GIANT
REFINING CO.

Route 3, Box 7
Gallup, New Mexico
87301

505.
722.3833

April 24, 1998

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

APR 1998

RE: 1997 Annual Groundwater Report
RCRA Part B Permit NMD 000333211-2

Dear Mr. Garcia:

Pursuant to the requirements of the above captioned permit, the Annual Groundwater Report for sampling performed in 1997 is enclosed. No unusual results were observed as a result of the 1997 sampling events.

If you require additional information or have any questions regarding this report, please contact me at (505) 722-0258 or Dorinda Mancini at (505) 722-0227..

Sincerely,

Stephen C. Morris
Environmental Specialist, Ciniza Refinery

cc: Dave Pavlich, HSE Manager, Ciniza Refinery
Dorinda Mancini, Environmental Manager, Ciniza Refinery
Kathleen O'Leary, Corporate Counsel, Giant Industries, Inc.

ANNUAL GROUNDWATER REPORT

1997

GIANT REFINING CO. - CINIZA

LIBRARY COPY

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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)	321,035.23
	(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

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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		Sonsela
AQUIFER CONFINED xx		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

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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 xx		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

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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)	1,635,648.75
AQUIFER NAME		Unnamed *
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

* The well is completed in a combination of fluvially-derived sands of the valley floor and an alluvially-derived zone lying directly on top of the shales of the Chinle.

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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		Unnamed *
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

* The well is completed in a combination of fluvially-derived sands of the valley floor and an alluvially-derived zone lying directly on top of the shales of the Chinle.

MONITORING WELL IDENTIFICATION REPORT

Giant Refining Company - Ciniza Refinery

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		Unnamed *
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

* The well is completed in a combination of fluvially-derived sands of the valley floor and an alluvially-derived zone lying directly on top of the shales of the Chinle.

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

MW-1 Giant Refining - Ciniza
(Down Gradient Well)

Parameter: pH

Background Indicator Values: $X_b = 8.51$ $S_b^2 = 0.015$
$W_b = 0.00937$ $t_b = 2.947$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	8.70	0.0127
2	8.83	0.0003
3	8.85	0.0014
4	8.87	0.0033

Mean X_m = (Sum of Sample Values) / 4 = 8.81 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0059

t_m (pH) = 5.841 $W_m = S_m^2 / n_m = 0.0015$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 2.91$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.34$ $|t^*| < tc$: Statistically significant change not likely.

Parameter: Specific Conductivity

Background Indicator Values: $X_b = 984$ $S_b^2 = 1487$
$W_b = 92.9375$ $t_b = 2.602$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	1111	4.0000
2	1112	9.0000
3	1107	4.0000
4	1106	9.0000

Mean X_m = (Sum of Sample Values) / 4 = 1109 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 8.6667

t_m (Specific Conduct.) = 4.541 $W_m = S_m^2 / n_m = 2.1667$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 12.82$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.65$ $t^* > tc$: Statistically significant change possible.

Note: W_b, W_m = Special Weighting Factors; t_b, t_m = Standard T-Table Levels of Significance; t^* = the t-statistic; and t_c = the comparison t-statistic.
This statistical treatment is set forth in 40 CFR Part 264, Appendix IV: *Cochran's Approximation To The Behrens-Fisher Students' T-Test*.

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

MW-2 Giant Refining - Ciniza
(Down Gradient Well)

Parameter: pH

Background Indicator Values: $X_b = 8.51$ $S_b^2 = 0.015$
$W_b = 0.00937$ $t_b = 2.947$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	8.87	0.0000
2	8.92	0.0030
3	8.86	0.0000
4	8.81	0.0030

Mean X_m = (Sum of Sample Values) / 4 = 8.87

Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0020

t_m (pH) = 5.841

$W_m = S_m^2 / n_m = 0.0005$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 3.57$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.10$

$|t^*| > tc$: Statistically significant change possible.

Parameter: Specific Conductivity

Background Indicator Values: $X_b = 984$ $S_b^2 = 1487$
$W_b = 92.9375$ $t_b = 2.602$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	1110	256.0000
2	1127	1.0000
3	1132	36.0000
4	1135	81.0000

Mean X_m = (Sum of Sample Values) / 4 = 1126

Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 124.6667

t_m (Specific Conduct.) = 4.541

$W_m = S_m^2 / n_m = 31.1667$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 12.75$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.09$

$t^* > tc$: Statistically significant change possible.

Note: W_b, W_m = Special Weighting Factors; t_b, t_m = Standard T-Table Levels of Significance; t^* = the t-statistic; and t_c = the comparison t-statistic.
This statistical treatment is set forth in 40 CFR Part 264, Appendix IV: *Cochran's Approximation To The Behrens-Fisher Students' T-Test*.

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

MW-4 Giant Refining - Ciniza
(Down Gradient Well)

Parameter: pH

Background Indicator Values: $X_b = 8.51$ $S_b^2 = 0.015$
$W_b = 0.00937$ $t_b = 2.947$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	8.70	0.0132
2	8.57	0.0002
3	8.54	0.0020
4	8.53	0.0030

Mean X_m = (Sum of Sample Values) / 4 = 8.59 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0062

t_m (pH) = 5.841 $W_m = S_m^2 / n_m = 0.0015$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 0.72$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.36$ $|t^*| < tc$: Statistically significant change not likely.

Parameter: Specific Conductivity

Background Indicator Values: $X_b = 984$ $S_b^2 = 1487$
$W_b = 92.9375$ $t_b = 2.602$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	1171	1.5625
2	1172	0.0625
3	1174	3.0625
4	1172	0.0625

Mean X_m = (Sum of Sample Values) / 4 = 1172 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 1.5833

t_m (Specific Conduct.) = 4.541 $W_m = S_m^2 / n_m = 0.3958$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 19.49$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.61$ $t^* > tc$: Statistically significant change possible.

Note: W_b, W_m = Special Weighting Factors; t_b, t_m = Standard T-Table Levels of Significance; t^* = the t-statistic; and t_c = the comparison t-statistic.
This statistical treatment is set forth in 40 CFR Part 264, Appendix IV: *Cochran's Approximation To The Behrens-Fisher Students' T-Test*.

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

MW-5 Giant Refining - Ciniza
(Down Gradient Well)

Parameter: pH

Background Indicator Values: $X_b = 8.51$ $S_b^2 = 0.015$
$W_b = 0.00937$ $t_b = 2.947$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	8.89	0.0042
2	8.81	0.0002
3	8.80	0.0006
4	8.80	0.0006

Mean X_m = (Sum of Sample Values) / 4 = 8.83 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0019

t_m (pH) = 5.841 $W_m = S_m^2 / n_m = 0.0005$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 3.17$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.09$ $|t^*| > tc$: Statistically significant change possible.

Parameter: Specific Conductivity

Background Indicator Values: $X_b = 984$ $S_b^2 = 1487$
$W_b = 92.9375$ $t_b = 2.602$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	1145	4.0000
2	1148	1.0000
3	1147	0.0000
4	1148	1.0000

Mean X_m = (Sum of Sample Values) / 4 = 1147 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 2.0000

t_m (Specific Conduct.) = 4.541 $W_m = S_m^2 / n_m = 0.5000$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 16.86$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.61$ $t^* > tc$: Statistically significant change possible.

Note: W_b, W_m = Special Weighting Factors; t_b, t_m = Standard T-Table Levels of Significance; t^* = the t-statistic; and t_c = the comparison t-statistic.
This statistical treatment is set forth in 40 CFR Part 264, Appendix IV: *Cochran's Approximation To The Behrens-Fisher Students' T-Test*.

Calculation Sheet for Semi-Annual Evaluation of Indicator Parameters

OW-11 Giant Refining - Ciniza
(Down Gradient Well)

Parameter: pH

Background Indicator Values: $X_b = 8.51$ $S_b^2 = 0.015$
$W_b = 0.00937$ $t_b = 2.947$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	8.30	0.0000
2	8.30	0.0000
3	8.30	0.0000
4	8.30	0.0000

Mean X_m = (Sum of Sample Values) / 4 = 8.30 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0000

t_m (pH) = 5.841 $W_m = S_m^2 / n_m = 0.0000$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = -2.17$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.95$ $|t^*| < tc$: Statistically significant change not likely.

Parameter: Specific Conductivity

Background Indicator Values: $X_b = 984$ $S_b^2 = 1487$
$W_b = 92.9375$ $t_b = 2.602$

Current well sample values:

Sample	Value	$(Value-X_m)^2$
1	2770	0.0000
2	2770	0.0000
3	2770	0.0000
4	2770	0.0000

Mean X_m = (Sum of Sample Values) / 4 = 2770 Variance S_m^2 = [Sum of $(Value-X_m)^2$] / 3 = 0.0000

t_m (Specific Conduct.) = 4.541 $W_m = S_m^2 / n_m = 0.0000$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 185.26$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.60$ $t^* > tc$: Statistically significant change possible.

Note: W_b, W_m = Special Weighting Factors; t_b, t_m = Standard T-Table Levels of Significance; t^* = the t-statistic; and t_c = the comparison t-statistic.
This statistical treatment is set forth in 40 CFR Part 264, Appendix IV: *Cochran's Approximation To The Behrens-Fisher Students' T-Test*.

Tolerance Interval

SMW-3 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	7.72	7.83	0.16	7.50 - 8.15	(Does not exceed tolerance limit.)
Spring 97 sampling period	7.60	8.00	0.20	7.60 - 8.40	(Does exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	2868	3192	325	2542 - 3841	(Does not exceed tolerance limit.)
Spring 97 sampling period	2850	3181	322	2537 - 3824	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.005	0.058	0.154	0.000 - 0.365	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.005	0.055	0.150	0.000 - 0.356	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.003	0.025	0.080	0.000 - 0.185	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.003	0.024	0.078	0.000 - 0.180	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean ± 2 Standard Deviations)

Tolerance Interval

SMW-4 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	8.62	8.35	0.20	7.95 - 8.74	(Does not exceed tolerance limit.)
Spring 97 sampling period	8.40	8.35	0.19	7.96 - 8.73	(Does not exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	1263	1298	172	953 - 1642	(Does not exceed tolerance limit.)
Spring 97 sampling period	1230	1296	169	958 - 1635	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.005	0.011	0.014	0.000 - 0.038	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.005	0.010	0.014	0.000 - 0.038	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.003	0.008	0.021	0.000 - 0.050	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.003	0.007	0.021	0.000 - 0.049	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean ± 2 Standard Deviations)

Tolerance Interval

SMW-5 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	8.64	8.55	0.27	8.01 - 9.10	(Does not exceed tolerance limit.)
Spring 97 sampling period	8.70	8.56	0.27	8.02 - 9.09	(Does not exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	1283	1141	73	996 - 1286	(Does not exceed tolerance limit.)
Spring 97 sampling period	1157	1142	71	999 - 1285	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.005	0.022	0.031	0.000 - 0.084	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.005	0.022	0.030	0.000 - 0.082	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 96 sampling period	0.003	0.013	0.047	0.000 - 0.108	(Does not exceed tolerance limit.)
Spring 97 sampling period	0.003	0.013	0.047	0.000 - 0.106	(Does not exceed tolerance limit.)

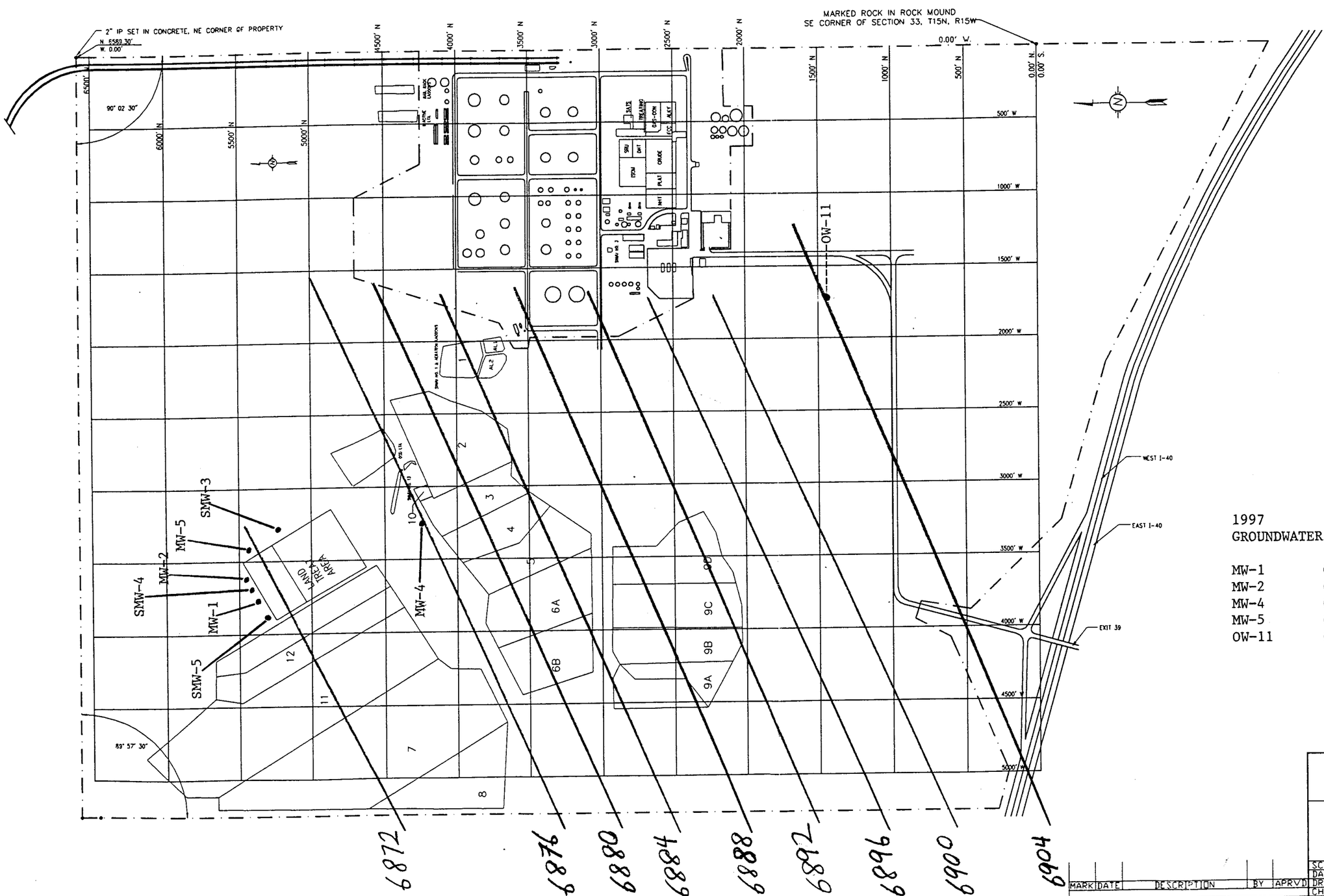
Tolerance Interval = (Mean ± 2 Standard Deviations)

GROUNDWATER ELEVATION MEASUREMENTS

Giant Refining Company - Ciniza

Well No.	Date	Casing Elevation	Depth to Water	Groundwater Elevation
MW-1	Spring 97	6878.52	6.02	6872.5
	Fall 97		6.92	6871.6
MW-2	Spring 97	6880.84	9.54	6871.3
	Fall 97		9.33	6871.51
MW-4	Spring 97	6882.54	6.54	6876
	Fall 97		7.75	6874.79
MW-5	Spring 97	6883.32	12.22	6871.1
	Fall 97		11.33	6871.99
OW-11	Fall 96	6923.89	30.29	6893.6
	Spring 97		19.99	6903.9
SMW-3	Fall 96	6884.56	31.56	6853
	Spring 97		31.46	6853.1
SMW-4	Fall 96	6880.08	30.08	6850
	Spring 97		32.48	6847.6
SMW-5	Fall 96	6878.02	31.02	6847
	Spring 97		30.32	6847.7

REFERENCE DRAWINGS



1997
GROUNDWATER ELEVATION CONTOUR MAP

MW-1	6871.6
MW-2	6871.5
MW-4	6874.8
MW-5	6872.0
OW-11	6903.8

CINIZA REFINERY — GIANT REFINING CO. — GALLUP NEW MEXICO
A DIVISION OF GIANT INDUSTRIES

MASTER PLOT PLAN

MARK	DATE	DESCRIPTION	BY	APRV'D

SCALE	1"=300'	APRV'D.	
DATE	9-1-94	APRV'D	
DRN.	SPS	IPS 300MS	REV.
CHK'D.	DWG NO.	Z-02-146	1

GROUNDWATER VELOCITY

Sonsela Aquifer

The groundwater velocity in the Sonsela Aquifer under the Land Treatment Unit (LTU) at Giant's Ciniza Refinery can be estimated using the formula $V = (K \times I) \div n$, where

V = groundwater velocity in ft/day
K = horizontal hydraulic conductivity = 0.35 ft/day under the LTU
I = potentiometric gradient in the vicinty of the LTU = 0.0032
n = soil porosity = 10%

Note: "I" was calculated by using the average groundwater elevation differential between wells MW-2 and MW-4 for the reporting year and. dividing that differential by the distance between the two wells (1,252').

$V = (K \times I) \div n$ = .011 ft/day = 4.07 ft/yr

TABULATED ANALYTICAL RESULTS

MW-1 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	---	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	ND	ND	ND	ND	---	ND	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	---	ND	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 93 Result	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	ND	ND	0.021	ND	<0.01	<0.01	mg/L	0.01
Lead	0.036	ND	<0.005	<0.005	<0.005	<0.005	mg/L	0.005
Mercury	ND	ND			<0.001	<0.001	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-1 Giant Refining - Ciniza

Dissolved Metals

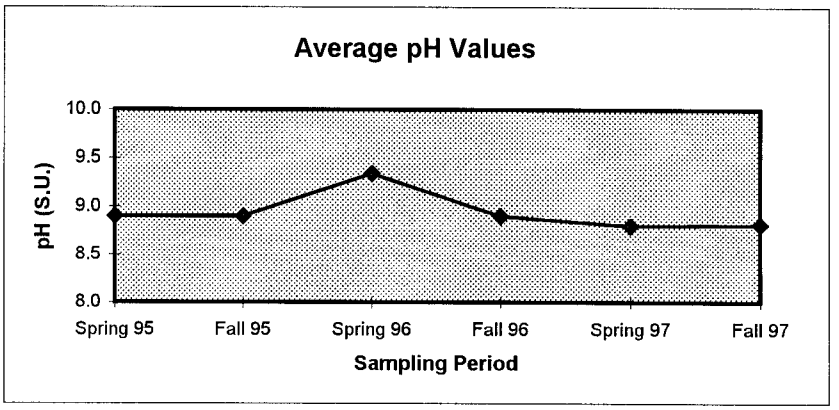
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Arsenic	ND	<0.005	<0.005	mg/L	0.10
Barium	0.01	<0.01	<0.01	mg/L	1.00
Cadmium	ND	<0.001	<0.001	mg/L	0.01
Calcium	1.8	1.0	1.7	mg/L	---
Magnesium	0.2	0.1	<0.2	mg/L	---
Manganese	ND	<0.02	<0.005	mg/L	---
Potassium	ND	0.39	0.5	mg/L	---
Selenium	ND	0.005	<0.005	mg/L	0.01
Silver	ND	0.01	<0.01	mg/L	0.05
Sodium	242	264	259	mg/L	---

General Chemistry / Other

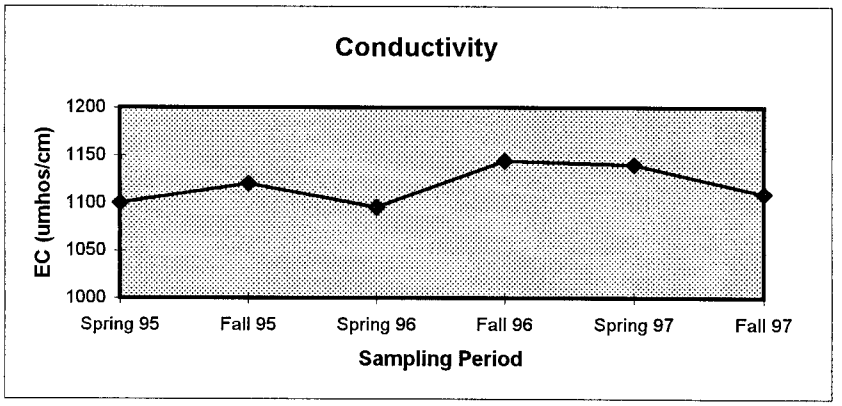
Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5	310		373		339		mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3	23		22		62		mg/L	5
Chloride	47		55		50		mg/L	3
pH (1st reading)	8.90	8.91	9.52	8.90	8.80	8.70	s.u.	---
pH (2nd reading)		8.88	9.33	8.90	8.80	8.83	s.u.	---
pH (3rd reading)		8.88	9.23	8.90	8.80	8.85	s.u.	---
pH (4th reading)		8.90	9.26	8.90	8.80	8.87	s.u.	---
pH Average	8.90	8.90	9.34	8.90	8.80	8.81	s.u.	---
Phenols	ND		ND		ND		mg/L	0.05
Sulfate	150		175		170		mg/L	5
Spec. Conduct. @ 25° C	1100	1110	1099	1144	1140	1111	µmhos/cm	1
Spec. Conduct. @ 25° C		1130	1094	1146	1140	1112	µmhos/cm	1
Spec. Conduct. @ 25° C		1120	1095	1145	1140	1107	µmhos/cm	1
Spec. Conduct. @ 25° C		1120	1091	1143	1140	1106	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1100	1120	1095	1145	1140	1109	µmhos/cm	1
Total Organic Carbon	36	1	<1.0	0.8	<1.0	1	mg/L	1
Total Organic Carbon	36	1	<1.0		<1.0	1	mg/L	1
Total Organic Carbon					<1.0	1	mg/L	1
Total Organic Carbon					<1.0	1	mg/L	1
Total Org. Halides as Cl	30	69	ND	<30	<30	10	mg/L	30
Total Org. Halides as Cl	30		ND			10	mg/L	30
Total Org. Halides as Cl			ND			10	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids			702		704		mg/L	10
Water Elevation	6873.30	6872.40	6872.50	6872.20	6872.50	6871.60	ft	---

MW-1 Giant Refining - Ciniza

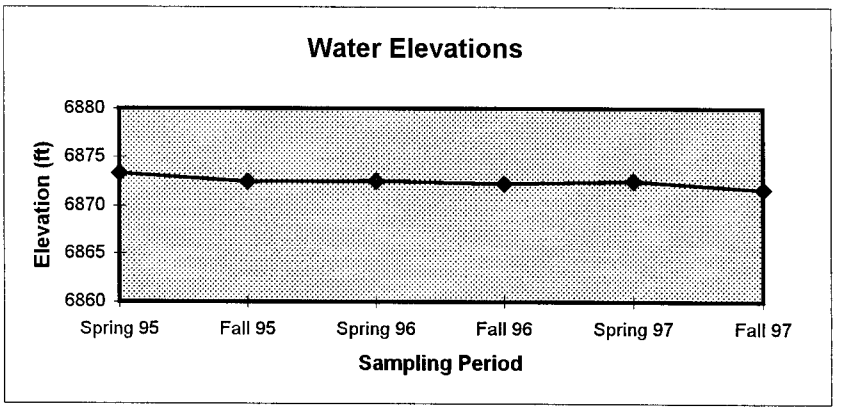
Spring 95	8.90
Fall 95	8.90
Spring 96	9.34
Fall 96	8.90
Spring 97	8.80
Fall 97	8.81



Spring 95	1100
Fall 95	1120
Spring 96	1095
Fall 96	1145
Spring 97	1140
Fall 97	1109

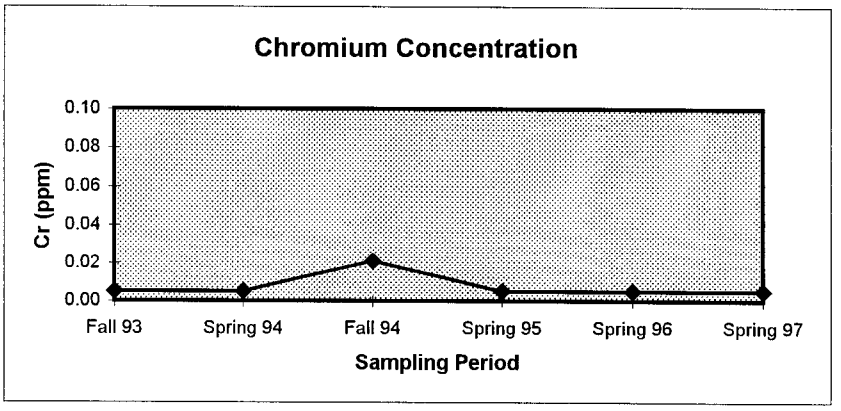


Spring 95	6873.30
Fall 95	6872.40
Spring 96	6872.50
Fall 96	6872.20
Spring 97	6872.50
Fall 97	6871.60

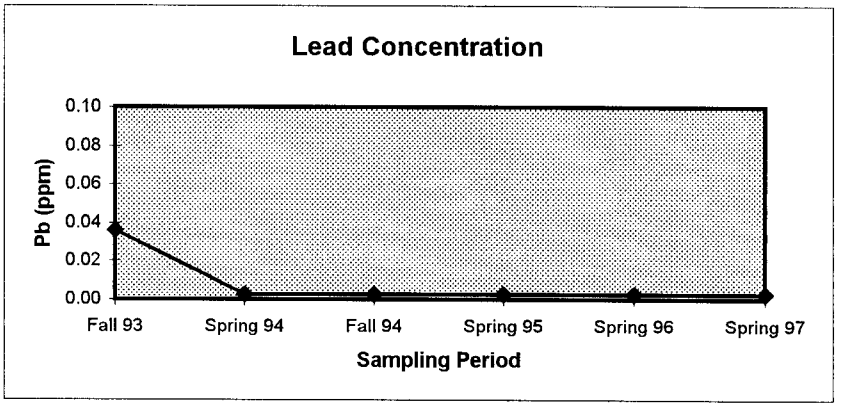


MW-1 Giant Refining - Ciniza

Fall 93	0.005
Spring 94	0.005
Fall 94	0.021
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005



Fall 93	0.036
Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

MW-2 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	---	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	ND	ND	ND	ND	---	ND	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	7	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	---	ND	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 93 Result	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	ND	0.011	ND	ND	<0.01	<0.01	mg/L	0.01
Lead	<0.005	ND	ND	ND	<0.005	<0.005	mg/L	0.005
Mercury		ND		ND	<0.001	<0.001	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-2 Giant Refining - Ciniza

Dissolved Metals

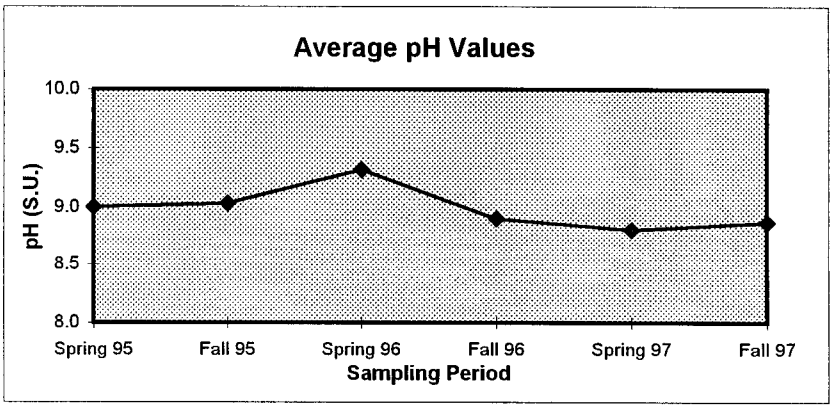
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Arsenic	ND	<0.005	<0.005	mg/L	0.10
Barium	0.02	<0.01	0.01	mg/L	1.00
Cadmium	ND	<0.001	<0.001	mg/L	0.01
Calcium	1.4	1.0	1.6	mg/L	---
Magnesium	0.1	0.1	<0.2	mg/L	---
Manganese	ND	<0.02	<0.005	mg/L	---
Potassium	ND	0.39	0.5	mg/L	---
Selenium	ND	0.005	<0.005	mg/L	0.01
Silver	ND	0.01	<0.01	mg/L	0.05
Sodium	246	264	252	mg/L	---

General Chemistry / Other

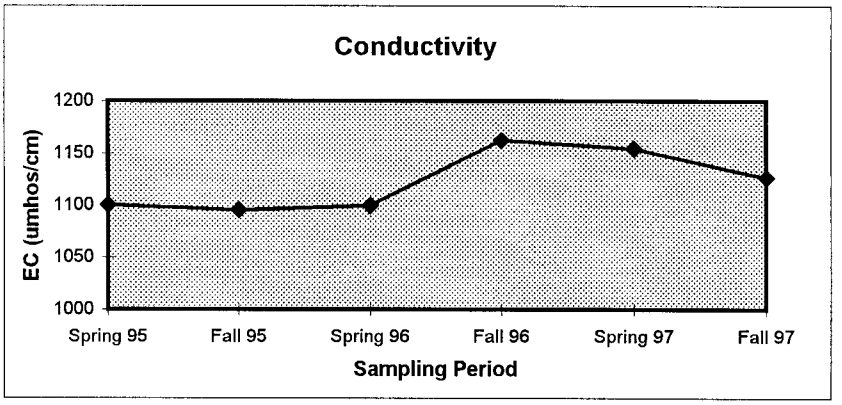
Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5	320		365		356		mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3	ND		19		21		mg/L	5
Chloride	58		63		57		mg/L	3
pH (1st reading)	9.00	9.01	9.40	8.90	8.80	8.87	s.u.	---
pH (2nd reading)		9.04	9.32	8.90	8.80	8.92	s.u.	---
pH (3rd reading)		9.03	9.29	8.90	8.80	8.86	s.u.	---
pH (4th reading)		9.05	9.25	8.90	8.80	8.81	s.u.	---
pH Average	9.00	9.03	9.32	8.90	8.80	8.87	s.u.	---
Phenols	ND		ND		ND		mg/L	0.05
Sulfate	170		175		178		mg/L	5
Spec. Conduct. @ 25° C	1100	1080	1110	1163	1154	1110	µmhos/cm	1
Spec. Conduct. @ 25° C		1100	1092	1160	1154	1127	µmhos/cm	1
Spec. Conduct. @ 25° C		1100	1102	1162	1154	1132	µmhos/cm	1
Spec. Conduct. @ 25° C		1100	1094	1163	1154	1135	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1100	1095	1100	1162	1154	1126	µmhos/cm	1
Total Organic Carbon	ND	1.3	<1.0	0.8	<1.0	2	mg/L	1
Total Organic Carbon	ND				<1.0	2	mg/L	1
Total Organic Carbon					<1.0	2	mg/L	1
Total Organic Carbon					<1.0	2	mg/L	1
Total Org. Halides as Cl	40	<30	ND	44	<30	10	mg/L	30
Total Org. Halides as Cl	20		ND			10	mg/L	30
Total Org. Halides as Cl			ND			10	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids			676		718		mg/L	10
Water Elevation	6873.13	6872.34	6867.54	6870.80	6871.30	6871.51	ft	---

MW-2 Giant Refining - Ciniza

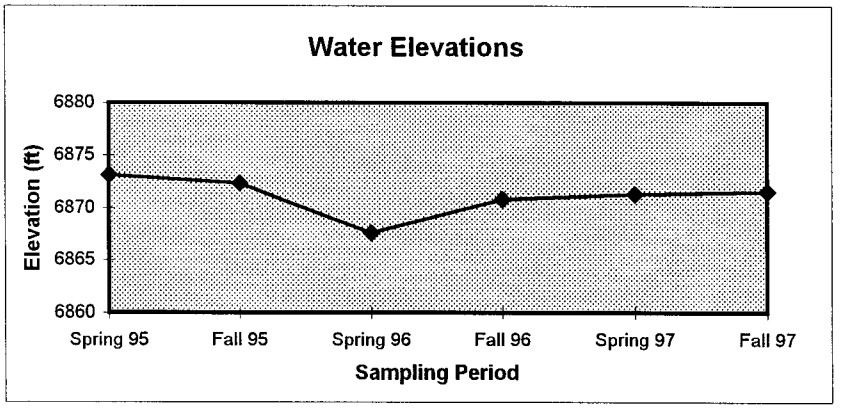
Spring 95	9.00
Fall 95	9.03
Spring 96	9.32
Fall 96	8.90
Spring 97	8.80
Fall 97	8.87



Spring 95	1100
Fall 95	1095
Spring 96	1100
Fall 96	1162
Spring 97	1154
Fall 97	1126

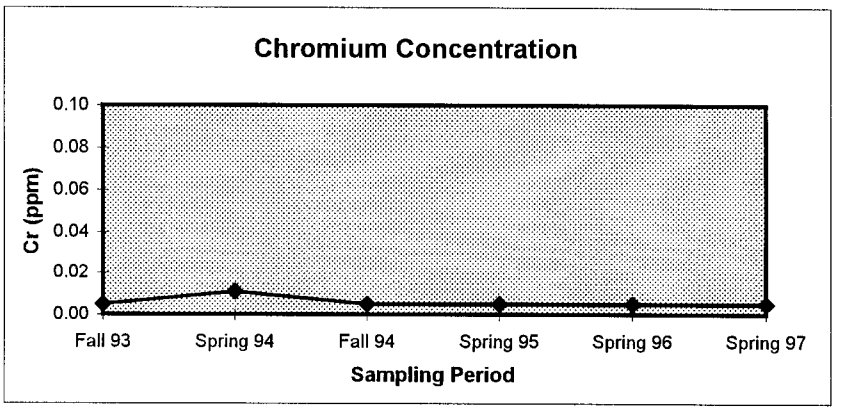


Spring 95	6873.13
Fall 95	6872.34
Spring 96	6867.54
Fall 96	6870.80
Spring 97	6871.30
Fall 97	6871.51

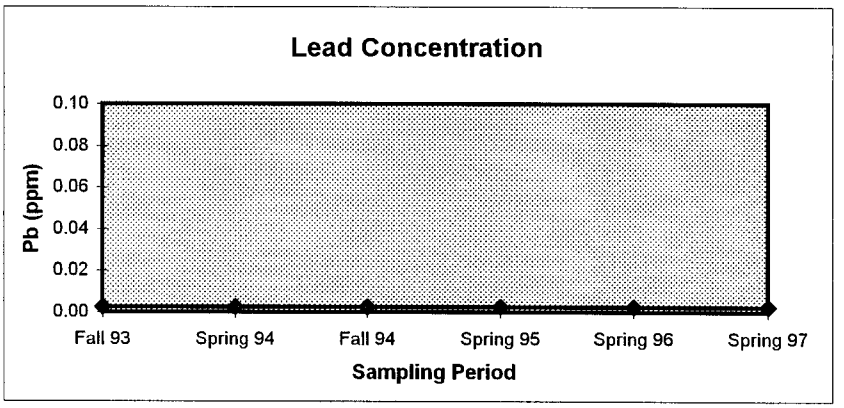


MW-2 Giant Refining - Ciniza

Fall 93	0.005
Spring 94	0.011
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005



Fall 93	0.003
Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

MW-4 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	---	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	ND	ND	ND	ND	---	ND	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	---	ND	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 93 Result	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	ND	ND	0.013	ND	<0.01	<0.01	mg/L	0.01
Lead	ND	ND	ND	ND	<0.005	<0.005	mg/L	0.005
Mercury		ND			<0.001	<0.001	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-4 Giant Refining - Ciniza

Dissolved Metals

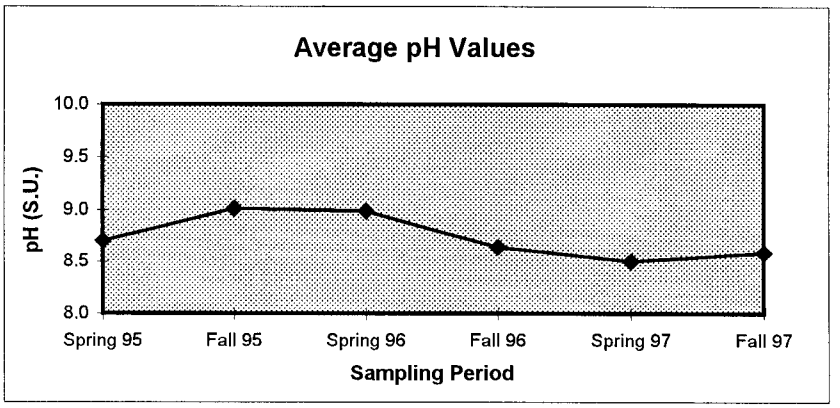
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Arsenic	ND	<0.005	<0.005	mg/L	0.10
Barium	0.01	<0.01	0.02	mg/L	1.00
Cadmium	ND	<0.001	<0.001	mg/L	0.01
Calcium	1.8	1.0	1.7	mg/L	---
Magnesium	0.2	0.1	<0.2	mg/L	---
Manganese	ND	<0.02	<.005	mg/L	---
Potassium	ND	0.39	0.53	mg/L	---
Selenium	ND	0.005	<0.005	mg/L	0.01
Silver	ND	0.01	<0.01	mg/L	0.05
Sodium	242	264	276	mg/L	---

General Chemistry / Other

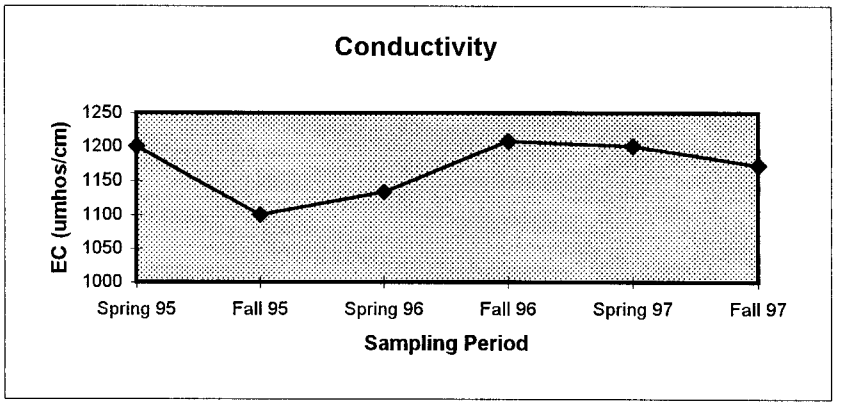
Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5	440		528		505		mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3	21		8		14		mg/L	5
Chloride	18		21		18		mg/L	3
pH (1st reading)	8.70	9.02	9.12	8.52	8.50	8.70	s.u.	---
pH (2nd reading)		9.01	8.99	8.56	8.50	8.57	s.u.	---
pH (3rd reading)		9.02	8.94	8.57	8.50	8.54	s.u.	---
pH (4th reading)		9.00	8.91	8.92	8.50	8.53	s.u.	---
pH Average	8.70	9.01	8.99	8.64	8.50	8.59	s.u.	---
Phenols	ND		ND		ND		mg/L	0.05
Sulfate	180		160		161		mg/L	5
Spec. Conduct. @ 25° C	1200	1100	1144	1180	1200	1171	µmhos/cm	1
Spec. Conduct. @ 25° C		1110	1125	1210	1200	1172	µmhos/cm	1
Spec. Conduct. @ 25° C		1100	1129	1220	1200	1174	µmhos/cm	1
Spec. Conduct. @ 25° C		1190	1135	1220	1200	1172	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1200	1100	1133	1208	1200	1172	µmhos/cm	1
Total Organic Carbon	ND	1.8	1.1	1	1	1	mg/L	1
Total Organic Carbon	ND				1.1	1	mg/L	1
Total Organic Carbon					1	1	mg/L	1
Total Organic Carbon					1	1	mg/L	1
Total Org. Halides as Cl	<30	<30	ND	<30	ND		mg/L	30
Total Org. Halides as Cl	<30		ND				mg/L	30
Total Org. Halides as Cl			ND				mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids			741		758		mg/L	10
Water Elevation	6872.70	6875.90	6876.00	6875.50	6876.00	6874.79	ft	---

MW-4 Giant Refining - Ciniza

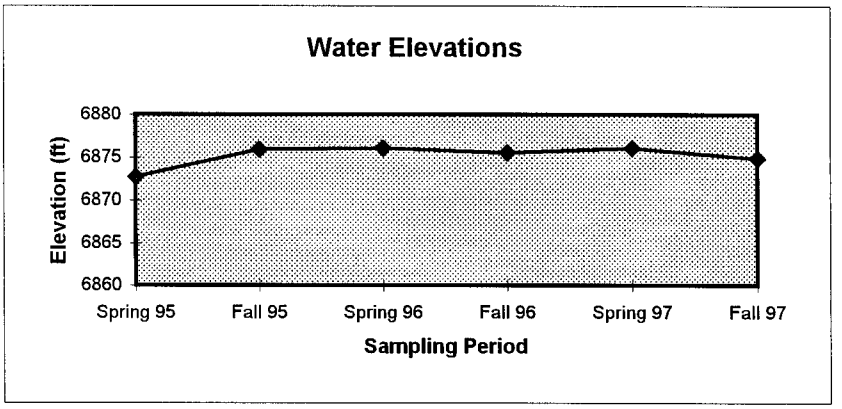
Spring 95	8.70
Fall 95	9.01
Spring 96	8.99
Fall 96	8.64
Spring 97	8.50
Fall 97	8.59



Spring 95	1200
Fall 95	1100
Spring 96	1133
Fall 96	1208
Spring 97	1200
Fall 97	1172

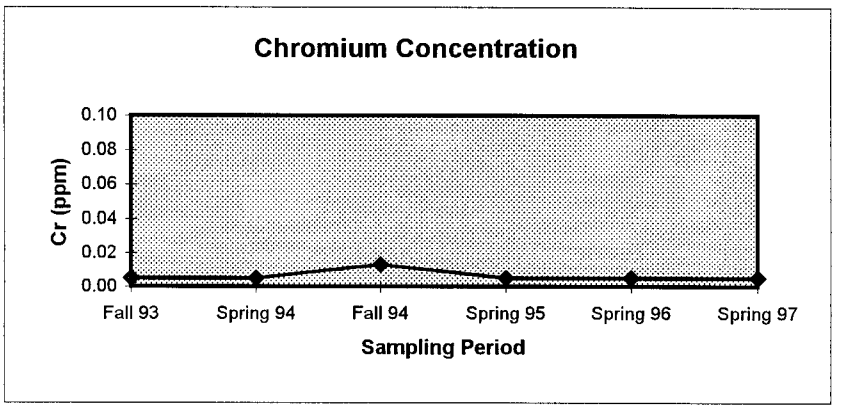


Spring 95	6872.70
Fall 95	6875.90
Spring 96	6876.00
Fall 96	6875.50
Spring 97	6876.00
Fall 97	6874.79

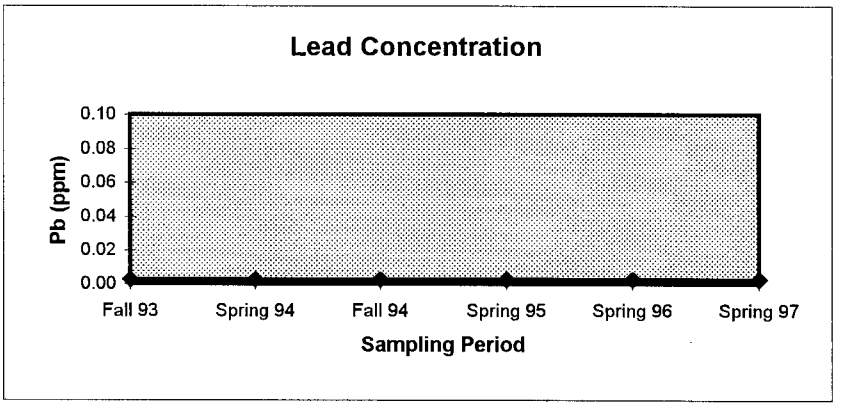


MW-4 Giant Refining - Ciniza

Fall 93	0.005
Spring 94	0.005
Fall 94	0.013
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005



Fall 93	0.003
Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

MW-5 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	---	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	14	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	ND	ND	ND	ND	---	ND	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	5	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	---	ND	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 93 Result	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	ND	ND	ND	ND	<0.01	<.01	mg/L	0.01
Lead	<0.005	ND	ND	ND	<0.005	<.005	mg/L	0.005
Mercury		ND		ND	<0.001	<.001	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-5 Giant Refining - Ciniza

Dissolved Metals

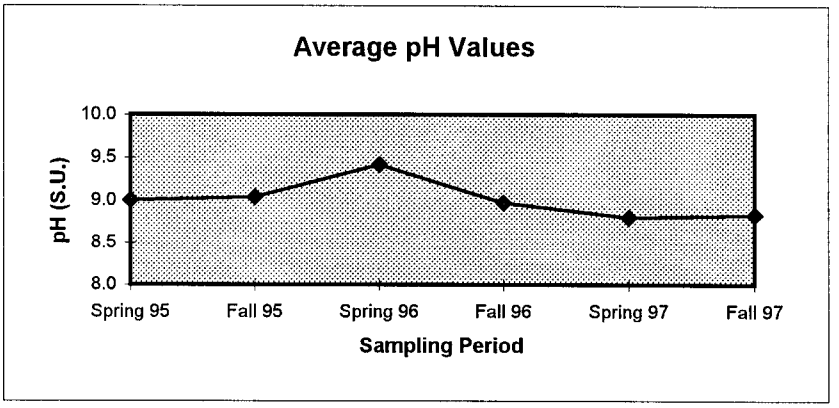
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Arsenic	ND	<0.005	<.005	mg/L	0.10
Barium	0.02	0.02	0.01	mg/L	1.00
Cadmium	ND	<0.002	<0.001	mg/L	0.01
Calcium	1.5	1.6	1.5	mg/L	---
Magnesium	0.1	0.2	<0.2	mg/L	---
Manganese	ND	<0.02	<.005	mg/L	---
Potassium	ND	0.78	0.54	mg/L	---
Selenium	ND	<0.005	<.005	mg/L	0.01
Silver	ND	<0.01	<.01	mg/L	0.05
Sodium	246	275	260	mg/L	---

General Chemistry / Other

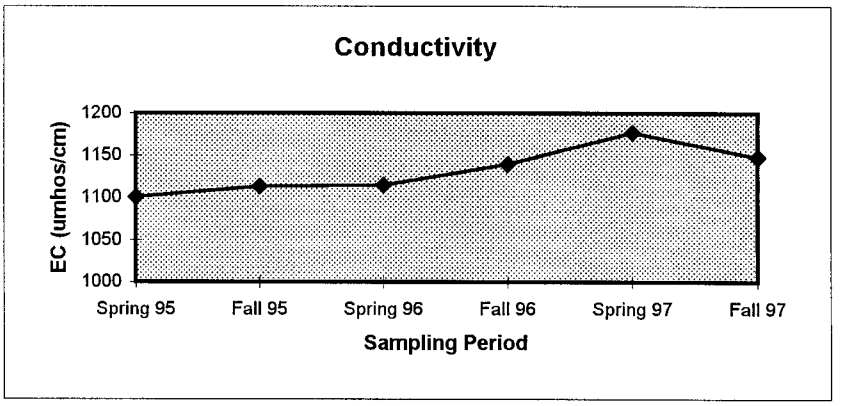
Parameter	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5	330		339		349		mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3	ND		26		14		mg/L	5
Chloride	63		66		62		mg/L	3
pH (1st reading)	9.00	9.01	9.65	9.06	8.80	8.89	s.u.	---
pH (2nd reading)		9.03	9.42	8.96	8.80	8.81	s.u.	---
pH (3rd reading)		9.06	9.32	8.94	8.80	8.80	s.u.	---
pH (4th reading)		9.06	9.28	8.92	8.80	8.80	s.u.	---
pH Average	9.00	9.04	9.42	8.97	8.80	8.83	s.u.	---
Phenols	ND		ND		ND		mg/L	0.05
Sulfate	190		175		181		mg/L	5
Spec. Conduct. @ 25° C	1100	1120	1111	1135	1177	1145	µmhos/cm	1
Spec. Conduct. @ 25° C		1100	1110	1143	1177	1148	µmhos/cm	1
Spec. Conduct. @ 25° C		1110	1118	1137	1177	1147	µmhos/cm	1
Spec. Conduct. @ 25° C		1120	1118	1142	1177	1148	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1100	1113	1114	1139	1177	1147	µmhos/cm	1
Total Organic Carbon	ND	1.7	<1.0	0.8	<1.0	2	mg/L	1
Total Organic Carbon	ND				<1.0	2	mg/L	1
Total Organic Carbon					<1.0	2	mg/L	1
Total Organic Carbon					<1.0	2	mg/L	1
Total Org. Halides as Cl	<30	<30	ND	<30	<30	10	mg/L	30
Total Org. Halides as Cl	<30		ND			10	mg/L	30
Total Org. Halides as Cl			ND			10	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids			714		730		mg/L	10
Water Elevation	6877.30	6874.00	6870.80	6871.50	6871.10	6871.99	ft	---

MW-5 Giant Refining - Ciniza

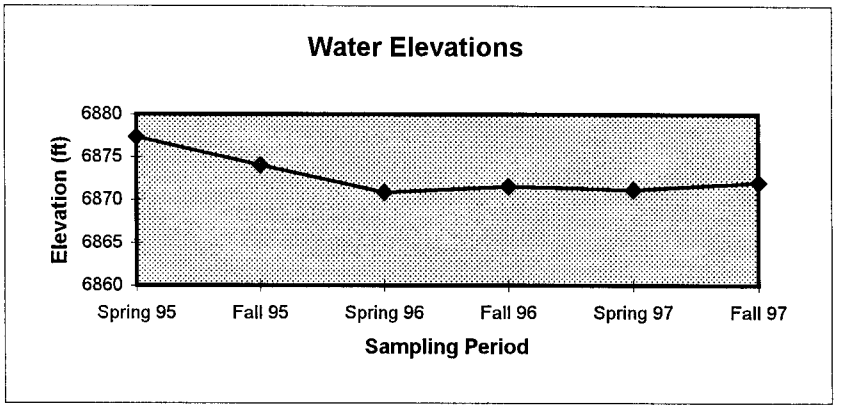
Spring 95	9.00
Fall 95	9.04
Spring 96	9.42
Fall 96	8.97
Spring 97	8.80
Fall 97	8.83



Spring 95	1100
Fall 95	1113
Spring 96	1114
Fall 96	1139
Spring 97	1177
Fall 97	1147

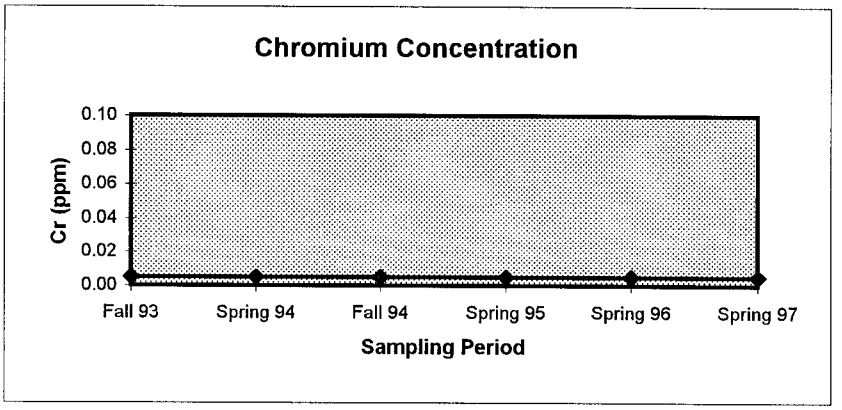


Spring 95	6877.30
Fall 95	6874.00
Spring 96	6870.80
Fall 96	6871.50
Spring 97	6871.10
Fall 97	6871.99

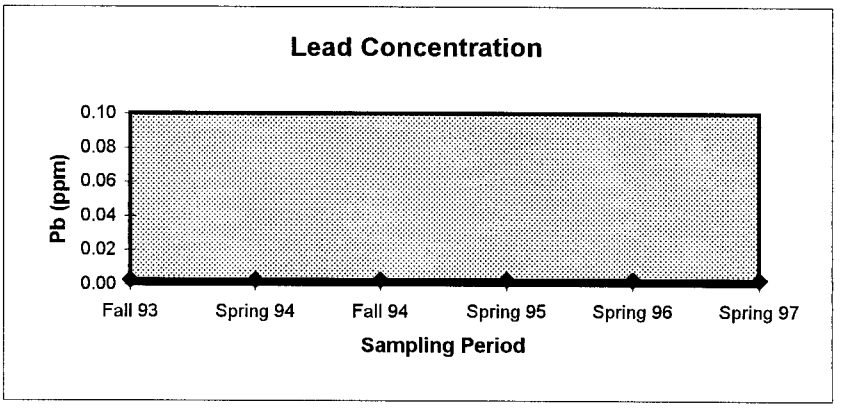


MW-5 Giant Refining - Ciniza

Fall 93	0.005
Spring 94	0.005
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005



Fall 93	0.003
Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

OW-11 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ND	---	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	13	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	ND	ND	ND	ND	ND	---	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	5	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	ND	---	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 93 Result	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	ND	ND	ND	ND	<0.01	<.01	mg/L	0.01
Lead	ND	ND	ND	ND	<0.005	<.005	mg/L	0.005
Mercury		ND		ND	<0.001	<.001	mg/L	0.002

TABULATED ANALYTICAL RESULTS

OW-11 Giant Refining - Ciniza

Dissolved Metals

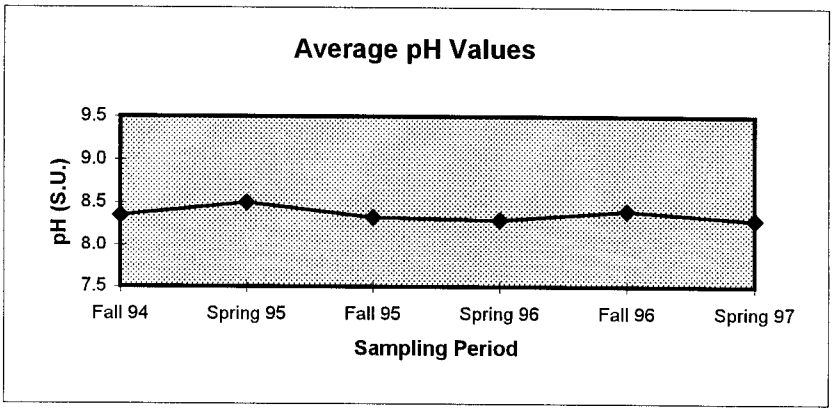
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Arsenic	ND	<0.005	<0.005	mg/L	0.10
Barium	0.01	0.01	0.01	mg/L	1.00
Cadmium	ND	<0.002	<.001	mg/L	0.01
Calcium	7.6	9.4	11.2	mg/L	---
Magnesium	0.8	1.1	1.2	mg/L	---
Manganese	ND	<0.02	0.01	mg/L	---
Potassium	ND	1.56	2.1	mg/L	---
Selenium	ND	<0.005	<.005	mg/L	0.01
Silver	ND	<0.01	<.01	mg/L	0.05
Sodium	480	575	618	mg/L	---

General Chemistry / Other

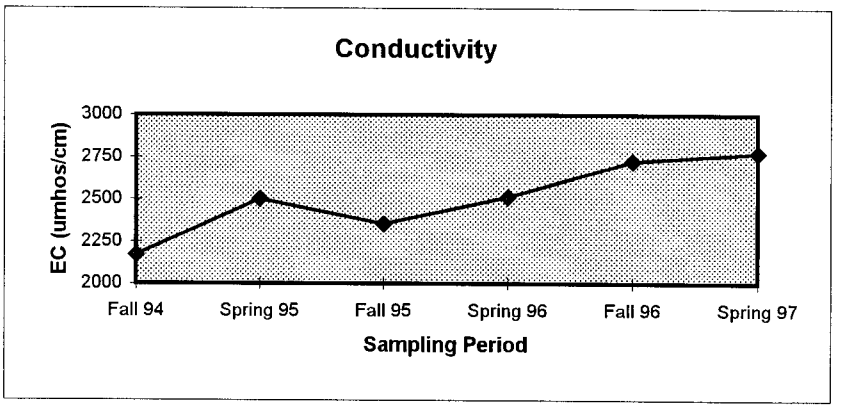
Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5		330		420		334	mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3		10		2		ND	mg/L	5
Chloride		100		108		88	mg/L	3
pH (1st reading)	8.34	8.50	8.39	8.30	8.40	8.30	s.u.	---
pH (2nd reading)	8.34		8.31		8.30	8.30	s.u.	---
pH (3rd reading)	8.35		8.31		8.40	8.30	s.u.	---
pH (4th reading)	8.35		8.30		8.40	8.30	s.u.	---
pH Average	8.35	8.50	8.33	8.30	8.40	8.30	s.u.	---
Phenols		ND		ND		ND	mg/L	0.05
Sulfate		680		708		1029	mg/L	5
Spec. Conduct. @ 25° C	2120	2500	2340	2510	2730	2770	µmhos/cm	1
Spec. Conduct. @ 25° C	2180		2360		2730	2770	µmhos/cm	1
Spec. Conduct. @ 25° C	2190		2380		2700	2770	µmhos/cm	1
Spec. Conduct. @ 25° C	2190		2340		2720	2770	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	2170	2500	2355	2510	2720	2770	µmhos/cm	1
Total Organic Carbon	2	1	1.9	2.8	2.1	1.8	mg/L	1
Total Organic Carbon	2	1				1.8	mg/L	1
Total Organic Carbon						1.8	mg/L	1
Total Organic Carbon						1.8	mg/L	1
Total Org. Halides as Cl	ND	30	<30	ND	<30	<30	mg/L	30
Total Org. Halides as Cl	ND	60		ND		<30	mg/L	30
Total Org. Halides as Cl				ND		<30	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids		1600		1630		1874	mg/L	10
Water Elevation	6890.80	6905.50	6904.10	6893.30	6893.60	6903.90	ft	---

OW-11 Giant Refining - Ciniza

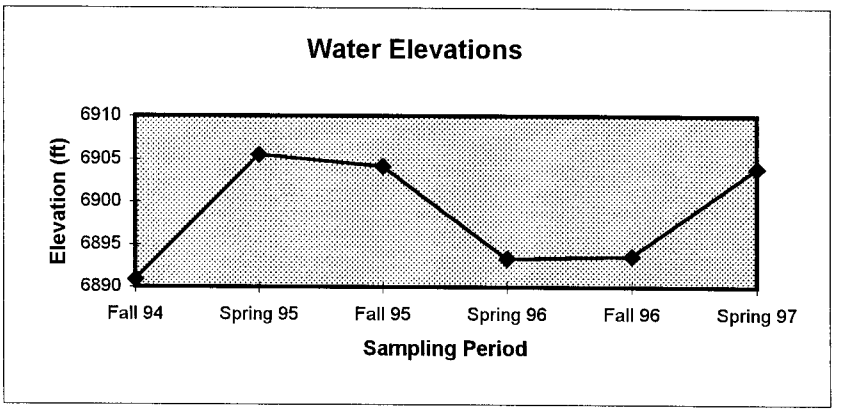
Fall 94	8.35
Spring 95	8.50
Fall 95	8.33
Spring 96	8.30
Fall 96	8.40
Spring 97	8.30



Fall 94	2170
Spring 95	2500
Fall 95	2355
Spring 96	2510
Fall 96	2720
Spring 97	2770

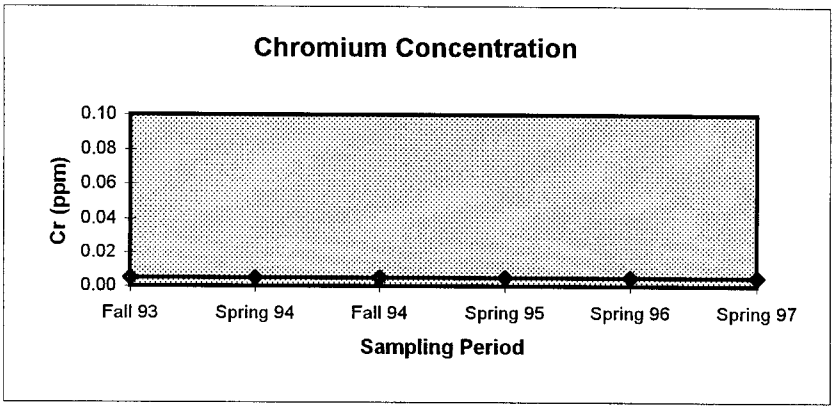


Fall 94	6890.80
Spring 95	6905.50
Fall 95	6904.10
Spring 96	6893.30
Fall 96	6893.60
Spring 97	6903.90

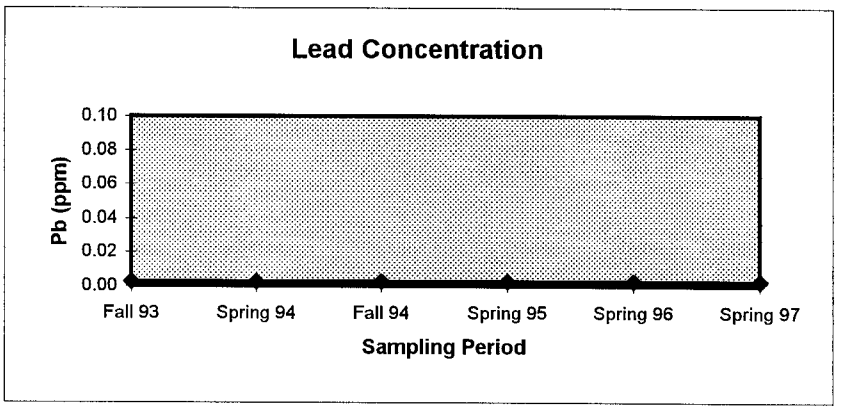


OW-11 Giant Refining - Ciniza

Fall 93	0.005
Spring 94	0.005
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005



Fall 93	0.003
Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

SMW-3 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ND	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	---	ND	ND	ND	ND	---	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	ND	---	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	6.0	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	0.718	0.01	0.08	<0.01	<0.01	<.01	mg/L	0.01
Lead	0.043	ND	ND	<0.005	<.05 *	<.005	mg/L	0.005

* Lab used incorrect detection limit of 0.05 instead of 0.005

TABULATED ANALYTICAL RESULTS

SMW-3 Giant Refining - Ciniza

Dissolved Metals

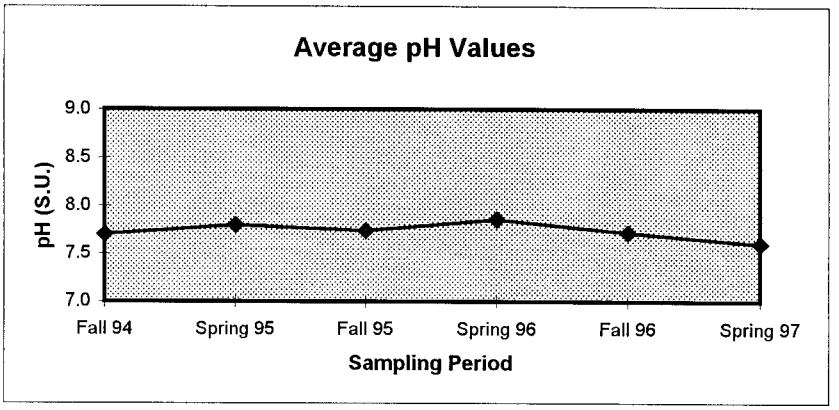
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Calcium	37.7	47.0	43.4	mg/L	---
Magnesium	12.1	14.0	13.1	mg/L	---
Potassium	ND	0.78	<.2	mg/L	---
Sodium	564	669	660	mg/L	---

General Chemistry / Other

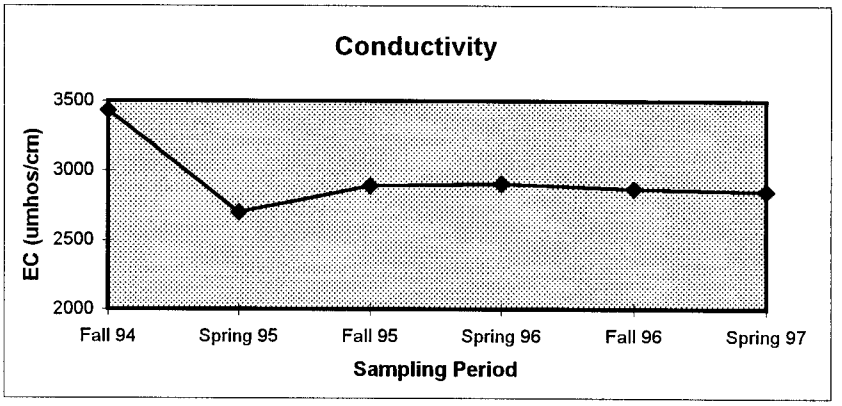
Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5		590		786		766	mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3		3		ND		ND	mg/L	5
Chloride		69		91		87	mg/L	3
pH (1st reading)	7.63	7.80	7.77	8.00	7.95	7.60	s.u.	---
pH (2nd reading)	7.68		7.74	7.87	7.72	7.60	s.u.	---
pH (3rd reading)	7.70		7.73	7.80	7.63	7.60	s.u.	---
pH (4th reading)	7.79		7.74	7.77	7.59	7.60	s.u.	---
pH Average	7.70	7.80	7.75	7.86	7.72	7.60	s.u.	---
Sulfate		680		844		835	mg/L	5
Spec. Conduct. @ 25° C	3360	2700	2890	2830	2870	2850	µmhos/cm	1
Spec. Conduct. @ 25° C	3340		2880	2830	2880	2850	µmhos/cm	1
Spec. Conduct. @ 25° C	3500		2900	2870	2870	2850	µmhos/cm	1
Spec. Conduct. @ 25° C	3520		2890	3090	2850	2850	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	3430	2700	2890	2905	2868	2850	µmhos/cm	1
Total Organic Carbon	5	5	14.9	3.2	3.1	3.7	mg/L	1
Total Organic Carbon	5	5				3.7	mg/L	1
Total Organic Carbon						3.7	mg/L	1
Total Organic Carbon							mg/L	1
Total Org. Halides as Cl	<30	80	60	ND	<30	50	mg/L	30
Total Org. Halides as Cl	20	70		ND			mg/L	30
Total Org. Halides as Cl				ND			mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids		1900		2040		2020	mg/L	10
Water Elevation	6852.76	6853.16	6853.00	6854.56	6853.00	6853.10	ft	---

SMW-3 Giant Refining - Ciniza

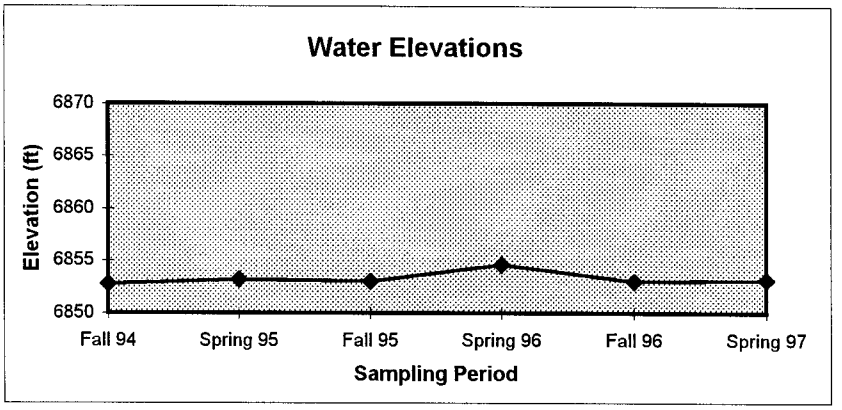
Fall 94	7.70
Spring 95	7.80
Fall 95	7.75
Spring 96	7.86
Fall 96	7.72
Spring 97	7.60



Fall 94	3430
Spring 95	2700
Fall 95	2890
Spring 96	2905
Fall 96	2868
Spring 97	2850

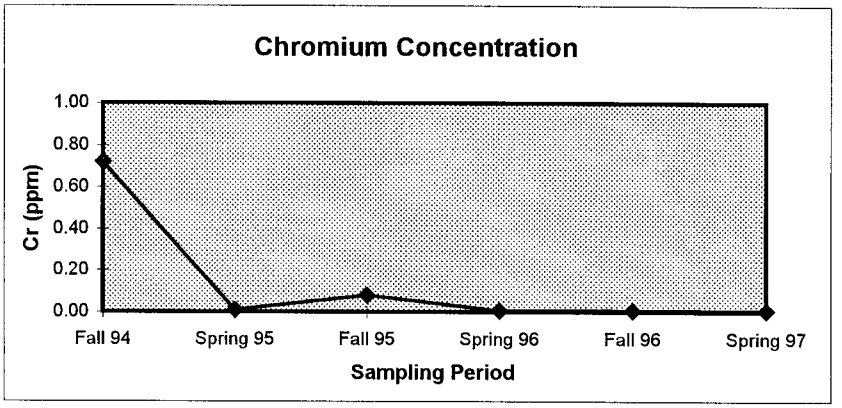


Fall 94	6852.76
Spring 95	6853.16
Fall 95	6853.00
Spring 96	6854.56
Fall 96	6853.00
Spring 97	6853.10

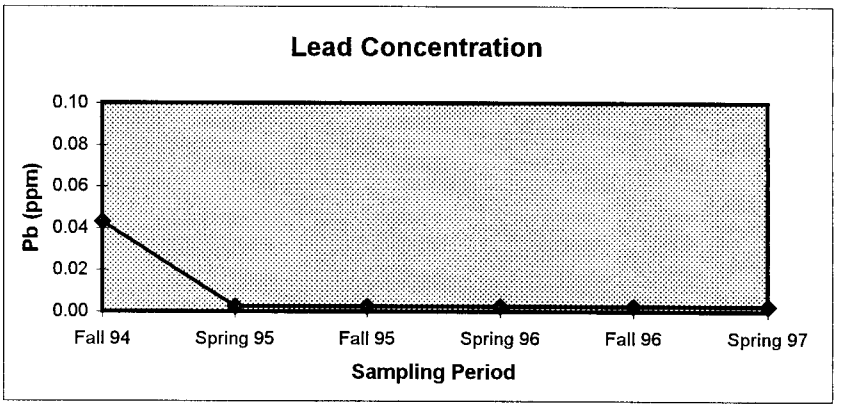


SMW-3 Giant Refining - Ciniza

Fall 94	0.718
Spring 95	0.01
Fall 95	0.08
Spring 96	0.005
Fall 96	0.005
Spring 97	0.005



Fall 94	0.043
Spring 95	0.003
Fall 95	0.003
Spring 96	0.003
Fall 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

SMW-4 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	---	ND	ND	ND	ND	---	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	54	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	---	ND	ND	ND	ND	---	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	3	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	ND	---	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	0.03	ND	0.01	<0.01	<.01	<.01	mg/L	0.01
Lead	ND	ND	ND	<0.005	<.05 *	<.005	mg/L	0.005

* Lab used incorrect detection limit of 0.05 instead of 0.005

TABULATED ANALYTICAL RESULTS

SMW-4 Giant Refining - Ciniza

Dissolved Metals

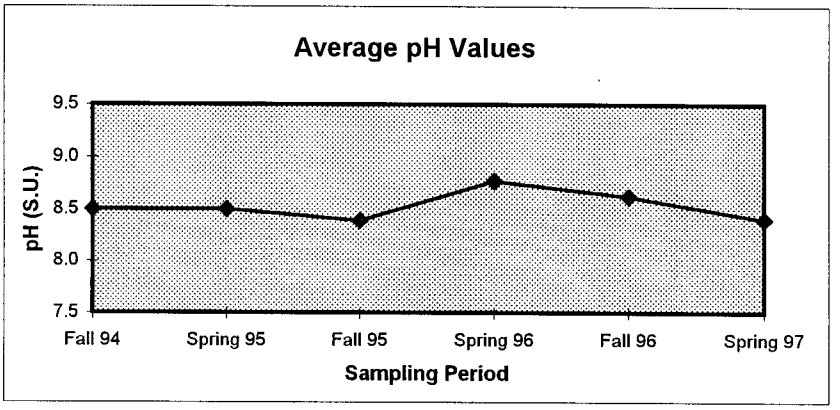
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Calcium	3.3	3.0	3.4	mg/L	---
Magnesium	0.7	1.0	0.6	mg/L	---
Potassium	ND	0.78	0.24	mg/L	---
Sodium	266	292	291	mg/L	---

General Chemistry / Other

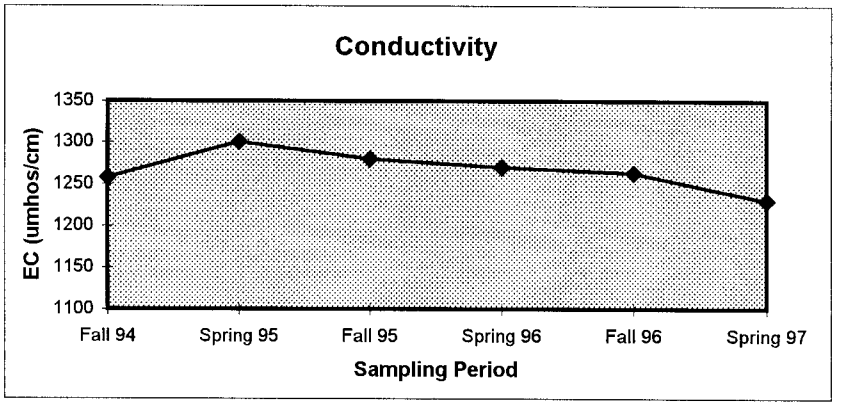
Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5		380		461		432	mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3		11		12		15	mg/L	5
Chloride		53		61		55	mg/L	3
pH (1st reading)	8.53	8.50	8.47	8.88	8.75	8.40	s.u.	---
pH (2nd reading)	8.48		8.40	8.69	8.63	8.40	s.u.	---
pH (3rd reading)	8.51		8.35	8.55	8.58	8.40	s.u.	---
pH (4th reading)	8.48		8.34	8.95	8.53	8.40	s.u.	---
pH Average	8.50	8.50	8.39	8.77	8.62	8.40	s.u.	---
Sulfate		220		170		175	mg/L	5
Spec. Conduct. @ 25° C	1270	1300	1280	1255	1280	1230	µmhos/cm	1
Spec. Conduct. @ 25° C	1280		1280	1278	1280	1230	µmhos/cm	1
Spec. Conduct. @ 25° C	1250		1280	1273	1250	1230	µmhos/cm	1
Spec. Conduct. @ 25° C	1230		1280	1273	1240	1230	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1257.5	1300	1280	1269.75	1262.5	1230	µmhos/cm	1
Total Organic Carbon	ND	ND	1	1	0.9	1.2	mg/L	1
Total Organic Carbon	ND	ND				1.2	mg/L	1
Total Organic Carbon						1.2	mg/L	1
Total Organic Carbon						1.2	mg/L	1
Total Org. Halides as Cl	ND	30	110	ND	<30	<30	mg/L	30
Total Org. Halides as Cl	ND	<30		ND		<30	mg/L	30
Total Org. Halides as Cl				ND		<30	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids		790		740		784	mg/L	10
Water Elevation	6849.88	6849.30	6848.52	6849.98	6850.00	6847.60	ft	---

SMW-4 Giant Refining - Ciniza

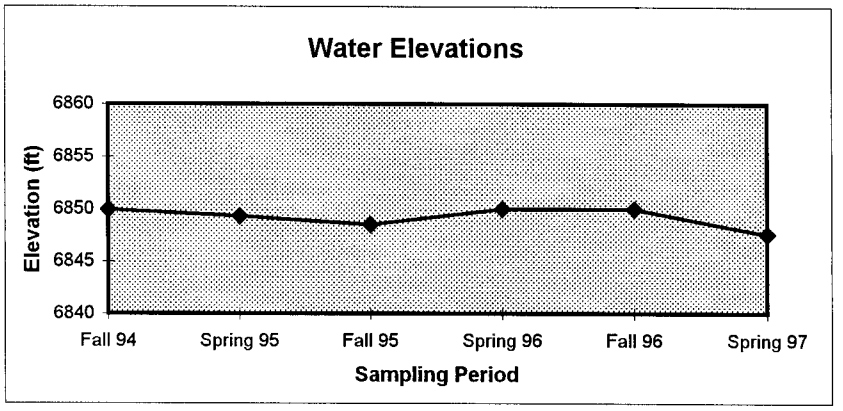
Fall 94	8.50
Spring 95	8.50
Fall 95	8.39
Spring 96	8.77
Fall 96	8.62
Spring 97	8.40



Fall 94	1258
Spring 95	1300
Fall 95	1280
Spring 96	1270
Fall 96	1263
Spring 97	1230

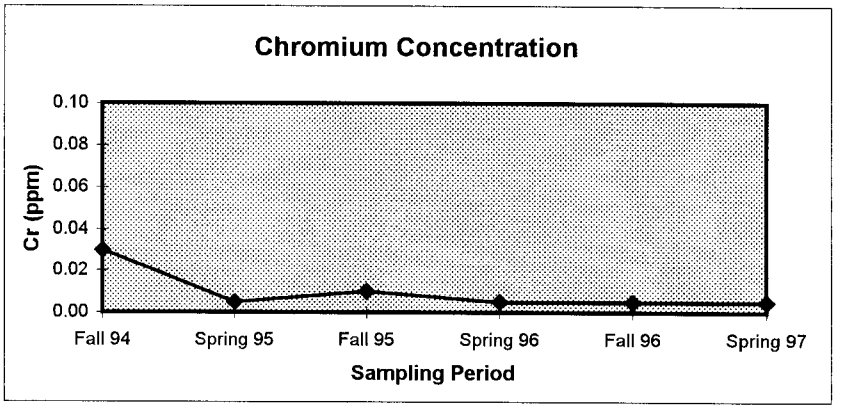


Fall 94	6849.88
Spring 95	6849.30
Fall 95	6848.52
Spring 96	6849.98
Fall 96	6850.00
Spring 97	6847.60

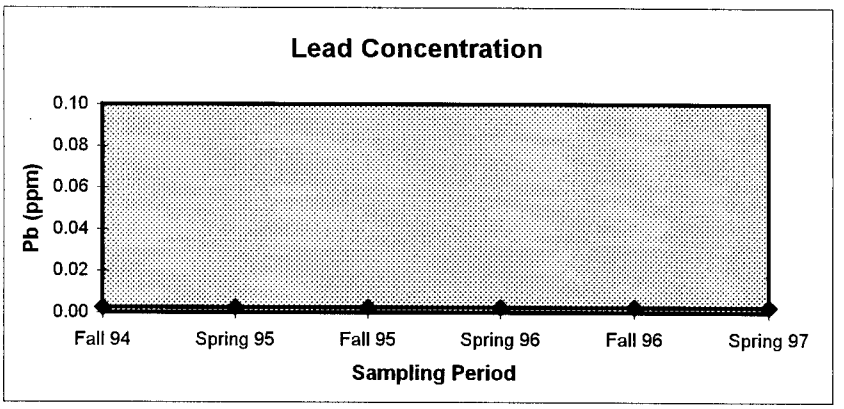


SMW-4 Giant Refining - Ciniza

Fall 94	0.03
Spring 95	0.005
Fall 95	0.01
Spring 96	0.005
Fall 96	0.005
Spring 97	0.005



Fall 94	0.003
Spring 95	0.003
Fall 95	0.003
Spring 96	0.003
Fall 96	0.003
Spring 97	0.003



TABULATED ANALYTICAL RESULTS

SMW-5 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
1,1,1-Trichloroethane (TCA)	ND	ND	ND	ND	ND	ND	µg/L	10
1,1,2,2-Tetrachloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1,2-Trichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
1,1-Dichoroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethene (cis/trans)	ND	ND	ND	ND	ND	ND	µg/L	5
2-Butanone (MEK)	ND	ND	ND	ND	ND	ND	µg/L	20
2-Chloroethyl vinyl ether	ND	ND	ND	ND	ND	ND	µg/L	10
2-Hexanone (MBK)	ND	ND	ND	ND	ND	ND	µg/L	20
4-Methyl-2-pentanone (MIBK)	ND	ND	ND	ND	ND	ND	µg/L	20
Acetone	ND	ND	ND	ND	ND	ND	µg/L	20
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Bromodichloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
Bromoform	ND	ND	ND	ND	ND	ND	µg/L	5
Bromomethane	ND	ND	ND	ND	ND	ND	µg/L	10
Carbon disulfide	ND	ND	ND	ND	ND	ND	µg/L	5
Carbon tetrachloride	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorobenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Chlorodibromomethane	---	---	ND	ND	ND	---	µg/L	5
Chloroethane	ND	ND	ND	ND	ND	ND	µg/L	10
Chloroform	ND	ND	ND	ND	ND	ND	µg/L	5
Chloromethane	ND	ND	ND	ND	ND	ND	µg/L	10
cis-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Methylene chloride	ND	ND	ND	ND	ND	ND	µg/L	5
Stryene	ND	ND	ND	ND	ND	ND	µg/L	5
Tetrachloroethene (PCE)	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
trans-1,3-Dichloropropene	ND	ND	ND	ND	ND	ND	µg/L	5
Trichloroethene	ND	ND	ND	ND	ND	ND	µg/L	5
Vinyl acetate	ND	ND	ND	ND	ND	---	µg/L	20
Vinyl chloride (chloroethene)	ND	ND	ND	ND	ND	ND	µg/L	10
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Total Metals

Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Chromium	0.076	0.01	0.02	<0.01	<.01	<.01	mg/L	0.01
Lead	0.008	ND	ND	<0.005	<.05 *	<.005	mg/L	0.005

* Lab used incorrect detection limit of 0.05 instead of 0.005

TABULATED ANALYTICAL RESULTS

SMW-5 Giant Refining - Ciniza

Dissolved Metals

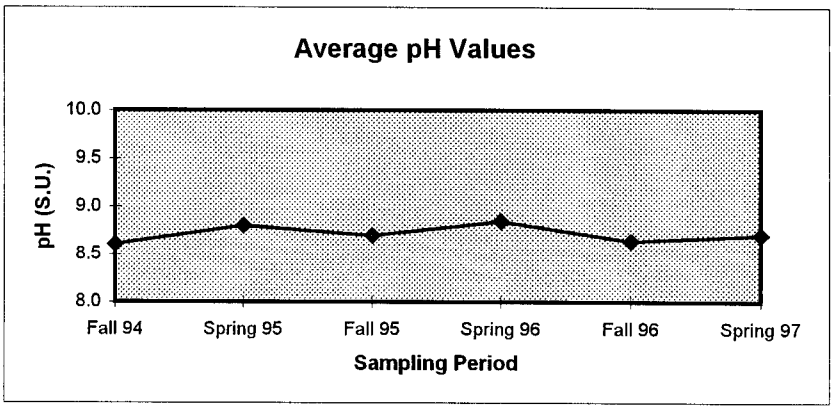
Parameter	Spring 95 Result	Spring 96 Result	Spring 97 Result	Units	Reporting Limit
Calcium	1.6	2.2	2.2	mg/L	---
Magnesium	0.7	1.8	0.2	mg/L	---
Potassium	ND	1.96	0.27	mg/L	---
Sodium	267	176	2.73	mg/L	---

General Chemistry / Other

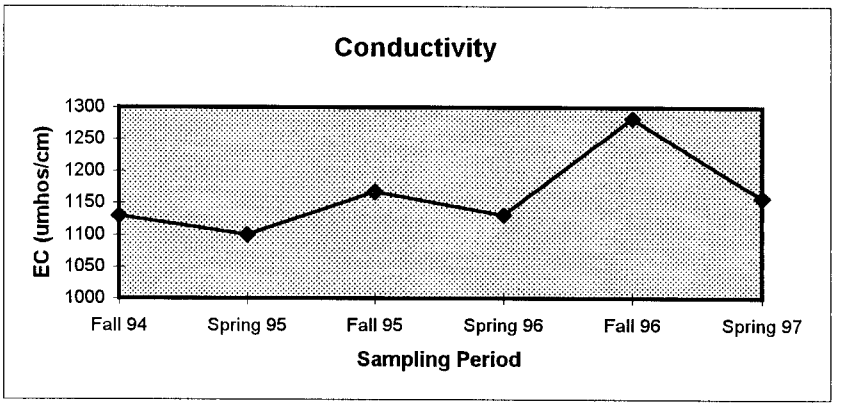
Parameter	Fall 94 Result	Spring 95 Result	Fall 95 Result	Spring 96 Result	Fall 96 Result	Spring 97 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO3 @ pH 4.5		350		427		366	mg/L	5
Alkalinity, Carbonate as HCO3 @ pH 8.3		21		10		ND	mg/L	5
Chloride		54		67		56	mg/L	3
pH (1st reading)	8.58	8.80	8.69	8.60	8.60	8.70	s.u.	---
pH (2nd reading)	8.60		8.69	9.01	8.70	8.70	s.u.	---
pH (3rd reading)	8.60		8.69	8.90	8.64	8.70	s.u.	---
pH (4th reading)	8.64		8.70	8.89	8.60	8.70	s.u.	---
pH Average	8.61	8.80	8.69	8.85	8.64	8.70	s.u.	---
Sulfate		180		160		162	mg/L	5
Spec. Conduct. @ 25° C	1120	1100	1170	1126	1280	1157	µmhos/cm	1
Spec. Conduct. @ 25° C	1130		1160	1123	1290	1157	µmhos/cm	1
Spec. Conduct. @ 25° C	1120		1170	1146	1280	1157	µmhos/cm	1
Spec. Conduct. @ 25° C	1150		1170	1126	1280	1157	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1130	1100	1168	1130	1283	1157	µmhos/cm	1
Total Organic Carbon	8	ND	12	1	1.2	<1	mg/L	1
Total Organic Carbon	8	ND				<1	mg/L	1
Total Organic Carbon						<1	mg/L	1
Total Organic Carbon						<1	mg/L	1
Total Org. Halides as Cl	ND	<30	<30	ND	<30	<30	mg/L	30
Total Org. Halides as Cl	ND	30		ND		<30	mg/L	30
Total Org. Halides as Cl				ND		<30	mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids		790		704		730	mg/L	10
Water Elevation	6848.02	6848.38	6847.47	6847.82	6847.00	6847.70	ft	---

SMW-5 Giant Refining - Ciniza

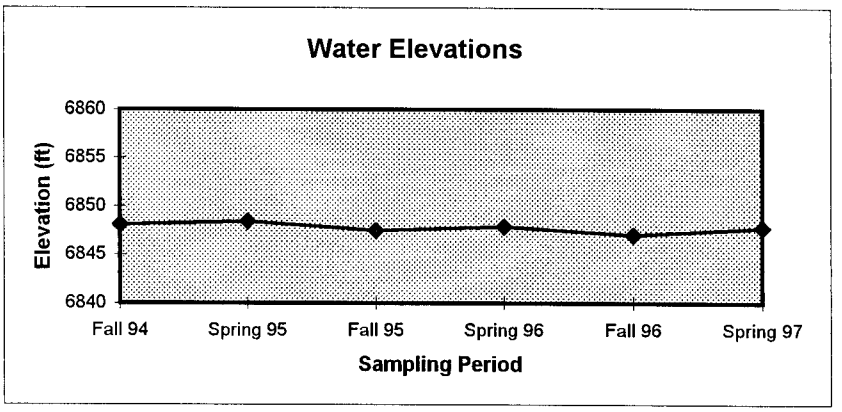
Fall 94	8.61
Spring 95	8.80
Fall 95	8.69
Spring 96	8.85
Fall 96	8.64
Spring 97	8.70



Fall 94	1130
Spring 95	1100
Fall 95	1168
Spring 96	1130
Fall 96	1283
Spring 97	1157

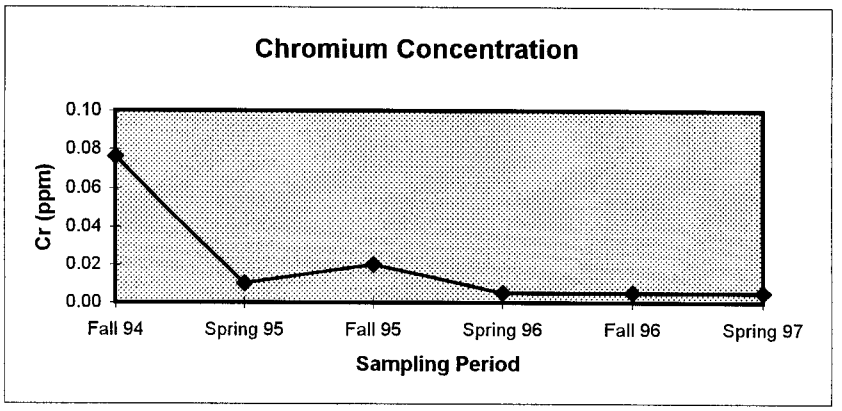


Fall 94	6848.02
Spring 95	6848.38
Fall 95	6847.47
Spring 96	6847.82
Fall 96	6847.00
Spring 97	6847.70

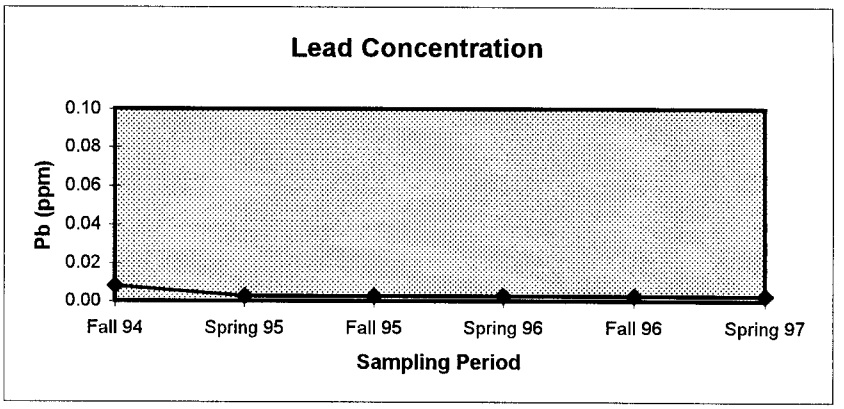


SMW-5 Giant Refining - Ciniza

Fall 94	0.076
Spring 95	0.01
Fall 95	0.02
Spring 96	0.005
Fall 96	0.005
Spring 97	0.005



Fall 94	0.008
Spring 95	0.003
Fall 95	0.003
Spring 96	0.003
Fall 96	0.003
Spring 97	0.003



Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9711146
Client Name: Giant Refining
Client Project Name:
Client Project Number: Not Submitted
Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
MW1	9711146-1		Water	11/10/97	10:50
MW2	9711146-2		Water	11/10/97	13:15
MW4	9711146-3		Water	11/10/97	14:00
MW5	9711146-4		Water	11/10/97	15:20

Specific Conductance in Water

Method SW9050

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: As Received
Printed on: Tuesday, November 18, 1997
Final Volume: 20 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
MW1	9711146-1	11/10/97	11/13/97	11/13/97		1	1120	umhos/cm			20 ML
MW2	9711146-2	11/10/97	11/13/97	11/13/97		1	1120	umhos/cm			20 ML
MW4	9711146-3	11/10/97	11/13/97	11/13/97		1	1200	umhos/cm			20 ML
MW5	9711146-4	11/10/97	11/13/97	11/13/97		1	1190	umhos/cm			20 ML

Comments:

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

KM

Specific Conductance in Water

Method SW9050

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: AS RECEIVED

Reported on: Tuesday, November 18, 1997

Sample Aliquot: 20 ML
Final Volume: 20ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
MW1	9711146-1A	11/13/97	11/13/97	1	1150	umhos/cm					
MW1	9711146-1B	11/13/97	11/13/97	1	1120	umhos/cm					
MW1	9711146-1C	11/13/97	11/13/97	1	1150	umhos/cm					
MW2	9711146-2A	11/13/97	11/13/97	1	1130	umhos/cm					
MW2	9711146-2B	11/13/97	11/13/97	1	1170	umhos/cm					
MW2	9711146-2C	11/13/97	11/13/97	1	1130	umhos/cm					
MW4	9711146-3A	11/13/97	11/13/97	1	1200	umhos/cm					
MW4	9711146-3B	11/13/97	11/13/97	1	1200	umhos/cm					
MW4	9711146-3C	11/13/97	11/13/97	1	1200	umhos/cm					
MW5	9711146-4A	11/13/97	11/13/97	1	1180	umhos/cm					
MW5	9711146-4B	11/13/97	11/13/97	1	1180	umhos/cm					
MW5	9711146-4C	11/13/97	11/13/97	1	1170	umhos/cm					

Comments:

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

KM

pH in Water

Method SW9040

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: As Received

Printed on: Tuesday, November 18, 1997

Final Volume: 20 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
MW1	9711146-1	11/10/97	11/13/97	11/13/97		1	8.8	PH			20 ML
MW2	9711146-2	11/10/97	11/13/97	11/13/97		1	8.8	PH			20 ML
MW4	9711146-3	11/10/97	11/13/97	11/13/97		1	8.6	PH			20 ML
MW5	9711146-4	11/10/97	11/13/97	11/13/97		1	8.8	PH			20 ML

Comments:

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

KM

pH in Water

Method SW9040

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: AS RECEIVED
Reported on: Tuesday, November 18, 1997
Sample Aliquot: 20 ML
Final Volume: 20ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
MW1	9711146-1A	11/13/97	11/13/97	1	8.8	PH				0	
MW1	9711146-1B	11/13/97	11/13/97	1	8.8	PH				0	
MW1	9711146-1C	11/13/97	11/13/97	1	8.8	PH				0	
MW2	9711146-2A	11/13/97	11/13/97	1	8.8	PH				0	
MW2	9711146-2B	11/13/97	11/13/97	1	8.8	PH				0	
MW2	9711146-2C	11/13/97	11/13/97	1	8.8	PH				0	
MW4	9711146-3A	11/13/97	11/13/97	1	8.6	PH				0	
MW4	9711146-3B	11/13/97	11/13/97	1	8.6	PH				0	
MW4	9711146-3C	11/13/97	11/13/97	1	8.6	PH				0	
MW5	9711146-4A	11/13/97	11/13/97	1	8.8	PH				0	
MW5	9711146-4B	11/13/97	11/13/97	1	8.8	PH				0	
MW5	9711146-4C	11/13/97	11/13/97	1	8.8	PH				0	

Comments:

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

KM

Total Organic Halides

Method SW9020

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: As Received

Printed on: Tuesday, November 25, 1997

Final Volume: 100 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
MW1	9711146-1	11/10/97	11/24/97	11/24/97		1	10	UG/L	10	ND	100 ML
MW2	9711146-2	11/10/97	11/24/97	11/24/97		1	10	UG/L	10	ND	100 ML
MW4	9711146-3	11/10/97	11/24/97	11/24/97		1	10	UG/L	10	ND	100 ML
MW5	9711146-4	11/10/97	11/24/97	11/24/97		1	10	UG/L	10	ND	100 ML

Comments:

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

TK

Total Organic Halides

Method SW9020

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: AS RECEIVED
Reported on: Tuesday, November 25, 1997
Sample Aliquot: 100 ML
Final Volume: 100ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
MW1	9711146-1A	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW1	9711146-1B	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW2	9711146-2A	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW2	9711146-2B	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW4	9711146-3A	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW4	9711146-3B	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW5	9711146-4A	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20
MW5	9711146-4B	11/24/97	11/24/97	1	10	UG/L		10	ND	0	20

Comments:

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

Total Organic Carbon

Method EPA415.1

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: As Received
Printed on: Tuesday, November 25, 1997
Final Volume: 1 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
MW1	9711146-1	11/10/97	11/21/97	11/21/97		1	1	MG/L	1	ND	1 ML
MW2	9711146-2	11/10/97	11/21/97	11/21/97		1	2	MG/L	1		1 ML
MW4	9711146-3	11/10/97	11/21/97	11/21/97		1	1	MG/L	1	ND	1 ML
MW5	9711146-4	11/10/97	11/21/97	11/21/97		1	2	MG/L	1		1 ML

Comments:

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

Total Organic Carbon

Method EPA415.1

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Not Submitted
Work Order Number: 9711146
Reporting Basis: AS RECEIVED
Reported on: Tuesday, November 25, 1997
Sample Aliquot: 1 ML
Final Volume: 1ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
MW1	9711146-1A	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW1	9711146-1B	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW1	9711146-1C	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW2	9711146-2A	11/21/97	11/21/97	1	2	MG/L		1		0	20
MW2	9711146-2B	11/21/97	11/21/97	1	2	MG/L		1		0	20
MW2	9711146-2C	11/21/97	11/21/97	1	2	MG/L		1		0	20
MW4	9711146-3A	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW4	9711146-3B	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW4	9711146-3C	11/21/97	11/21/97	1	1	MG/L		1	ND	0	20
MW5	9711146-4A	11/21/97	11/21/97	1	2	MG/L		1		0	20
MW5	9711146-4B	11/21/97	11/21/97	1	2	MG/L		1		0	20
MW5	9711146-4C	11/21/97	11/21/97	1	2	MG/L		1		0	20

Comments:

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

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW1
Lab ID: 9711146-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 10-Nov-97
Date Extracted: 17-Nov-97
Date Analyzed: 17-Nov-97
Prep Batch: v11146

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	ND	
74-87-3	CHLOROMETHANE	10	ug/L	10	ND	
75-01-4	VINYL CHLORIDE	10	ug/L	10	ND	
74-83-9	BROMOMETHANE	10	ug/L	10	ND	
75-00-3	CHLOROETHANE	10	ug/L	10	ND	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	ND	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	ND	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	ND	
67-64-1	ACETONE	20	ug/L	20	ND	
74-88-4	IODOMETHANE	5	ug/L	5	ND	
75-15-0	CARBON DISULFIDE	5	ug/L	5	ND	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	ND	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	ND	
108-05-4	VINYL ACETATE	20	ug/L	20	ND	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
78-93-3	2-BUTANONE	20	ug/L	20	ND	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	ND	
67-66-3	CHLOROFORM	5	ug/L	5	ND	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	ND	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	ND	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	ND	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	ND	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	ND	
71-43-2	BENZENE	5	ug/L	5	ND	
79-01-6	TRICHLOROETHENE	5	ug/L	5	ND	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	ND	
74-95-3	DIBROMOMETHANE	5	ug/L	5	ND	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	ND	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	ND	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	ND	
108-88-3	TOLUENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW1	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-1	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	ND	
591-78-6	2-HEXANONE	20	ug/L	20	ND	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	ND	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	ND	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	ND	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	ND	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	ND	
108-90-7	CHLOROBENZENE	5	ug/L	5	ND	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	ND	
100-41-4	ETHYLBENZENE	5	ug/L	5	ND	
136777-61-	M+P-XYLENE	5	ug/L	5	ND	
95-47-6	O-XYLENE	5	ug/L	5	ND	
100-42-5	STYRENE	5	ug/L	5	ND	
75-25-2	BROMOFORM	5	ug/L	5	ND	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	ND	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	ND	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	ND	
108-86-1	BROMOBENZENE	5	ug/L	5	ND	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	ND	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	ND	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	ND	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	ND	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	ND	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	ND	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	ND	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	ND	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	ND	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	ND	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	ND	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	ND	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	ND	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	ND	
91-20-3	NAPHTHALENE	5	ug/L	5	ND	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID:	MW1
Lab ID:	9711146-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 10-Nov-97
Date Extracted: 17-Nov-97
Date Analyzed: 17-Nov-97
Prep Batch: v11146

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	45	ug/l	50	90	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	53.4	ug/l	50	107	85 - 115
2037-26-5	TOLUENE-D8	52	ug/l	50	104	88 - 110

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW2	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-2	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	ND	
74-87-3	CHLOROMETHANE	10	ug/L	10	ND	
75-01-4	VINYL CHLORIDE	10	ug/L	10	ND	
74-83-9	BROMOMETHANE	10	ug/L	10	ND	
75-00-3	CHLOROETHANE	10	ug/L	10	ND	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	ND	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	ND	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	ND	
67-64-1	ACETONE	20	ug/L	20	ND	
74-88-4	IODOMETHANE	5	ug/L	5	ND	
75-15-0	CARBON DISULFIDE	5	ug/L	5	ND	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	ND	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	ND	
108-05-4	VINYL ACETATE	20	ug/L	20	ND	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
78-93-3	2-BUTANONE	20	ug/L	20	ND	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	ND	
67-66-3	CHLOROFORM	5	ug/L	5	ND	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	ND	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	ND	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	ND	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	ND	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	ND	
71-43-2	BENZENE	5	ug/L	5	ND	
79-01-6	TRICHLOROETHENE	5	ug/L	5	ND	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	ND	
74-95-3	DIBROMOMETHANE	5	ug/L	5	ND	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	ND	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	ND	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	ND	
108-88-3	TOLUENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW2	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-2	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	ND	
591-78-6	2-HEXANONE	20	ug/L	20	ND	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	ND	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	ND	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	ND	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	ND	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	ND	
108-90-7	CHLOROBENZENE	5	ug/L	5	ND	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	ND	
100-41-4	ETHYLBENZENE	5	ug/L	5	ND	
136777-61-	M+P-XYLENE	5	ug/L	5	ND	
95-47-6	O-XYLENE	5	ug/L	5	ND	
100-42-5	STYRENE	5	ug/L	5	ND	
75-25-2	BROMOFORM	5	ug/L	5	ND	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	ND	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	ND	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	ND	
108-86-1	BROMOBENZENE	5	ug/L	5	ND	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	ND	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	ND	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	ND	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	ND	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	ND	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	ND	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	ND	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	ND	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	ND	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	ND	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	ND	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	ND	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	ND	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	ND	
91-20-3	NAPHTHALENE	5	ug/L	5	ND	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW2	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-2	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	46.1	ug/l	50	92	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	51.8	ug/l	50	104	85 - 115
2037-26-5	TOLUENE-D8	54.1	ug/l	50	108	88 - 110

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW4	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-3	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	ND	
74-87-3	CHLOROMETHANE	10	ug/L	10	ND	
75-01-4	VINYL CHLORIDE	10	ug/L	10	ND	
74-83-9	BROMOMETHANE	10	ug/L	10	ND	
75-00-3	CHLOROETHANE	10	ug/L	10	ND	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	ND	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	ND	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	ND	
67-64-1	ACETONE	20	ug/L	20	ND	
74-88-4	IODOMETHANE	5	ug/L	5	ND	
75-15-0	CARBON DISULFIDE	5	ug/L	5	ND	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	ND	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	ND	
108-05-4	VINYL ACETATE	20	ug/L	20	ND	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
78-93-3	2-BUTANONE	20	ug/L	20	ND	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	ND	
67-66-3	CHLOROFORM	5	ug/L	5	ND	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	ND	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	ND	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	ND	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	ND	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	ND	
71-43-2	BENZENE	5	ug/L	5	ND	
79-01-6	TRICHLOROETHENE	5	ug/L	5	ND	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	ND	
74-95-3	DIBROMOMETHANE	5	ug/L	5	ND	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	ND	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	ND	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	ND	
108-88-3	TOLUENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW4	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-3	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	ND	
591-78-6	2-HEXANONE	20	ug/L	20	ND	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	ND	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	ND	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	ND	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	ND	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	ND	
108-90-7	CHLOROBENZENE	5	ug/L	5	ND	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	ND	
100-41-4	ETHYLBENZENE	5	ug/L	5	ND	
136777-61-	M+P-XYLENE	5	ug/L	5	ND	
95-47-6	O-XYLENE	5	ug/L	5	ND	
100-42-5	STYRENE	5	ug/L	5	ND	
75-25-2	BROMOFORM	5	ug/L	5	ND	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	ND	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	ND	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	ND	
108-86-1	BROMOBENZENE	5	ug/L	5	ND	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	ND	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	ND	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	ND	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	ND	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	ND	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	ND	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	ND	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	ND	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	ND	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	ND	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	ND	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	ND	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	ND	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	ND	
91-20-3	NAPHTHALENE	5	ug/L	5	ND	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID:	MW4
Lab ID:	9711146-3

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 10-Nov-97
Date Extracted: 17-Nov-97
Date Analyzed: 17-Nov-97
Prep Batch: v11146

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	45.8	ug/l	50	92	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	51.9	ug/l	50	104	85 - 115
2037-26-5	TOLUENE-D8	56.3	ug/l	50	113	88 - 110

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID:	MW5
Lab ID:	9711146-4

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 10-Nov-97
Date Extracted: 17-Nov-97
Date Analyzed: 17-Nov-97
Prep Batch: v11146

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	ND	
74-87-3	CHLOROMETHANE	10	ug/L	10	ND	
75-01-4	VINYL CHLORIDE	10	ug/L	10	ND	
74-83-9	BROMOMETHANE	10	ug/L	10	ND	
75-00-3	CHLOROETHANE	10	ug/L	10	ND	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	ND	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	ND	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	ND	
67-64-1	ACETONE	20	ug/L	20	ND	
74-88-4	IODOMETHANE	5	ug/L	5	ND	
75-15-0	CARBON DISULFIDE	5	ug/L	5	ND	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	ND	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	ND	
108-05-4	VINYL ACETATE	20	ug/L	20	ND	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
78-93-3	2-BUTANONE	20	ug/L	20	ND	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	ND	
67-66-3	CHLOROFORM	5	ug/L	5	ND	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	ND	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	ND	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	ND	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	ND	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	ND	
71-43-2	BENZENE	5	ug/L	5	ND	
79-01-6	TRICHLOROETHENE	5	ug/L	5	ND	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	ND	
74-95-3	DIBROMOMETHANE	5	ug/L	5	ND	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	ND	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	ND	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	ND	
108-88-3	TOLUENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:
Reported on: Wednesday, November 26, 199

Field ID: MW5	**Sample Matrix:** liquid	**Date Collected:** 10-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711146-4	**% Moisture:** N/A	**Date Extracted:** 17-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 17-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11146	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	ND	
591-78-6	2-HEXANONE	20	ug/L	20	ND	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	ND	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	ND	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	ND	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	ND	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	ND	
108-90-7	CHLOROBENZENE	5	ug/L	5	ND	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	ND	
100-41-4	ETHYLBENZENE	5	ug/L	5	ND	
136777-61-	M+P-XYLENE	5	ug/L	5	ND	
95-47-6	O-XYLENE	5	ug/L	5	ND	
100-42-5	STYRENE	5	ug/L	5	ND	
75-25-2	BROMOFORM	5	ug/L	5	ND	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	ND	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	ND	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	ND	
108-86-1	BROMOBENZENE	5	ug/L	5	ND	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	ND	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	ND	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	ND	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	ND	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	ND	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	ND	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	ND	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	ND	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	ND	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	ND	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	ND	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	ND	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	ND	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	ND	
91-20-3	NAPHTHALENE	5	ug/L	5	ND	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711146
Client Name: Giant Refining
ClientProject ID:

Reported on: Wednesday, November 26, 199

Field ID:	MW5
Lab ID:	9711146-4

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 10-Nov-97
Date Extracted: 17-Nov-97
Date Analyzed: 17-Nov-97
Prep Batch: v11146

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	44.3	ug/l	50	89	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	52.2	ug/l	50	104	85 - 115
2037-26-5	TOLUENE-D8	54.7	ug/l	50	109	88 - 110

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9711207
Client Name: Giant Refining
Client Project Name: Semi-Annual
Client Project Number: Groundwater Sampling
Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
OW-11	9711207-1		Water	11/17/97	11:15

Total Organic Halides

Method SW9020

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis: As Received
Printed on: Thursday, December 04, 1997
Final Volume: 100 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
OW-11	9711207-1	11/17/97	12/3/97	12/3/97		1	17	UG/L	10		100 ML

Comments:

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

Total Organic Halides

Method SW9020

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis:
Reported on: Thursday, December 04, 1997
Sample Aliquot: 100 ML
Final Volume: 100ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
OW-11	9711207-1A	12/3/97	12/3/97	1	14	UG/L		10			20
OW-11	9711207-1B	12/3/97	12/3/97	1	14	UG/L		10			20

Comments:

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

Total Organic Carbon

Method EPA415.1

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis: As Received

Printed on: Wednesday, December 03, 1997

Final Volume: 1 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
OW-11	9711207-1	11/17/97	11/21/97	11/21/97		1	2	MG/L	1		1 ML

Comments:

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

Total Organic Carbon

Method EPA415.1

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis:
Reported on: Wednesday, December 03, 1997
Sample Aliquot: 1 ML
Final Volume: 1ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
OW-11	9711207-1A	11/21/97	11/21/97	1	2	MG/L		1		0	20
OW-11	9711207-1B	11/21/97	11/21/97	1	2	MG/L		1		0	20

Comments:

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

Specific Conductance in Water

Method SW9050

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis: As Received
Printed on: Thursday, December 04, 1997
Final Volume: 20 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
OW-11	9711207-1	11/17/97	12/3/97	12/3/97		1	2400	umhos/cm			20 ML

Comments:

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

KM

Specific Conductance in Water

Method SW9050

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis:
Reported on: Thursday, December 04, 1997
Sample Aliquot: 20 ML
Final Volume: 20ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
OW-11	9711207-1A	12/3/97	12/3/97	1	2410	umhos/cm				0	
OW-11	9711207-1B	12/3/97	12/3/97	1	2410	umhos/cm				0	
OW-11	9711207-1C	12/3/97	12/3/97	1	2420	umhos/cm				1	

Comments:

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

KM

pH in Water

Method SW9040

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis: As Received
Printed on: Thursday, December 04, 1997
Final Volume: 20 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
OW-11	9711207-1	11/17/97	12/1/97	12/1/97		1	8.2	PH			20 ML

Comments:

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

KM

pH in Water

Method SW9040

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711207
Reporting Basis:
Reported on: Thursday, December 04, 1997
Sample Aliquot: 20 ML
Final Volume: 20ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
OW-11	9711207-1A	12/1/97	12/1/97	1	8.2	PH				0	
OW-11	9711207-1B	12/1/97	12/1/97	1	8.3	PH				1	
OW-11	9711207-1C	12/1/97	12/1/97	1	8.3	PH				1	

Comments:

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

Km

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711207
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, November 26, 199

Field ID:	OW-11
Lab ID:	9711207-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 17-Nov-97
Date Extracted: 24-Nov-97
Date Analyzed: 24-Nov-97
Prep Batch: sv11182

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	ND	
74-87-3	CHLOROMETHANE	10	ug/L	10	ND	
75-01-4	VINYL CHLORIDE	10	ug/L	10	ND	
74-83-9	BROMOMETHANE	10	ug/L	10	ND	
75-00-3	CHLOROETHANE	10	ug/L	10	ND	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	ND	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	ND	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	ND	
67-64-1	ACETONE	20	ug/L	20	ND	
74-88-4	IODOMETHANE	5	ug/L	5	ND	
75-15-0	CARBON DISULFIDE	5	ug/L	5	ND	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	ND	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	ND	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	ND	
108-05-4	VINYL ACETATE	20	ug/L	20	ND	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	ND	
78-93-3	2-BUTANONE	20	ug/L	20	ND	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	ND	
67-66-3	CHLOROFORM	5	ug/L	5	ND	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	ND	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	ND	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	ND	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	ND	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	ND	
71-43-2	BENZENE	5	ug/L	5	ND	
79-01-6	TRICHLOROETHENE	5	ug/L	5	ND	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	ND	
74-95-3	DIBROMOMETHANE	5	ug/L	5	ND	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	ND	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	ND	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	ND	
108-88-3	TOLUENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711207
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, November 26, 199

Field ID: OW-11	**Sample Matrix:** liquid	**Date Collected:** 17-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711207-1	**% Moisture:** N/A	**Date Extracted:** 24-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 24-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** sv11182	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	ND	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	ND	
591-78-6	2-HEXANONE	20	ug/L	20	ND	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	ND	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	ND	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	ND	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	ND	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	ND	
108-90-7	CHLOROBENZENE	5	ug/L	5	ND	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	ND	
100-41-4	ETHYLBENZENE	5	ug/L	5	ND	
136777-61-	M+P-XYLENE	5	ug/L	5	ND	
95-47-6	O-XYLENE	5	ug/L	5	ND	
100-42-5	STYRENE	5	ug/L	5	ND	
75-25-2	BROMOFORM	5	ug/L	5	ND	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	ND	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	ND	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	ND	
108-86-1	BROMOBENZENE	5	ug/L	5	ND	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	ND	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	ND	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	ND	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	ND	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	ND	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	ND	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	ND	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	ND	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	ND	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	ND	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	ND	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	ND	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	ND	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	ND	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	ND	
91-20-3	NAPHTHALENE	5	ug/L	5	ND	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	ND	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711207
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, November 26, 199

Field ID:	OW-11
Lab ID:	9711207-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 17-Nov-97
Date Extracted: 24-Nov-97
Date Analyzed: 24-Nov-97
Prep Batch: sv11182

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	46.5	ug/l	50	93	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	52.6	ug/l	50	105	85 - 115
2037-26-5	TOLUENE-D8	55.3	ug/l	50	111	88 - 110

Paragon Analytics, Incorporated

Sample Number(s) Cross-Reference Table

Paragon OrderNum: 9711280
Client Name: Giant Refining
Client Project Name: Semi-Annual
Client Project Number: Groundwater Sampling
Client PO Number:

Client Sample	Lab Sample Number	COC Number	Matrix	Date Collected	Time Collected
SMW 3	9711280-1		Water	11/24/97	14:20
SMW 4	9711280-2		Water	11/24/97	13:50
SMW 5	9711280-3		Water	11/24/97	13:20

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, December 10, 199

Field ID: SMW 3
Lab ID: 9711280-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	U	
74-87-3	CHLOROMETHANE	10	ug/L	10	U	
75-01-4	VINYL CHLORIDE	10	ug/L	10	U	
74-83-9	BROMOMETHANE	10	ug/L	10	U	
75-00-3	CHLOROETHANE	10	ug/L	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	U	
67-64-1	ACETONE	20	ug/L	20	U	
74-88-4	IODOMETHANE	5	ug/L	5	U	
75-15-0	CARBON DISULFIDE	5	ug/L	5	U	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	U	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	U	
108-05-4	VINYL ACETATE	20	ug/L	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	U	
78-93-3	2-BUTANONE	20	ug/L	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	U	
67-66-3	CHLOROFORM	5	ug/L	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	U	
71-43-2	BENZENE	5	ug/L	5	U	
79-01-6	TRICHLOROETHENE	5	ug/L	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	U	
74-95-3	DIBROMOMETHANE	5	ug/L	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	U	
108-88-3	TOLUENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, December 10, 199

Field ID: SMW 3	**Sample Matrix:** liquid	**Date Collected:** 24-Nov-97	**Sample Aliquot:** 5
Lab ID: 9711280-1	**% Moisture:** N/A	**Date Extracted:** 26-Nov-97	**Final Volume:** 5
	Cleanup Method: NONE	**Date Analyzed:** 26-Nov-97	**Dilution:** 1
	Report Basis: AS RECEIVED	**Prep Batch:** v11223-1	

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	U	
591-78-6	2-HEXANONE	20	ug/L	20	U	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	U	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	U	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	U	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	U	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	U	
108-90-7	CHLOROBENZENE	5	ug/L	5	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	U	
100-41-4	ETHYLBENZENE	5	ug/L	5	U	
136777-61-	M+P-XYLENE	5	ug/L	5	U	
95-47-6	O-XYLENE	5	ug/L	5	U	
100-42-5	STYRENE	5	ug/L	5	U	
75-25-2	BROMOFORM	5	ug/L	5	U	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	U	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	U	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	U	
108-86-1	BROMOBENZENE	5	ug/L	5	U	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	U	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	U	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	U	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	U	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	U	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	U	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	U	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	U	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	U	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	U	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	U	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	U	
91-20-3	NAPHTHALENE	5	ug/L	5	U	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual

Reported on: Wednesday, December 10, 199

Field ID:	SMW 3
Lab ID:	9711280-1

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	54.7	ug/l	50	109	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	49.7	ug/l	50	99	85 - 115
2037-26-5	TOLUENE-D8	53.5	ug/l	50	107	88 - 110

U = Less than the Reporting Limit

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, December 10, 199

Field ID: SMW 4
Lab ID: 9711280-2

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	U	
74-87-3	CHLOROMETHANE	10	ug/L	10	U	
75-01-4	VINYL CHLORIDE	10	ug/L	10	U	
74-83-9	BROMOMETHANE	10	ug/L	10	U	
75-00-3	CHLOROETHANE	10	ug/L	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	U	
67-64-1	ACETONE	20	ug/L	20	U	
74-88-4	IODOMETHANE	5	ug/L	5	U	
75-15-0	CARBON DISULFIDE	5	ug/L	5	U	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	U	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	U	
108-05-4	VINYL ACETATE	20	ug/L	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	U	
78-93-3	2-BUTANONE	20	ug/L	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	U	
67-66-3	CHLOROFORM	5	ug/L	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	U	
71-43-2	BENZENE	5	ug/L	5	U	
79-01-6	TRICHLOROETHENE	5	ug/L	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	U	
74-95-3	DIBROMOMETHANE	5	ug/L	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	U	
108-88-3	TOLUENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, December 10, 199

Field ID: SMW 4
Lab ID: 9711280-2

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	U	
591-78-6	2-HEXANONE	20	ug/L	20	U	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	U	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	U	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	U	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	U	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	U	
108-90-7	CHLOROBENZENE	5	ug/L	5	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	U	
100-41-4	ETHYLBENZENE	5	ug/L	5	U	
136777-61-	M+P-XYLENE	5	ug/L	5	U	
95-47-6	O-XYLENE	5	ug/L	5	U	
100-42-5	STYRENE	5	ug/L	5	U	
75-25-2	BROMOFORM	5	ug/L	5	U	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	U	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	U	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	U	
108-86-1	BROMOBENZENE	5	ug/L	5	U	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	U	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	U	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	U	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	U	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	U	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	U	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	U	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	U	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	U	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	U	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	U	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	U	
91-20-3	NAPHTHALENE	5	ug/L	5	U	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual

Reported on: Wednesday, December 10, 199

Field ID:	SMW 4
Lab ID:	9711280-2

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	52.1	ug/l	50	104	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	49.3	ug/l	50	99	85 - 115
2037-26-5	TOLUENE-D8	52.5	ug/l	50	105	88 - 110

U = Less than the Reporting Limit

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual

Reported on: Wednesday, December 10, 199

Field ID: SMW 5
Lab ID: 9711280-3

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

CASNO	Target Analyte	Result	Units	Reporting Limit	Result Qualifier	Result Footnote
75-71-8	DICHLORODIFLUOROMETHANE	10	ug/L	10	U	
74-87-3	CHLOROMETHANE	10	ug/L	10	U	
75-01-4	VINYL CHLORIDE	10	ug/L	10	U	
74-83-9	BROMOMETHANE	10	ug/L	10	U	
75-00-3	CHLOROETHANE	10	ug/L	10	U	
75-69-4	TRICHLOROFLUOROMETHANE	5	ug/L	5	U	
75-35-4	1,1-DICHLOROETHENE	5	ug/L	5	U	
76-13-1	TRICHLOROTRIFLUOROETHANE	5	ug/L	5	U	
67-64-1	ACETONE	20	ug/L	20	U	
74-88-4	IODOMETHANE	5	ug/L	5	U	
75-15-0	CARBON DISULFIDE	5	ug/L	5	U	
75-09-2	METHYLENE CHLORIDE	5	ug/L	5	U	
156-60-5	TRANS-1,2-DICHLOROETHENE	5	ug/L	5	U	
1634-04-4	METHYL TERTIARY BUTYL ETHER	5	ug/L	5	U	
75-34-3	1,1-DICHLOROETHANE	5	ug/L	5	U	
108-05-4	VINYL ACETATE	20	ug/L	20	U	
156-59-2	CIS-1,2-DICHLOROETHENE	5	ug/L	5	U	
78-93-3	2-BUTANONE	20	ug/L	20	U	
74-97-5	BROMOCHLOROMETHANE	5	ug/L	5	U	
67-66-3	CHLOROFORM	5	ug/L	5	U	
71-55-6	1,1,1-TRICHLOROETHANE	5	ug/L	5	U	
594-20-7	2,2-DICHLOROPROPANE	5	ug/L	5	U	
56-23-5	CARBON TETRACHLORIDE	5	ug/L	5	U	
563-58-6	1,1-DICHLOROPROPENE	5	ug/L	5	U	
107-06-2	1,2-DICHLOROETHANE	5	ug/L	5	U	
71-43-2	BENZENE	5	ug/L	5	U	
79-01-6	TRICHLOROETHENE	5	ug/L	5	U	
78-87-5	1,2-DICHLOROPROPANE	5	ug/L	5	U	
74-95-3	DIBROMOMETHANE	5	ug/L	5	U	
75-27-4	BROMODICHLOROMETHANE	5	ug/L	5	U	
110-75-8	2-CHLOROETHYL VINYL ETHER	10	ug/L	10	U	
10061-01-5	CIS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
108-10-1	4-METHYL-2-PENTANONE	20	ug/L	20	U	
108-88-3	TOLUENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual
Reported on: Wednesday, December 10, 199

Field ID: SMW 5
Lab ID: 9711280-3

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

10061-02-6	TRANS-1,3-DICHLOROPROPENE	5	ug/L	5	U	
79-00-5	1,1,2-TRICHLOROETHANE	5	ug/L	5	U	
591-78-6	2-HEXANONE	20	ug/L	20	U	
127-18-4	TETRACHLOROETHENE	5	ug/L	5	U	
142-28-9	1,3-DICHLOROPROPANE	5	ug/L	5	U	
124-48-1	DIBROMOCHLOROMETHANE	5	ug/L	5	U	
106-93-4	1,2-DIBROMOETHANE	5	ug/L	5	U	
544-10-5	1-CHLOROHEXANE	5	ug/L	5	U	
108-90-7	CHLOROBENZENE	5	ug/L	5	U	
630-20-6	1,1,1,2-TETRACHLOROETHANE	5	ug/L	5	U	
100-41-4	ETHYLBENZENE	5	ug/L	5	U	
136777-61-	M+P-XYLENE	5	ug/L	5	U	
95-47-6	O-XYLENE	5	ug/L	5	U	
100-42-5	STYRENE	5	ug/L	5	U	
75-25-2	BROMOFORM	5	ug/L	5	U	
98-82-8	ISOPROPYLBENZENE	5	ug/L	5	U	
96-18-4	1,2,3-TRICHLOROPROPANE	5	ug/L	5	U	
79-34-5	1,1,2,2-TETRACHLOROETHANE	5	ug/L	5	U	
108-86-1	BROMOBENZENE	5	ug/L	5	U	
103-65-1	N-PROPYLBENZENE	5	ug/L	5	U	
95-49-8	2-CHLOROTOLUENE	5	ug/L	5	U	
108-67-8	1,3,5-TRIMETHYLBENZENE	5	ug/L	5	U	
106-43-4	4-CHLOROTOLUENE	5	ug/L	5	U	
98-06-6	TERT-BUTYLBENZENE	5	ug/L	5	U	
95-63-6	1,2,4-TRIMETHYLBENZENE	5	ug/L	5	U	
135-98-8	SEC-BUTYLBENZENE	5	ug/L	5	U	
541-73-1	1,3-DICHLOROBENZENE	5	ug/L	5	U	
99-87-6	P-ISOPROPYLTOLUENE	5	ug/L	5	U	
106-46-7	1,4-DICHLOROBENZENE	5	ug/L	5	U	
104-51-8	N-BUTYLBENZENE	5	ug/L	5	U	
95-50-1	1,2-DICHLOROBENZENE	5	ug/L	5	U	
96-12-8	1,2-DIBROMO-3-CHLOROPROPANE	10	ug/L	10	U	
120-82-1	1,2,4-TRICHLOROBENZENE	5	ug/L	5	U	
87-68-3	HEXACHLOROBUTADIENE	5	ug/L	5	U	
91-20-3	NAPHTHALENE	5	ug/L	5	U	
87-61-6	1,2,3-TRICHLOROBENZENE	5	ug/L	5	U	

Volatile Organics by GC/MS

Method SW8260

Lab Name: Paragon Analytics, Inc.
Work Order Number: 9711280
Client Name: Giant Refining
ClientProject ID: Semi-Annual

Reported on: Wednesday, December 10, 199

Field ID:	SMW 5
Lab ID:	9711280-3

Sample Matrix: liquid
% Moisture: N/A
Cleanup Method: NONE
Report Basis: AS RECEIVED

Date Collected: 24-Nov-97
Date Extracted: 26-Nov-97
Date Analyzed: 26-Nov-97
Prep Batch: v11223-1

Sample Aliquot: 5
Final Volume: 5
Dilution: 1

Surrogate Recovery

CASNO	Surrogate Analyte	Result	Units	Spike Amount	Percent Recovery	Control Limits
460-00-4	4-BROMOFLUOROBENZENE	56.3	ug/l	50	113	85 - 115
1868-53-7	DIBROMOFLUOROMETHANE	51.4	ug/l	50	103	85 - 115
2037-26-5	TOLUENE-D8	49.4	ug/l	50	99	88 - 110

U = Less than the Reporting Limit

TOTAL RECOVERABLE METALS

Sample ID

SMW 3

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling -- Semi-Annual
Lab Sample ID: 9711280-1

Date Collected: 11/24/97
Prep Date: 12/01/97
Date Analyzed: 12/02/97

Sample Matrix: Water

Analyte	Concentration mg/L	Reporting Limit mg/L
Chromium	0.02	0.01 – Resampled data on next page.
Lead	ND	0.003

ND = Not detected at or above the reporting limit.

KU

TOTAL RECOVERABLE CHROMIUM

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling
Order Number: 9712194

Date Collected: 12/17/97
Prep Date: 12/22/97
Date Analyzed: 12/24/97

Sample Matrix: Water

Analyte	Client Sample ID	Lab Sample ID	Concentration mg/L	Reporting Limit mg/L
Chromium	Reagent Blank	RB 9712194	ND	0.01
Chromium	SMW-3	9712194-1	ND	0.01

ND = Not detected at or above the reporting limit.

44

TOTAL RECOVERABLE METALS

Sample ID

SMW 4

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling -- Semi-Annual
Lab Sample ID: 9711280-2

Date Collected: 11/24/97
Prep Date: 12/01/97
Date Analyzed: 12/02/97

Sample Matrix: Water

Analyte	Concentration mg/L	Reporting Limit mg/L
Chromium	ND	0.01
Lead	ND	0.003

ND = Not detected at or above the reporting limit.

KH

TOTAL RECOVERABLE METALS

Sample ID

SMW 5

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling -- Semi-Annual
Lab Sample ID: 9711280-3

Date Collected: 11/24/97
Prep Date: 12/01/97
Date Analyzed: 12/02/97

Sample Matrix: Water

Analyte	Concentration mg/L	Reporting Limit mg/L
Chromium	ND	0.01
Lead	ND	0.003

ND = Not detected at or above the reporting limit.

41

Total Organic Halides

Method SW9020

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis: As Received
Printed on: Tuesday, December 16, 1997
Final Volume: 100 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
SMW 3	9711280-1	11/24/97	12/16/97	12/16/97		1	25	UG/L	10		100 ML
SMW 4	9711280-2	11/24/97	12/16/97	12/16/97		1	10	UG/L	10	ND	100 ML
SMW 5	9711280-3	11/24/97	12/16/97	12/16/97		1	10	UG/L	10	ND	100 ML

Comments:

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

Total Organic Halides

Method SW9020

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis:
Reported on: Tuesday, December 16, 1997
Sample Aliquot: 100 ML
Final Volume: 100ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
SMW 3	9711280-1A	12/16/97	12/16/97	1	28	UG/L		10		11	20
SMW 3	9711280-1B	12/16/97	12/16/97	1	27	UG/L		10		8	20
SMW 4	9711280-2A	12/16/97	12/16/97	1	10	UG/L		10	ND	0	20
SMW 4	9711280-2B	12/16/97	12/16/97	1	10	UG/L		10	ND	0	20
SMW 5	9711280-3A	12/16/97	12/16/97	1	10	UG/L		10	ND	0	20
SMW 5	9711280-3B	12/16/97	12/16/97	1	10	UG/L		10	ND	0	20

Comments:

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

Total Organic Carbon

Method EPA415.1

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis: As Received
Printed on: Monday, December 15, 1997
Final Volume: 1 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
SMW 3	9711280-1	11/24/97	12/11/97	12/11/97		1	9	MG/L	1		1 ML
SMW 4	9711280-2	11/24/97	12/11/97	12/11/97		1	11	MG/L	1		1 ML
SMW 5	9711280-3	11/24/97	12/11/97	12/11/97		1	2	MG/L	1		1 ML

Comments:

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

Total Organic Carbon

Method EPA415.1

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis:
Reported on: Monday, December 15, 1997
Sample Aliquot: 1 ML
Final Volume: 1ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
SMW 3	9711280-1A	12/11/97	12/11/97	1	9	MG/L		1		0	20
SMW 3	9711280-1B	12/11/97	12/11/97	1	8	MG/L		1		12	20
SMW 4	9711280-2A	12/11/97	12/11/97	1	10	MG/L		1		10	20
SMW 4	9711280-2B	12/11/97	12/11/97	1	10	MG/L		1		10	20
SMW 5	9711280-3A	12/11/97	12/11/97	1	2	MG/L		1		0	20
SMW 5	9711280-3B	12/11/97	12/11/97	1	2	MG/L		1		0	20

Comments:

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

pH in Water

Method SW9040

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis: As Received
Printed on: Tuesday, December 09, 1997
Final Volume: 20 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
SMW 3	9711280-1	11/24/97	12/4/97	12/4/97		1	7.8	PH			20 ML
SMW 4	9711280-2	11/24/97	12/4/97	12/4/97		1	8.5	PH			20 ML
SMW 5	9711280-3	11/24/97	12/4/97	12/4/97		1	8.8	PH			20 ML

Comments:

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

Km

pH in Water

Method SW9040

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis:
Reported on: Tuesday, December 09, 1997
Sample Aliquot: 20 ML
Final Volume: 20ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
SMW 3	9711280-1A	12/4/97	12/4/97	1	7.8	PH				0	
SMW 3	9711280-1B	12/4/97	12/4/97	1	7.8	PH				0	
SMW 3	9711280-1C	12/4/97	12/4/97	1	7.8	PH				0	
SMW 4	9711280-2A	12/4/97	12/4/97	1	8.5	PH				0	
SMW 4	9711280-2B	12/4/97	12/4/97	1	8.5	PH				0	
SMW 4	9711280-2C	12/4/97	12/4/97	1	8.5	PH				0	
SMW 5	9711280-3A	12/4/97	12/4/97	1	8.8	PH				0	
SMW 5	9711280-3B	12/4/97	12/4/97	1	8.7	PH				0	
SMW 5	9711280-3C	12/4/97	12/4/97	1	8.8	PH				0	

Comments:

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

km

Specific Conductance in Water

Method SW9050

Sample Results

Lab Name: Paragon Analytics, Inc.
Client Name: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis: As Received
Printed on: Tuesday, December 09, 1997
Final Volume: 50 ML
Matrix: Water

Client Sample ID	Lab ID	Date Collected	Date Prepared	Date Analyzed	Percent Moisture	Dilution Factor	Result	Units	Detection Limit	Flag	Sample Aliquot
SMW 3	9711280-1	11/24/97	12/4/97	12/4/97		1	3210	umhos/cm			50 ML
SMW 4	9711280-2	11/24/97	12/4/97	12/4/97		1	1300	umhos/cm			50 ML
SMW 5	9711280-3	11/24/97	12/4/97	12/4/97		1	1200	umhos/cm			50 ML

Comments:

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

Km

Specific Conductance in Water

Method SW9050

Duplicate Sample Results

Lab Name: Paragon Analytics, Inc.
ClientName: Giant Refining
Client Project ID: Groundwater Sampling Semi-Annual
Work Order Number: 9711280
Reporting Basis:
Reported on: Tuesday, December 09, 1997
Sample Aliquot: 50 ML
Final Volume: 50ML
Matrix: Water

Client Sample ID	Lab ID	Date Prepared	Date Analyzed	Dilution Factor	Duplicate Result	Units	Sample Result	Detection Limit	Flag	RPD	RPD Limit
SMW 3	9711280-1A	12/4/97	12/4/97	1	3200	umhos/cm				0	
SMW 3	9711280-1B	12/4/97	12/4/97	1	3210	umhos/cm				0	
SMW 3	9711280-1C	12/4/97	12/4/97	1	3210	umhos/cm				0	
SMW 4	9711280-2A	12/4/97	12/4/97	1	1300	umhos/cm				0	
SMW 4	9711280-2B	12/4/97	12/4/97	1	1300	umhos/cm				0	
SMW 4	9711280-2C	12/4/97	12/4/97	1	1290	umhos/cm				0	
SMW 5	9711280-3A	12/4/97	12/4/97	1	1200	umhos/cm				0	
SMW 5	9711280-3B	12/4/97	12/4/97	1	1190	umhos/cm				0	
SMW 5	9711280-3C	12/4/97	12/4/97	1	1200	umhos/cm				0	

Comments:

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