells which are completed in the "Ciniza Sands", a group of perched sand lenses in the Chinle formation, indicate that no contamination has occurred there. Although total xylenes were observed in SMW-3, Giant does not believe this to be due to migration but, rather, outside contamination.

Giant has observed an increase in conductivity in SMW-5 and SMW-6 as well as an increase in water level height. Additionally, chromium content has increased. Giant does not believe this to be a result of percolation through the land treatment area. It is quite likely that the earth work to recondition ponds 12a and 12b has exposed the "Ciniza Sands" to recharge from the ponds. This would be consistent with the increase in conductivity. Giant will be investigating this during the first and second quarter of 1995.

Giant has also implemented a well redevelopment program to reduce silt and the possibility of anaerobic microbial action on that silt which could result in excessive sulfide/sulfite observations. This is being done, in part, as a result of the recommendation by Dr. Bruce Swanton of your office.

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 1–27–95	SIGNATURE Lynn Shelton
	NAME (TYPED) Lynn Shelton

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 1–27–95	SIGNATURE Lynn Shelton
	NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton
	NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton

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 1–27–95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton

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 1-27-95	SIGNATURE Lynn Shelton NAME (TYPED) Lynn Shelton