

GW - 32

REPORTS

YEAR(S):

1998 GW REPORT

FOR RCRA SITE



Route 3, Box 7
Gallup, New Mexico
87301

505
722-3833

March 19, 1999

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

RECEIVED

MAR 31 1999

Environmental Bureau
Oil Conservation Division

**RE: 1998 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 1998 is enclosed. No unusual results were observed as a result of the 1998 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,

A handwritten signature in black ink, appearing to read "Stephen C. Morris", is written over a horizontal line.

Stephen C. Morris
Environmental Specialist, Ciniza Refinery

cc: Dave Pavlich, Environmental Superintendent, Ciniza Refinery
Dorinda Mancini, Environmental Manager, Ciniza Refinery
Sarah Allen, Corporate Counsel, Giant Industries, Inc.

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	$(\text{Value} - X_m)^2$
	1	8.86	0.0030
	2	8.94	0.0006
	3	8.94	0.0006
	4	8.92	0.0000

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.92$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0014$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0004$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 4.11$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.05$ $|t^*| > t_c$: 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	$(\text{Value} - X_m)^2$
	1	1092	5.0625
	2	1098	14.0625
	3	1090	18.0625
	4	1097	7.5625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1094$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 14.9167$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 3.7292$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 11.21$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.68$ $t^* > t_c$: 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-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	$(\text{Value} - X_m)^2$
	1	8.74	0.0005
	2	8.73	0.0002
	3	8.71	0.0001
	4	8.69	0.0008

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.72$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0005$

$$t_m (\text{pH}) = 5.841$$

$$W_m = S_m^2 / n_m = 0.0001$$

$$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 2.13$$

$$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.98 \quad |t^*| < t_c : \text{Statistically significant change not likely.}$$

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	$(\text{Value} - X_m)^2$
	1	1110	12.2500
	2	1106	0.2500
	3	1104	6.2500
	4	1106	0.2500

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1107$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 6.3333$

$$t_m (\text{Specific Conduct.}) = 4.541$$

$$W_m = S_m^2 / n_m = 1.5833$$

$$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 12.60$$

$$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.63 \quad t^* > t_c : \text{Statistically significant change possible.}$$

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	8.86	0.0002
	2	8.89	0.0003
	3	8.85	0.0005
	4	8.89	0.0003

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.87$ Variance $S_m^2 = [\text{Sum of (Value- X_m)²}] / 3 = 0.0004$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0001$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 3.72$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.98$ $|t^*| > t_c$: 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	1090	1.5625
	2	1090	1.5625
	3	1094	7.5625
	4	1091	0.0625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1091$ Variance $S_m^2 = [\text{Sum of (Value- X_m)²}] / 3 = 3.5833$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 0.8958$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 11.07$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.62$ $t^* > t_c$: 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	$(\text{Value} - X_m)^2$
	1	8.67	0.0008
	2	8.68	0.0014
	3	8.65	0.0001
	4	8.57	0.0053

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.64$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0025$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0006$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 1.33$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.13$ $|t^*| < t_c$: 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	$(\text{Value} - X_m)^2$
	1	1154	217.5625
	2	1133	39.0625
	3	1137	5.0625
	4	1133	39.0625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1139$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 100.2500$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 25.0625$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 14.29$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.01$ $t^* > t_c$: 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	8.41	0.0005
	2	8.45	0.0003
	3	8.43	0.0000
	4	8.44	0.0001

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.43$ Variance $S_m^2 = [\text{Sum of (Value- X_m)²}] / 3 = 0.0003$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0001$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = -0.80$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.97$ $|t^*| < t_c$: 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	1080	650.2500
	2	1115	90.2500
	3	1100	30.2500
	4	1127	462.2500

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1106$ Variance $S_m^2 = [\text{Sum of (Value- X_m)²}] / 3 = 411.0000$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 102.7500$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 8.69$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.62$ $t^* > t_c$: 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	$(\text{Value}-X_m)^2$
	1	8.08	0.0016
	2	8.14	0.0004
	3	8.12	0.0000
	4	8.14	0.0004

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.12$ Variance $S_m^2 = [\text{Sum of } (\text{Value}-X_m)^2] / 3 = 0.0008$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0002$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = -3.99$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.01$ $|t^*| > t_c$: 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	$(\text{Value}-X_m)^2$
	1	1124	370.5625
	2	1149	33.0625
	3	1151	60.0625
	4	1149	33.0625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1143$ Variance $S_m^2 = [\text{Sum of } (\text{Value}-X_m)^2] / 3 = 165.5833$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 41.3958$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 13.74$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.20$ $t^* > t_c$: 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	$(\text{Value} - X_m)^2$
	1	8.81	0.0005
	2	8.85	0.0003
	3	8.82	0.0002
	4	8.85	0.0003

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.83$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0004$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0001$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 3.31$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.98$ $|t^*| > t_c$: 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	$(\text{Value} - X_m)^2$
	1	1120	138.0625
	2	1114	33.0625
	3	1100	68.0625
	4	1099	85.5625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1108$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 108.2500$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 27.0625$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 11.34$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.04$ $t^* > t_c$: 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	8.60	0.0011
	2	8.65	0.0003
	3	8.64	0.0001
	4	8.64	0.0001

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.63$ Variance $S_m^2 = [\text{Sum of (Value-}X_m)^2] / 3 = 0.0005$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0001$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 1.26$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.98$ $|t^*| < t_c$: 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	1140	7.5625
	2	1136	1.5625
	3	1134	10.5625
	4	1139	3.0625

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 1137$ Variance $S_m^2 = [\text{Sum of (Value-}X_m)^2] / 3 = 7.5833$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 1.8958$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 15.74$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.64$ $t^* > t_c$: 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	$(\text{Value} - X_m)^2$
	1	8.15	0.0009
	2	8.12	0.0000
	3	8.11	0.0001
	4	8.10	0.0004

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 8.12$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0005$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0001$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = -4.00$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.98$ $|t^*| > t_c$: 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	$(\text{Value} - X_m)^2$
	1	2450	6.2500
	2	2440	56.2500
	3	2450	6.2500
	4	2450	6.2500

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 2448$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 25.0000$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 6.2500$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 146.95$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 2.72$ $t^* > t_c$: 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	$(\text{Value} - X_m)^2$
	1	8.03	0.0014
	2	7.99	0.0000
	3	7.95	0.0018
	4	8.00	0.0001

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 7.99$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 0.0011$

$t_m (\text{pH}) = 5.841$

$W_m = S_m^2 / n_m = 0.0003$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = -5.27$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.03$ $|t^*| > t_c$: 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	$(\text{Value} - X_m)^2$
	1	2550	756.2500
	2	2530	56.2500
	3	2510	156.2500
	4	2500	506.2500

Mean $X_m = (\text{Sum of Sample Values}) / 4 = 2523$ Variance $S_m^2 = [\text{Sum of } (\text{Value} - X_m)^2] / 3 = 491.6667$

$t_m (\text{Specific Conduct.}) = 4.541$

$W_m = S_m^2 / n_m = 122.9167$

$t^* = (X_m - X_b) / (W_m + W_b)^{1/2} = 104.72$

$t_c = [(W_b \times t_b) + (W_m \times t_m)] / (W_b + W_m) = 3.71$ $t^* > t_c$: 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 97 sampling period	7.24	7.80	0.20	7.40 - 8.20	(Does exceed tolerance limit.)
Spring 98 sampling period	7.52	8.00	0.20	7.59 - 8.41	(Does exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	2935	3181	322	2537 - 3824	(Does not exceed tolerance limit.)
Spring 98 sampling period	2865	3168	321	2525 - 3810	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.005	0.055	0.150	0.000 - 0.356	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.005	0.053	0.147	0.000 - 0.348	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.003	0.024	0.078	0.000 - 0.180	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.003	0.023	0.076	0.000 - 0.176	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

Tolerance Interval

SMW-3 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	7.52	7.79	0.20	7.38 - 8.20	(Does not exceed tolerance limit.)
Fall 98 sampling period	7.23	8.00	0.23	7.54 - 8.46	(Does exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	2865	3168	321	2525 - 3810	(Does not exceed tolerance limit.)
Fall 98 sampling period	2928	3158	318	2522 - 3794	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.005	0.053	0.147	0.000 - 0.348	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.010	0.051	0.144	0.000 - 0.340	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.003	0.023	0.076	0.000 - 0.176	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.003	0.022	0.075	0.000 - 0.172	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

Tolerance Interval

SMW-4 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	8.28	8.35	0.19	7.96 - 8.73	(Does not exceed tolerance limit.)
Spring 98 sampling period	8.29	8.34	0.19	7.96 - 8.72	(Does not exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	1257	1296	169	958 - 1635	(Does not exceed tolerance limit.)
Spring 98 sampling period	1256	1295	166	962 - 1627	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.005	0.010	0.014	0.000 - 0.038	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.005	0.010	0.013	0.000 - 0.037	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.003	0.007	0.021	0.000 - 0.049	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.003	0.007	0.020	0.000 - 0.048	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

Tolerance Interval

SMW-4 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	8.29	8.34	0.19	7.96 - 8.72	(Does not exceed tolerance limit.)
Fall 98 sampling period	7.91	8.33	0.20	7.92 - 8.74	(Does exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	1256	1295	166	962 - 1627	(Does not exceed tolerance limit.)
Fall 98 sampling period	1213	1292	164	964 - 1620	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.005	0.010	0.013	0.000 - 0.037	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.005	0.010	0.013	0.000 - 0.037	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.003	0.007	0.020	0.000 - 0.048	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.003	0.007	0.020	0.000 - 0.047	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

Tolerance Interval

SMW-5 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	8.68	8.56	0.27	8.02 - 9.09	(Does not exceed tolerance limit.)
Spring 98 sampling period	8.51	8.56	0.26	8.03 - 9.08	(Does not exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	1170	1142	71	999 - 1285	(Does not exceed tolerance limit.)
Spring 98 sampling period	1122	1141	70	1001 - 1282	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.005	0.022	0.030	0.000 - 0.082	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.013	0.022	0.030	0.000 - 0.081	(Does not exceed tolerance limit.)

Lead

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Fall 97 sampling period	0.003	0.013	0.047	0.000 - 0.106	(Does not exceed tolerance limit.)
Spring 98 sampling period	0.003	0.012	0.046	0.000 - 0.104	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

Tolerance Interval

SMW-5 Giant Refining - Ciniza

pH

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	8.51	8.56	0.26	8.03 - 9.08	(Does not exceed tolerance limit.)
Fall 98 sampling period	8.10	8.54	0.27	8.00 - 9.08	(Does not exceed tolerance limit.)

Specific Conductivity

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	1122	1141	70	1001 - 1282	(Does not exceed tolerance limit.)
Fall 98 sampling period	1136	1141	69	1003 - 1279	(Does not exceed tolerance limit.)

Chromium

	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.013	0.022	0.030	0.000 - 0.081	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.015	0.021	0.029	0.000 - 0.080	(Does not exceed tolerance limit.)

Lead

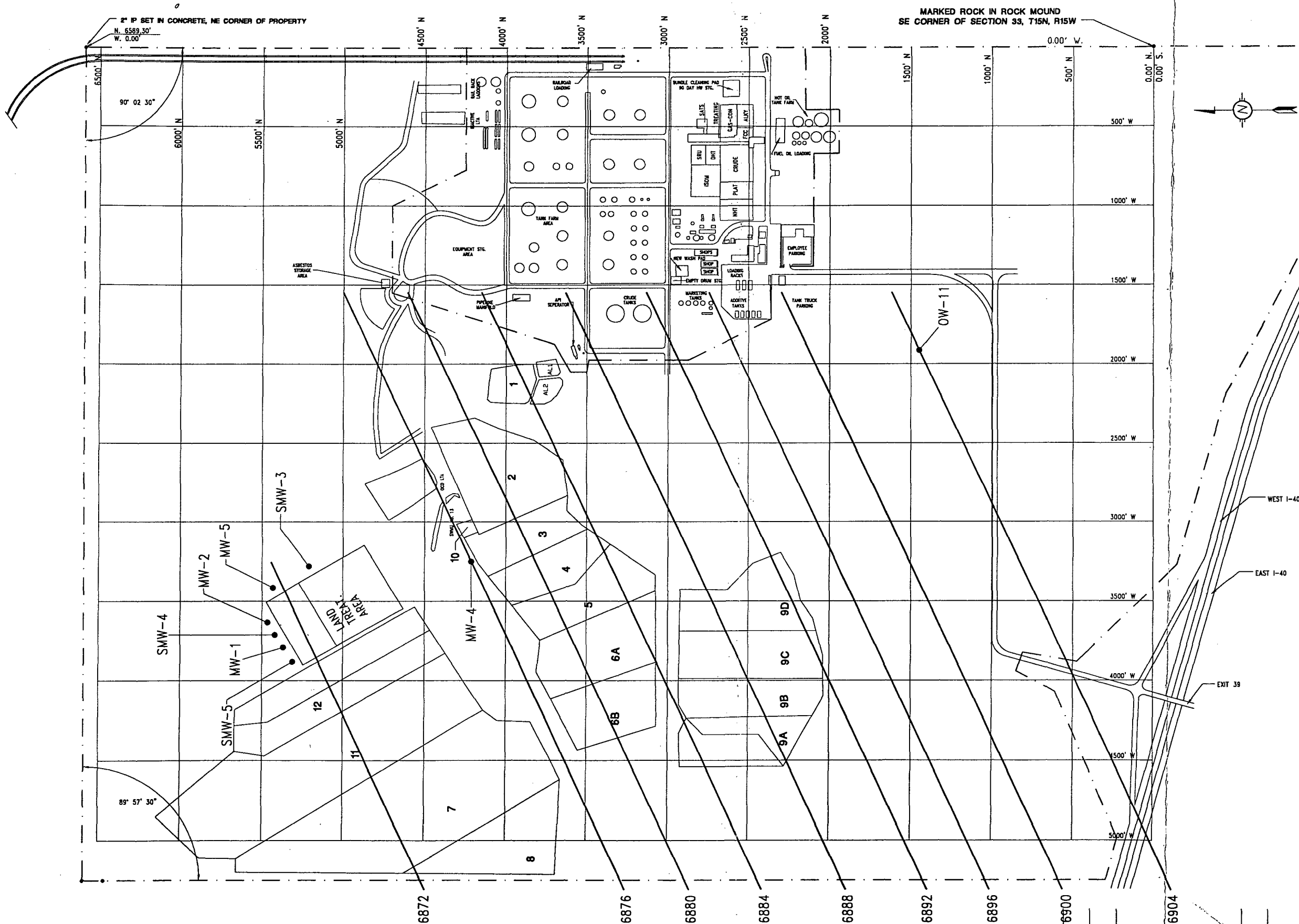
	Current Value	Historic Mean	Historic Standard Deviation	Tolerance Interval	
Spring 98 sampling period	0.003	0.012	0.046	0.000 - 0.104	(Does not exceed tolerance limit.)
Fall 98 sampling period	0.003	0.012	0.045	0.000 - 0.102	(Does not exceed tolerance limit.)

Tolerance Interval = (Mean $\pm$ 2 Standard Deviations)

GROUNDWATER ELEVATION MEASUREMENTS

Giant Refining Company - Ciniza

<u>Well No.</u>	<u>Date</u>	<u>Casing Elevation</u>	<u>Depth to Water</u>	<u>Groundwater Elevation</u>
MW-1	Spring 98	6878.52	5.96	6872.56
	Fall 98		5.65	6872.87
MW-2	Spring 98	6880.84	10.04	6870.8
	Fall 98		7.9	6872.94
MW-4	Spring 98	6882.54	6.66	6875.88
	Fall 98		6.4	6876.14
MW-5	Spring 98	6883.32	12.16	6871.16
	Fall 98		10.1	6873.22
OW-11	Spring 98	6923.89	20.25	6903.64
	Fall 98		19.3	6904.59
SMW-3	Spring 98	6884.56	32.08	6852.48
	Fall 98		30.6	6853.96
SMW-4	Spring 98	6880.08	31	6849.08
	Fall 98		29.9	6850.18
SMW-5	Spring 98	6878.02	30.92	6847.1
	Fall 98		30.1	6847.92



1998 GROUNDWATER ELEVATION CONTOUR MAP	
MW-1	6872.87
MW-2	6872.94
MW-4	6876.14
MW-5	6873.22
OW-11	6904.59

CINIZA REFINERY				GALLUP NEW MEXICO	
REFINING CO.					
A DIVISION OF GIANT INDUSTRIES					
MASTER PLOT PLAN GROUNDWATER ELEVATION CONTOUR MAP					
SCALE	N.T.S.	APRV'D.			
DATE	03-22-99	APRV'D.			
DRN.	SLM	BY	JAPRVD	REV.	0
CHK'D.	LDWG	NDGW	ELEV.	CTR.	MAP

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 vicinity of the LTU = 0.0033

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').

$$V = (K \times I) \div n = .012 \text{ ft/day} = 4.27 \text{ ft/yr}$$

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 vicinity of the LTU = 0.0033

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').

$$V = (K \times I) \div n = .012 \text{ ft/day} = 4.22 \text{ ft/yr}$$

TABULATED ANALYTICAL RESULTS

MW-1 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Chromium	ND	0.021	ND	<0.01	<0.01	ND	mg/L	0.01
Lead	ND	<0.005	<0.005	<0.005	<0.005	ND	mg/L	0.005
Mercury	ND			<0.001	<0.001	ND	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-1 Giant Refining - Ciniza

Dissolved Metals

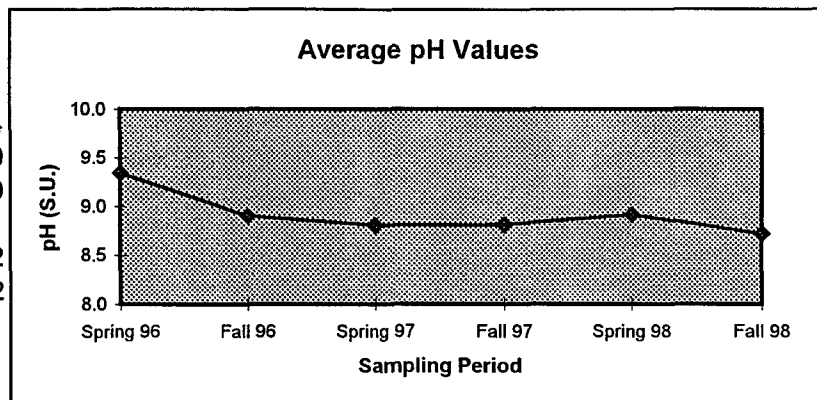
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Arsenic	<0.005	<0.005	ND	mg/L	0.10
Barium	<0.01	<0.01	ND	mg/L	1.00
Cadmium	<0.001	<0.001	ND	mg/L	0.01
Calcium	1.0	1.7	ND	mg/L	---
Magnesium	0.1	<0.2	ND	mg/L	---
Manganese	<0.02	<0.005	ND	mg/L	---
Potassium	0.39	0.5	ND	mg/L	---
Selenium	0.005	<0.005	ND	mg/L	0.01
Silver	0.01	<0.01	ND	mg/L	0.05
Sodium	264	259	79.2	mg/L	---

General Chemistry / Other

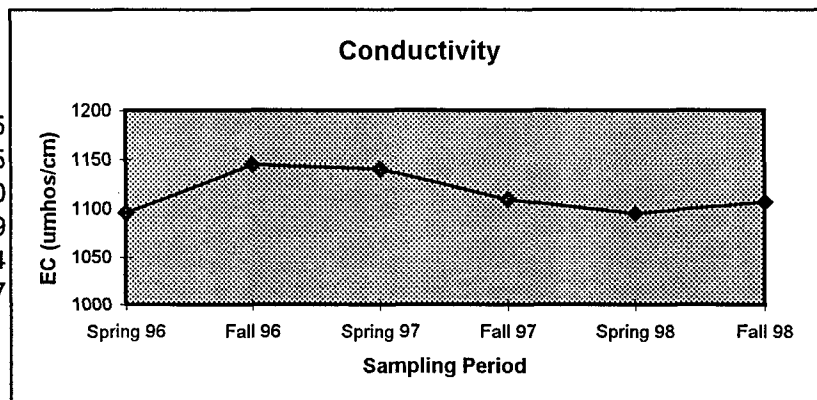
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	373		339		318		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	22		62		21		mg/L	5
Chloride	55		50		49		mg/L	3
pH (1st reading)	9.52	8.90	8.80	8.70	8.86	8.74	s.u.	---
pH (2nd reading)	9.33	8.90	8.80	8.83	8.94	8.73	s.u.	---
pH (3rd reading)	9.23	8.90	8.80	8.85	8.94	8.71	s.u.	---
pH (4th reading)	9.26	8.90	8.80	8.87	8.92	8.69	s.u.	---
pH Average	9.34	8.90	8.80	8.81	8.92	8.72	s.u.	---
Phenols	ND		ND		0.005		mg/L	0.05
Sulfate	175		170		177		mg/L	5
Spec. Conduct. @ 25° C	1099	1144	1140	1111	1092	1110	µmhos/cm	1
Spec. Conduct. @ 25° C	1094	1146	1140	1112	1098	1106	µmhos/cm	1
Spec. Conduct. @ 25° C	1095	1145	1140	1107	1090	1104	µmhos/cm	1
Spec. Conduct. @ 25° C	1091	1143	1140	1106	1097	1106	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1095	1145	1140	1109	1094	1107	µmhos/cm	1
Total Organic Carbon	<1.0	0.8	<1.0	1	1	ND	mg/L	1
Total Organic Carbon	<1.0		<1.0	1		ND	mg/L	1
Total Organic Carbon			<1.0	1		ND	mg/L	1
Total Organic Carbon			<1.0	1			mg/L	1
Total Org. Halides as Cl	ND	<30	<30	10	<30	ND	mg/L	30
Total Org. Halides as Cl	ND			10		ND	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		664		mg/L	10
Water Elevation	6872.50	6872.20	6872.50	6871.60	6872.56	6872.87	ft	---

MW-1 Giant Refining - Ciniza

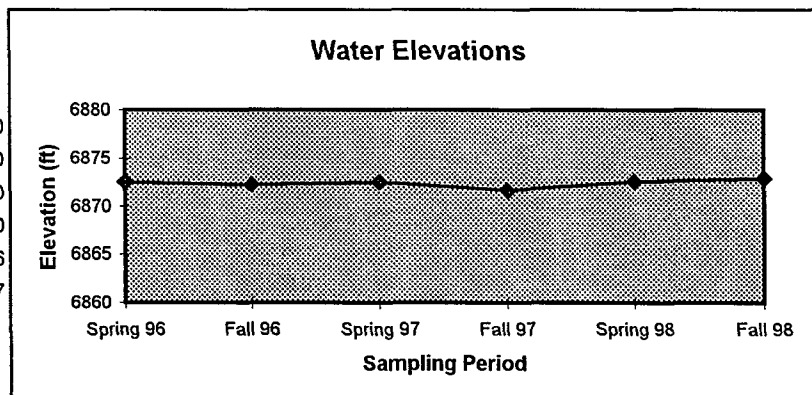
Spring 96	9.34
Fall 96	8.90
Spring 97	8.80
Fall 97	8.81
Spring 98	8.92
Fall 98	8.72



Spring 96	1095
Fall 96	1145
Spring 97	1140
Fall 97	1109
Spring 98	1094
Fall 98	1107

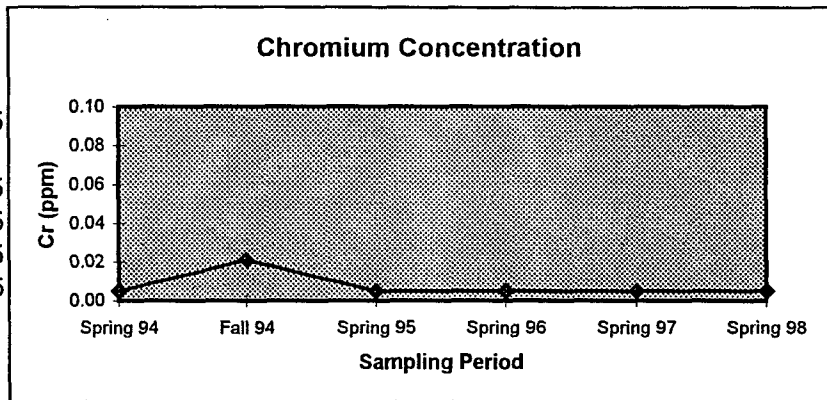


Spring 96	6872.50
Fall 96	6872.20
Spring 97	6872.50
Fall 97	6871.60
Spring 98	6872.56
Fall 98	6872.87

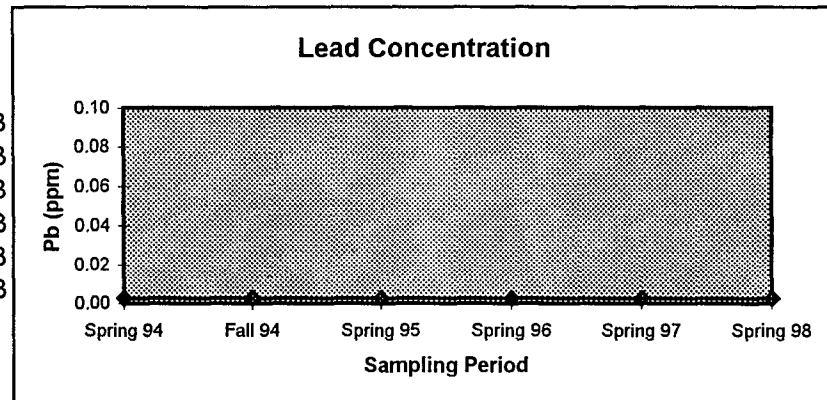


MW-1 Giant Refining - Ciniza

Spring 94	0.005
Fall 94	0.021
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005
Spring 98	0.005



Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003
Spring 98	0.003



TABULATED ANALYTICAL RESULTS

MW-2 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (EDC)	ND	ND	ND	ND	ND	ND	µg/L	5
1,2-Dichloroethane (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	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Chromium	0.011	ND	ND	<0.01	<0.01	ND	mg/L	0.01
Lead	ND	ND	ND	<0.005	<0.005	ND	mg/L	0.005
Mercury	ND		ND	<0.001	<0.001	ND	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-2 Giant Refining - Ciniza

Dissolved Metals

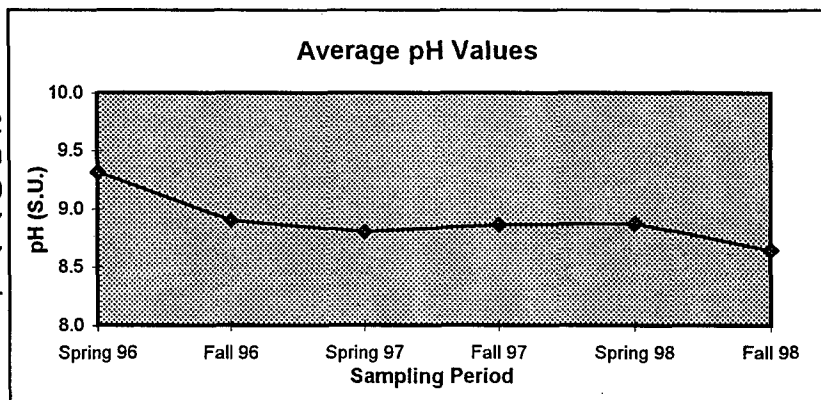
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Arsenic	<0.005	<0.005	ND	mg/L	0.10
Barium	<0.01	0.01	ND	mg/L	1.00
Cadmium	<0.001	<0.001	ND	mg/L	0.01
Calcium	1.0	1.6	ND	mg/L	---
Magnesium	0.1	<0.2	ND	mg/L	---
Manganese	<0.02	<0.005	ND	mg/L	---
Potassium	0.39	0.5	ND	mg/L	---
Selenium	0.005	<0.005	ND	mg/L	0.01
Silver	0.01	<0.01	ND	mg/L	0.05
Sodium	264	252	159	mg/L	---

General Chemistry / Other

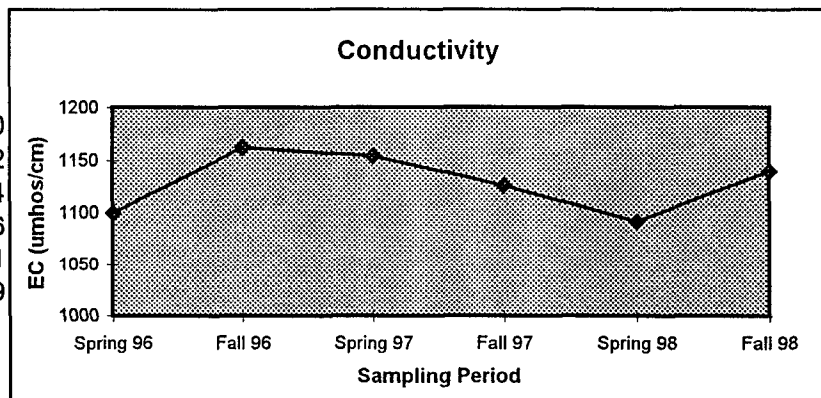
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	365		356		309		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	19		21		22		mg/L	5
Chloride	63		57		56		mg/L	3
pH (1st reading)	9.40	8.90	8.80	8.87	8.86	8.67	s.u.	---
pH (2nd reading)	9.32	8.90	8.80	8.92	8.89	8.68	s.u.	---
pH (3rd reading)	9.29	8.90	8.80	8.86	8.85	8.65	s.u.	---
pH (4th reading)	9.25	8.90	8.80	8.81	8.89	8.57	s.u.	---
pH Average	9.32	8.90	8.80	8.87	8.87	8.64	s.u.	---
Phenols	ND		ND		0.015		mg/L	0.05
Sulfate	175		178		186		mg/L	5
Spec. Conduct. @ 25° C	1110	1163	1154	1110	1090	1154	µmhos/cm	1
Spec. Conduct. @ 25° C	1092	1160	1154	1127	1090	1133	µmhos/cm	1
Spec. Conduct. @ 25° C	1102	1162	1154	1132	1094	1137	µmhos/cm	1
Spec. Conduct. @ 25° C	1094	1163	1154	1135	1091	1133	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1100	1162	1154	1126	1091	1139	µmhos/cm	1
Total Organic Carbon	<1.0	0.8	<1.0	2	2.31	ND	mg/L	1
Total Organic Carbon			<1.0	2		ND	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	ND	44	<30	10	10	0.01	mg/L	30
Total Org. Halides as Cl	ND			10		0.01	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		673		mg/L	10
Water Elevation	6867.54	6870.80	6871.30	6871.51	6870.80	6872.94	ft	---

MW-2 Giant Refining - Ciniza

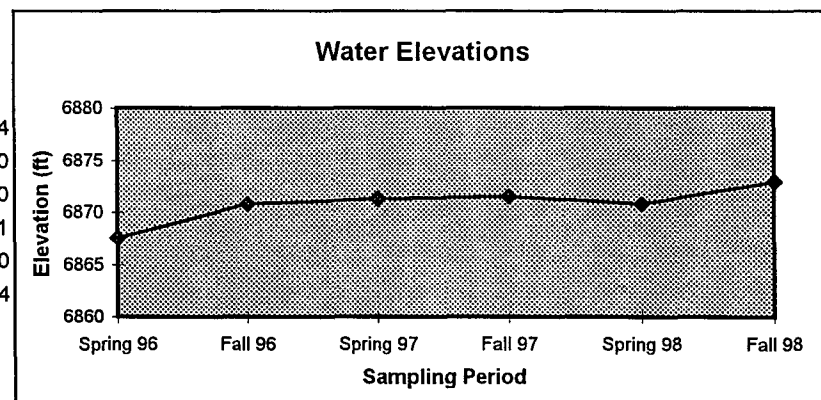
Spring 96	9.32
Fall 96	8.90
Spring 97	8.80
Fall 97	8.87
Spring 98	8.87
Fall 98	8.64



Spring 96	1100
Fall 96	1162
Spring 97	1154
Fall 97	1126
Spring 98	1091
Fall 98	1139

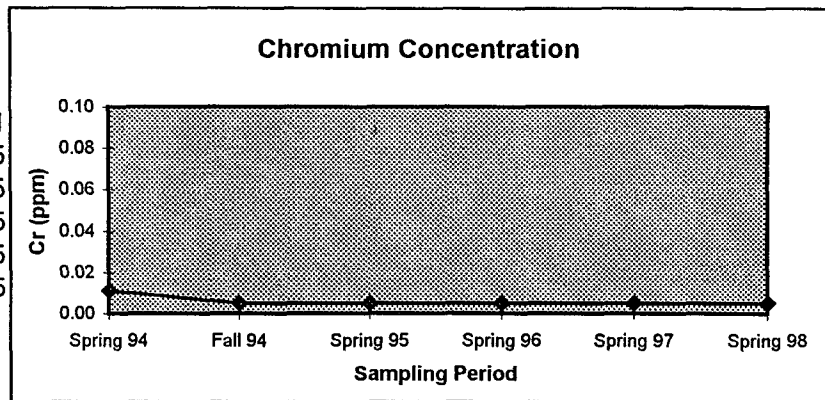


Spring 96	6867.54
Fall 96	6870.80
Spring 97	6871.30
Fall 97	6871.51
Spring 98	6870.80
Fall 98	6872.94

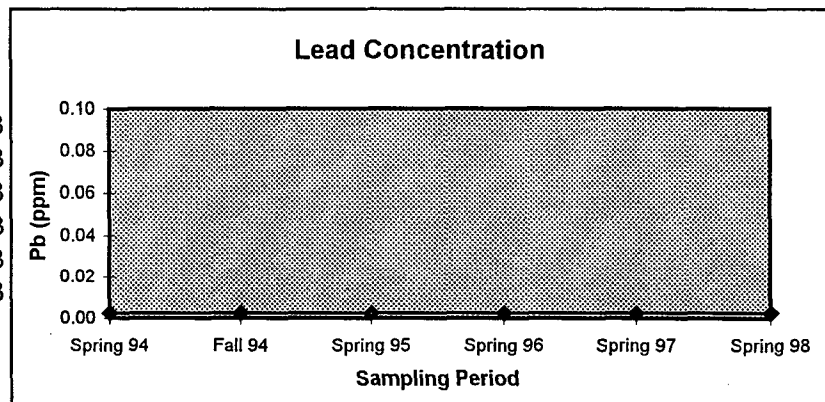


MW-2 Giant Refining - Ciniza

Spring 94	0.011
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005
Spring 98	0.005



Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003
Spring 98	0.003



TABULATED ANALYTICAL RESULTS

MW-4 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Chromium	ND	0.013	ND	<0.01	<0.01	ND	mg/L	0.01
Lead	ND	ND	ND	<0.005	<0.005	ND	mg/L	0.005
Mercury	ND			<0.001	<0.001	ND	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-4 Giant Refining - Ciniza

Dissolved Metals

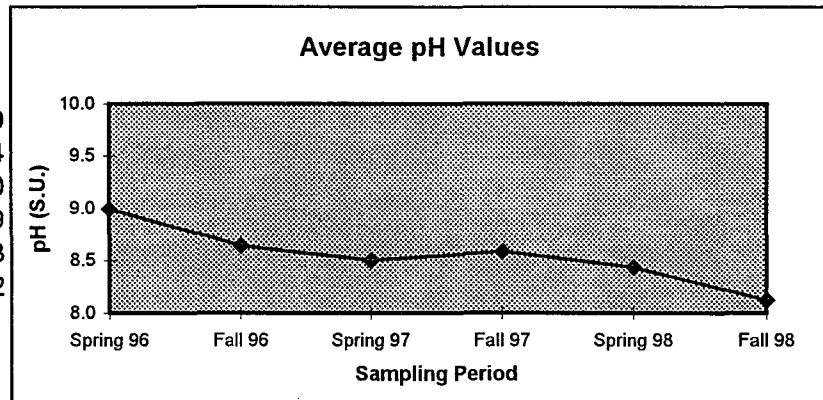
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Arsenic	<0.005	<0.005	ND	mg/L	0.10
Barium	<0.01	0.02	ND	mg/L	1.00
Cadmium	<0.001	<0.001	ND	mg/L	0.01
Calcium	1.0	1.7	ND	mg/L	---
Magnesium	0.1	<0.2	ND	mg/L	---
Manganese	<0.02	<.005	ND	mg/L	---
Potassium	0.39	0.53	ND	mg/L	---
Selenium	0.005	<0.005	ND	mg/L	0.01
Silver	0.01	<0.01	ND	mg/L	0.05
Sodium	264	276	146	mg/L	---

General Chemistry / Other

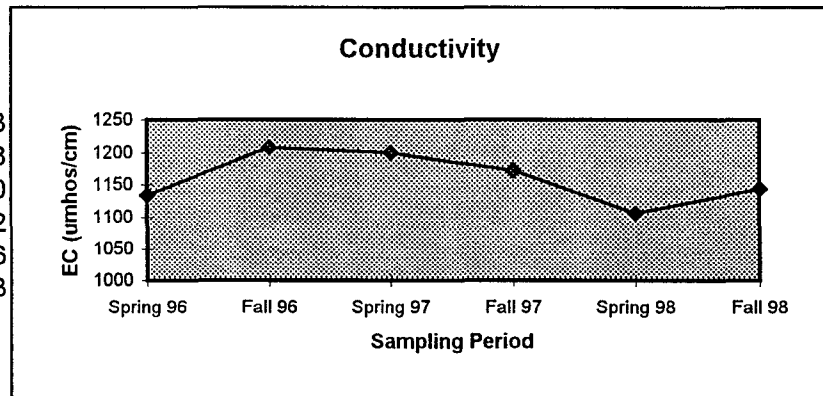
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	528		505		433		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	8		14		16		mg/L	5
Chloride	21		18		18		mg/L	3
pH (1st reading)	9.12	8.52	8.50	8.70	8.41	8.08	s.u.	---
pH (2nd reading)	8.99	8.56	8.50	8.57	8.45	8.14	s.u.	---
pH (3rd reading)	8.94	8.57	8.50	8.54	8.43	8.12	s.u.	---
pH (4th reading)	8.91	8.92	8.50	8.53	8.44	8.14	s.u.	---
pH Average	8.99	8.64	8.50	8.59	8.43	8.12	s.u.	---
Phenols	ND		ND		0.014		mg/L	0.05
Sulfate	160		161		169		mg/L	5
Spec. Conduct. @ 25° C	1144	1180	1200	1171	1080	1124	µmhos/cm	1
Spec. Conduct. @ 25° C	1125	1210	1200	1172	1115	1149	µmhos/cm	1
Spec. Conduct. @ 25° C	1129	1220	1200	1174	1100	1151	µmhos/cm	1
Spec. Conduct. @ 25° C	1135	1220	1200	1172	1127	1149	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1133	1208	1200	1172	1106	1143	µmhos/cm	1
Total Organic Carbon	1.1	1	1	1	2.95	ND	mg/L	1
Total Organic Carbon			1.1	1		ND	mg/L	1
Total Organic Carbon			1	1			mg/L	1
Total Organic Carbon			1	1			mg/L	1
Total Org. Halides as Cl	ND	<30	ND	ND	ND	ND	mg/L	30
Total Org. Halides as Cl	ND					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		700		mg/L	10
Water Elevation	6876.00	6875.50	6876.00	6874.79	6875.88	6876.14	ft	---

MW-4 Giant Refining - Ciniza

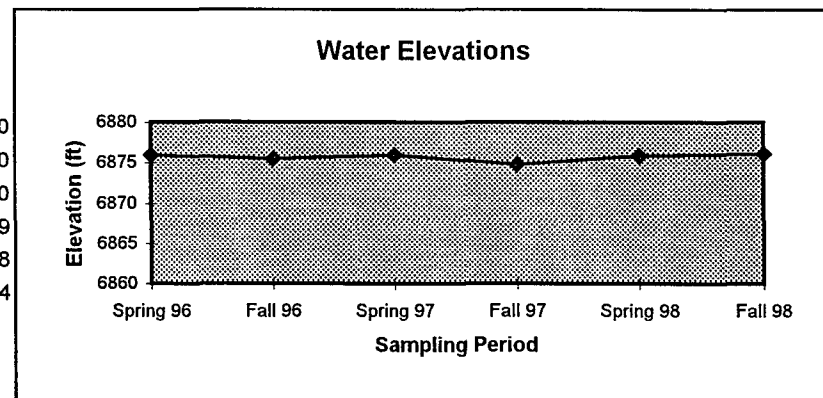
Spring 96	8.99
Fall 96	8.64
Spring 97	8.50
Fall 97	8.59
Spring 98	8.43
Fall 98	8.12



Spring 96	1133
Fall 96	1208
Spring 97	1200
Fall 97	1172
Spring 98	1106
Fall 98	1143

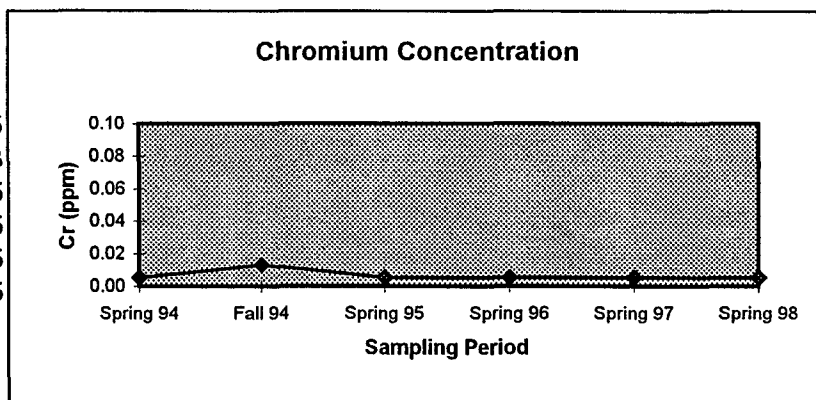


Spring 96	6876.00
Fall 96	6875.50
Spring 97	6876.00
Fall 97	6874.79
Spring 98	6875.88
Fall 98	6876.14

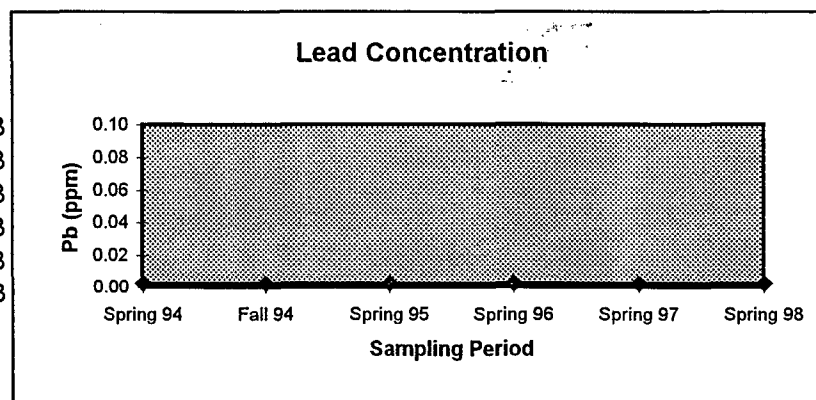


MW-4 Giant Refining - Ciniza

Spring 94	0.005
Fall 94	0.013
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005
Spring 98	0.005



Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003
Spring 98	0.003



TABULATED ANALYTICAL RESULTS

MW-5 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Chromium	ND	ND	ND	<0.01	<.01	ND	mg/L	0.01
Lead	ND	ND	ND	<0.005	<.005	ND	mg/L	0.005
Mercury	ND		ND	<0.001	<.001	ND	mg/L	0.002

TABULATED ANALYTICAL RESULTS

MW-5 Giant Refining - Ciniza

Dissolved Metals

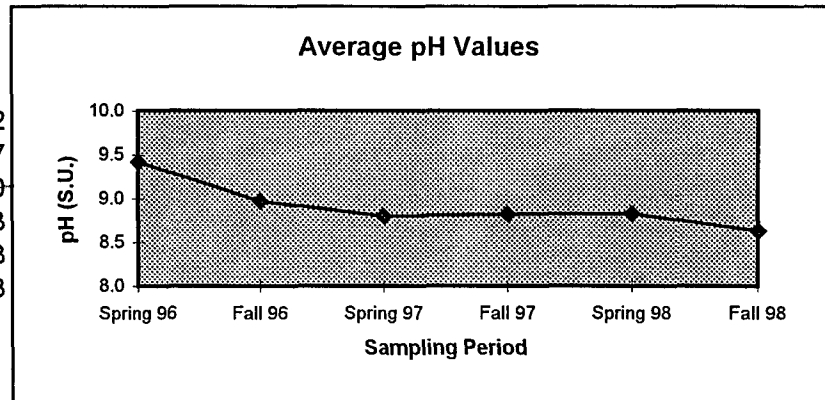
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Arsenic	<0.005	<.005	ND	mg/L	0.10
Barium	0.02	0.01	ND	mg/L	1.00
Cadmium	<0.002	<0.001	ND	mg/L	0.01
Calcium	1.6	1.5	ND	mg/L	---
Magnesium	0.2	<0.2	ND	mg/L	---
Manganese	<0.02	<.005	ND	mg/L	---
Potassium	0.78	0.54	ND	mg/L	---
Selenium	<0.005	<.005	ND	mg/L	0.01
Silver	<0.01	<.01	ND	mg/L	0.05
Sodium	275	260	149	mg/L	---

General Chemistry / Other

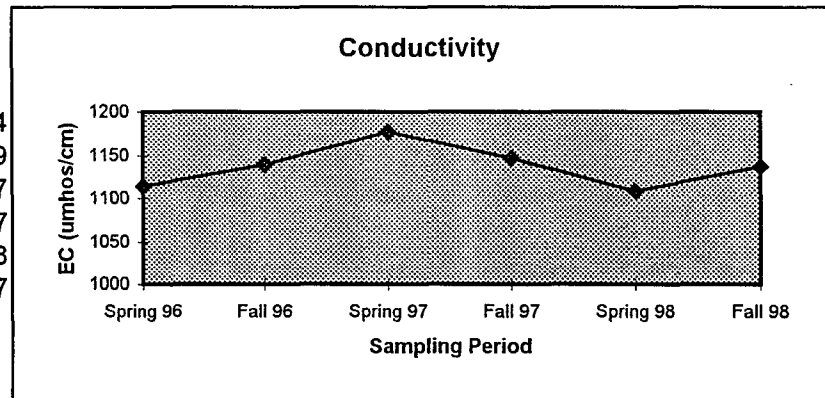
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	339		349		299		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	26		14		21		mg/L	5
Chloride	66		62		61		mg/L	3
pH (1st reading)	9.65	9.06	8.80	8.89	8.81	8.60	s.u.	---
pH (2nd reading)	9.42	8.96	8.80	8.81	8.85	8.65	s.u.	---
pH (3rd reading)	9.32	8.94	8.80	8.80	8.82	8.64	s.u.	---
pH (4th reading)	9.28	8.92	8.80	8.80	8.85	8.64	s.u.	---
pH Average	9.42	8.97	8.80	8.83	8.83	8.63	s.u.	---
Phenols	ND		ND		0.013		mg/L	0.05
Sulfate	175		181		189		mg/L	5
Spec. Conduct. @ 25° C	1111	1135	1177	1145	1120	1140	µmhos/cm	1
Spec. Conduct. @ 25° C	1110	1143	1177	1148	1114	1136	µmhos/cm	1
Spec. Conduct. @ 25° C	1118	1137	1177	1147	1100	1134	µmhos/cm	1
Spec. Conduct. @ 25° C	1118	1142	1177	1148	1099	1139	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1114	1139	1177	1147	1108.25	1137.25	µmhos/cm	1
Total Organic Carbon	<1.0	0.8	<1.0	2	2	2	mg/L	1
Total Organic Carbon			<1.0	2		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	ND	<30	<30	10	ND	0.01	mg/L	30
Total Org. Halides as Cl	ND			10		0.01	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		682		mg/L	10
Water Elevation	6870.80	6871.50	6871.10	6871.99	6871.16	6873.22	ft	---

MW-5 Giant Refining - Ciniza

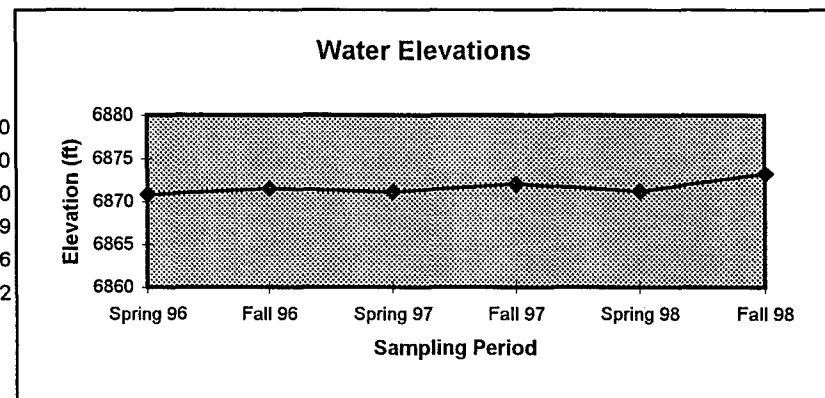
Spring 96	9.42
Fall 96	8.97
Spring 97	8.80
Fall 97	8.83
Spring 98	8.83
Fall 98	8.63



Spring 96	1114
Fall 96	1139
Spring 97	1177
Fall 97	1147
Spring 98	1108
Fall 98	1137

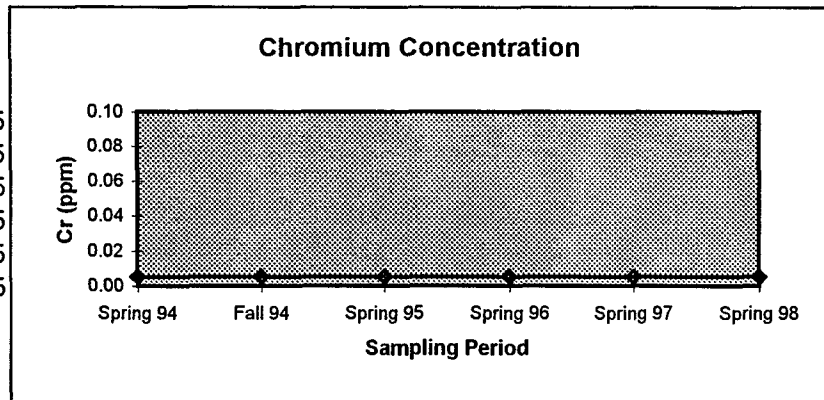


Spring 96	6870.80
Fall 96	6871.50
Spring 97	6871.10
Fall 97	6871.99
Spring 98	6871.16
Fall 98	6873.22

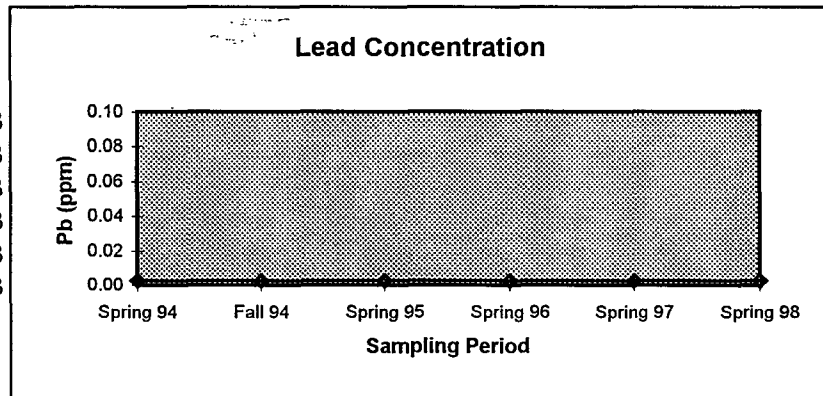


MW-5 Giant Refining - Ciniza

Spring 94	0.005
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005
Spring 98	0.005



Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003
Spring 98	0.003



TABULATED ANALYTICAL RESULTS

OW-11 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	Spring 94 Result	Fall 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Chromium	ND	ND	ND	<0.01	<.01	ND	mg/L	0.01
Lead	ND	ND	ND	<0.005	<.005	ND	mg/L	0.005
Mercury	ND		ND	<0.001	<.001	ND	mg/L	0.002

TABULATED ANALYTICAL RESULTS

OW-11 Giant Refining - Ciniza

Dissolved Metals

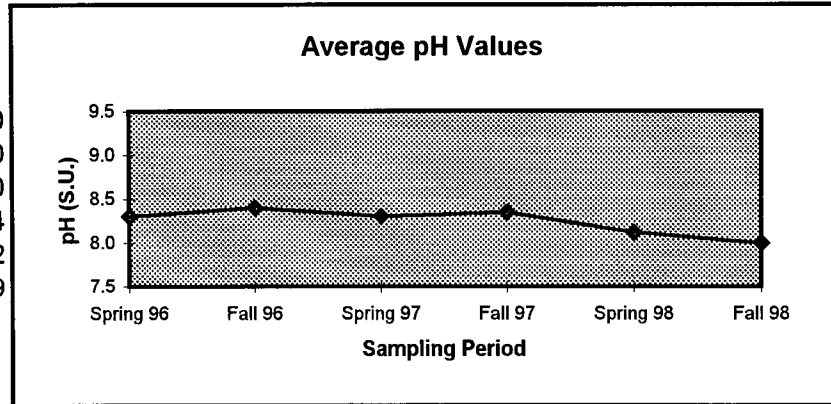
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Arsenic	<0.005	<0.005	ND	mg/L	0.10
Barium	0.01	0.01	ND	mg/L	1.00
Cadmium	<0.002	<.001	ND	mg/L	0.01
Calcium	9.4	11.2	9.1	mg/L	---
Magnesium	1.1	1.2	ND	mg/L	---
Manganese	<0.02	0.01	0.018	mg/L	---
Potassium	1.56	2.1	ND	mg/L	---
Selenium	<0.005	<.005	0.0084	mg/L	0.01
Silver	<0.01	<.01	ND	mg/L	0.05
Sodium	575	618	194	mg/L	---

General Chemistry / Other

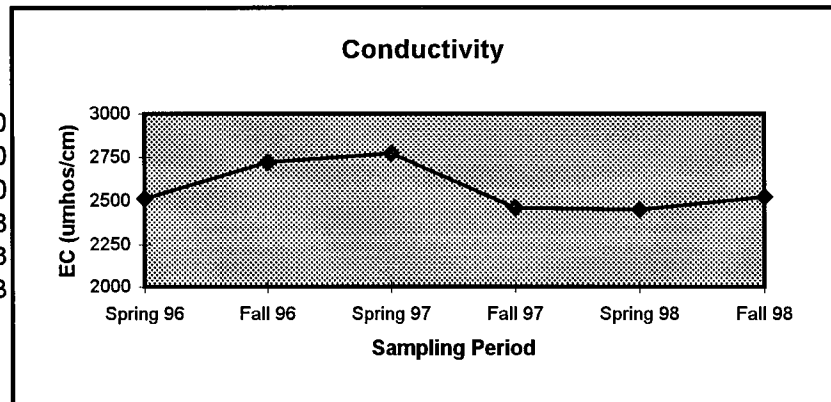
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	420		334		282		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	2		ND		5		mg/L	5
Chloride	108		88		85		mg/L	3
pH (1st reading)	8.30	8.40	8.30	8.38	8.15	8.03	s.u.	---
pH (2nd reading)		8.30	8.30	8.27	8.12	7.99	s.u.	---
pH (3rd reading)		8.40	8.30	8.36	8.11	7.95	s.u.	---
pH (4th reading)		8.40	8.30	8.36	8.10	8.00	s.u.	---
pH Average	8.30	8.40	8.30	8.34	8.12	7.99	s.u.	---
Phenols	ND		ND		0.006		mg/L	0.05
Sulfate	708		1029		1040		mg/L	5
Spec. Conduct. @ 25° C	2510	2730	2770	2440	2450	2550	µmhos/cm	1
Spec. Conduct. @ 25° C		2730	2770	2480	2440	2530	µmhos/cm	1
Spec. Conduct. @ 25° C		2700	2770	2460	2450	2510	µmhos/cm	1
Spec. Conduct. @ 25° C		2720	2770	2450	2450	2500	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	2510	2720	2770	2457.5	2447.5	2522.5	µmhos/cm	1
Total Organic Carbon	2.8	2.1	1.8	2	3	2	mg/L	1
Total Organic Carbon			1.8	2		2	mg/L	1
Total Organic Carbon			1.8	2			mg/L	1
Total Organic Carbon			1.8				mg/L	1
Total Org. Halides as Cl	ND	<30	<30	17	ND	0.02	mg/L	30
Total Org. Halides as Cl	ND		<30	14		0.1	mg/L	30
Total Org. Halides as Cl	ND		<30	14			mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids	1630		1874		1850		mg/L	10
Water Elevation	6903.73	6902.86	6903.90	6903.85	6903.64	6904.59	ft	---

OW-11 Giant Refining - Ciniza

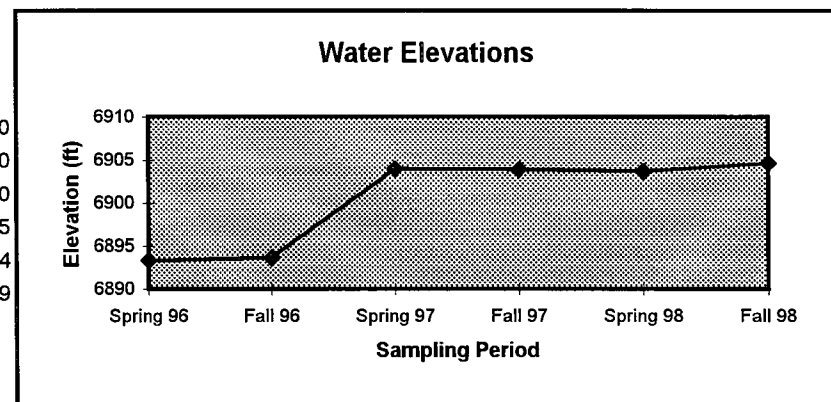
Spring 96	8.30
Fall 96	8.40
Spring 97	8.30
Fall 97	8.34
Spring 98	8.12
Fall 98	7.99



Spring 96	2510
Fall 96	2720
Spring 97	2770
Fall 97	2458
Spring 98	2448
Fall 98	2523

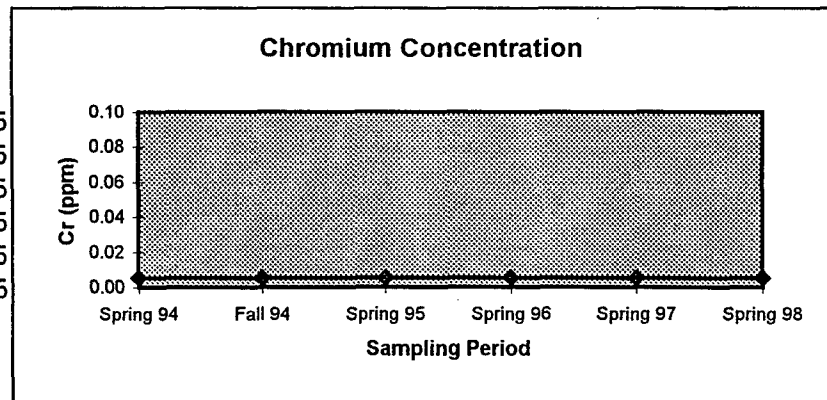


Spring 96	6893.30
Fall 96	6893.60
Spring 97	6903.90
Fall 97	6903.85
Spring 98	6903.64
Fall 98	6904.59

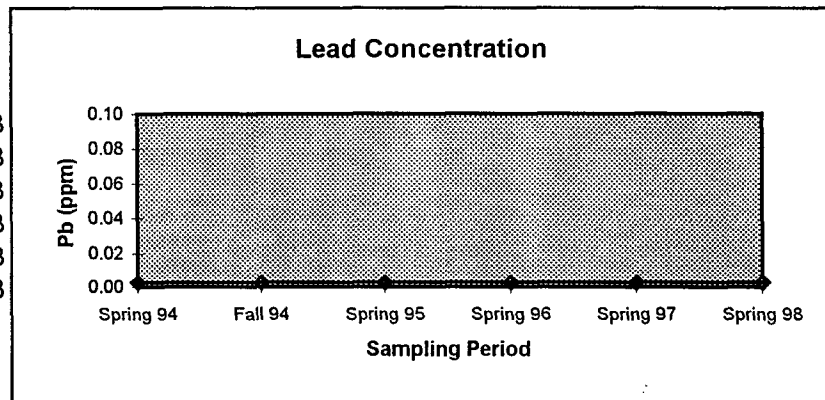


OW-11 Giant Refining - Ciniza

Spring 94	0.005
Fall 94	0.005
Spring 95	0.005
Spring 96	0.005
Spring 97	0.005
Spring 98	0.005



Spring 94	0.003
Fall 94	0.003
Spring 95	0.003
Spring 96	0.003
Spring 97	0.003
Spring 98	0.003



TABULATED ANALYTICAL RESULTS

SMW-3 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	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	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Chromium	<0.01	<0.01	<.01	ND	ND	0.01	mg/L	0.01
Lead	<0.005	<.05 *	<.005	ND	ND	ND	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

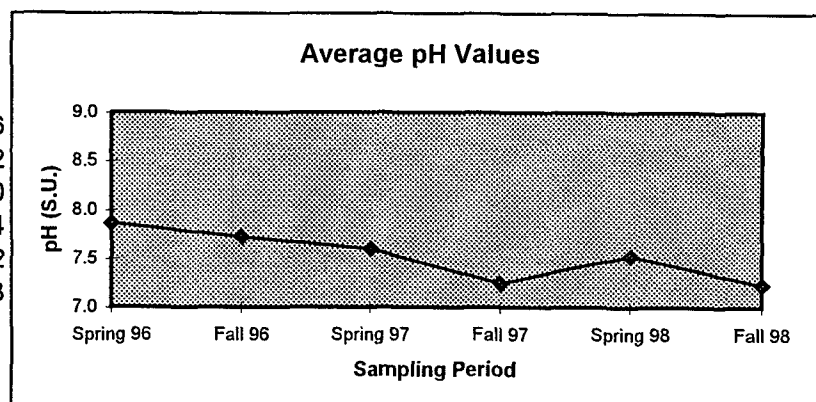
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	47.0	43.4	42.8	mg/L	---
Magnesium	14.0	13.1	12.5	mg/L	---
Potassium	0.78	<.2	ND	mg/L	---
Sodium	669	660	219	mg/L	---

General Chemistry / Other

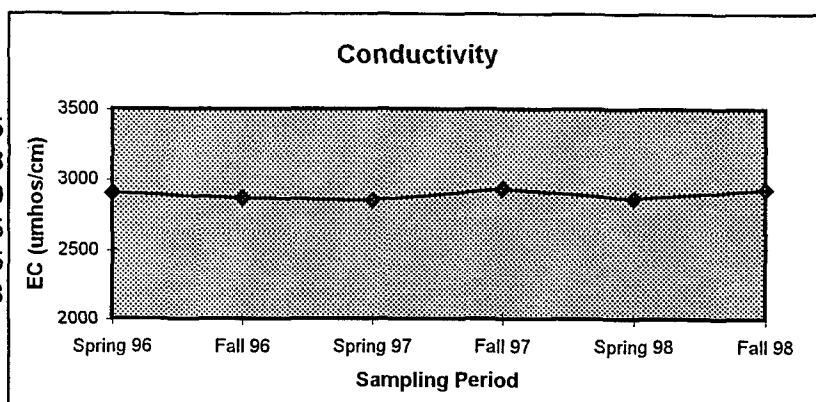
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	786		766		622		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	ND		ND		3		mg/L	5
Chloride	91		87		99		mg/L	3
pH (1st reading)	8.00	7.95	7.60	7.25	7.51	7.28	s.u.	---
pH (2nd reading)	7.87	7.72	7.60	7.25	7.52	7.21	s.u.	---
pH (3rd reading)	7.80	7.63	7.60	7.24	7.56	7.21	s.u.	---
pH (4th reading)	7.77	7.59	7.60	7.23	7.50	7.22	s.u.	---
pH Average	7.86	7.72	7.60	7.24	7.52	7.23	s.u.	---
Sulfate	844		835		820		mg/L	5
Spec. Conduct. @ 25° C	2830	2870	2850	2920	2840	2940	µmhos/cm	1
Spec. Conduct. @ 25° C	2830	2880	2850	2940	2870	2930	µmhos/cm	1
Spec. Conduct. @ 25° C	2870	2870	2850	2940	2880	2920	µmhos/cm	1
Spec. Conduct. @ 25° C	3090	2850	2850	2940	2870	2920	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	2905	2868	2850	2935	2865	2928	µmhos/cm	1
Total Organic Carbon	3.2	3.1	3.7	9	5.6	3	mg/L	1
Total Organic Carbon			3.7	9		3	mg/L	1
Total Organic Carbon			3.7	8			mg/L	1
Total Organic Carbon							mg/L	1
Total Org. Halides as Cl	ND	<30	50	25	33.6	0.05	mg/L	30
Total Org. Halides as Cl	ND			28		0.04	mg/L	30
Total Org. Halides as Cl	ND			27			mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids	2040		2020		1930		mg/L	10
Water Elevation	6854.56	6853.00	6853.10	6852.23	6852.48	6853.96	ft	---

SMW-3 Giant Refining - Ciniza

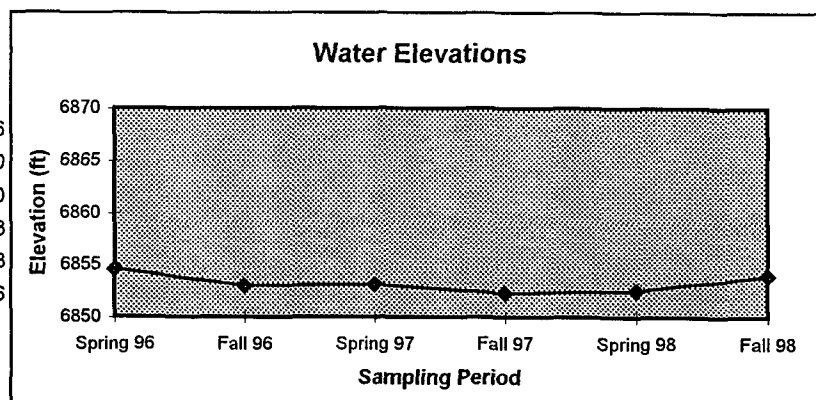
Spring 96	7.86
Fall 96	7.72
Spring 97	7.60
Fall 97	7.24
Spring 98	7.52
Fall 98	7.23



Spring 96	2905
Fall 96	2868
Spring 97	2850
Fall 97	2935
Spring 98	2865
Fall 98	2928

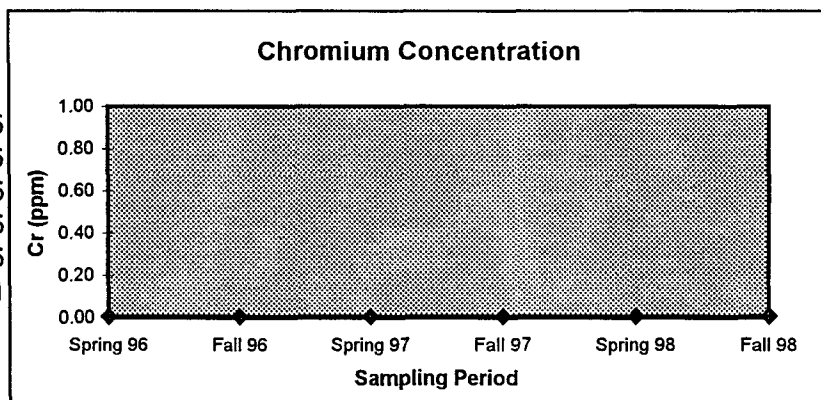


Spring 96	6854.56
Fall 96	6853.00
Spring 97	6853.10
Fall 97	6852.23
Spring 98	6852.48
Fall 98	6853.96

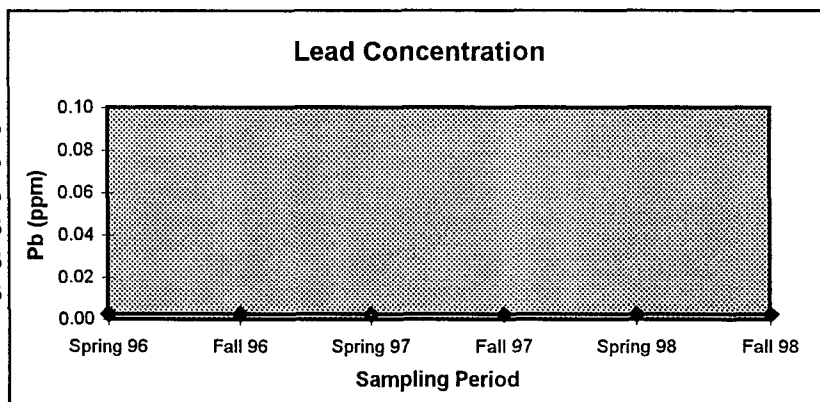


SMW-3 Giant Refining - Ciniza

Spring 96	0.005
Fall 96	0.005
Spring 97	0.005
Fall 97	0.005
Spring 98	0.005
Fall 98	0.01



Spring 96	0.003
Fall 96	0.003
Spring 97	0.003
Fall 97	0.003
Spring 98	0.003
Fall 98	0.003



TABULATED ANALYTICAL RESULTS

SMW-4 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Chromium	<0.01	<.01	<.01	ND	ND	ND	mg/L	0.01
Lead	<0.005	<.05 *	<.005	ND	ND	ND	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

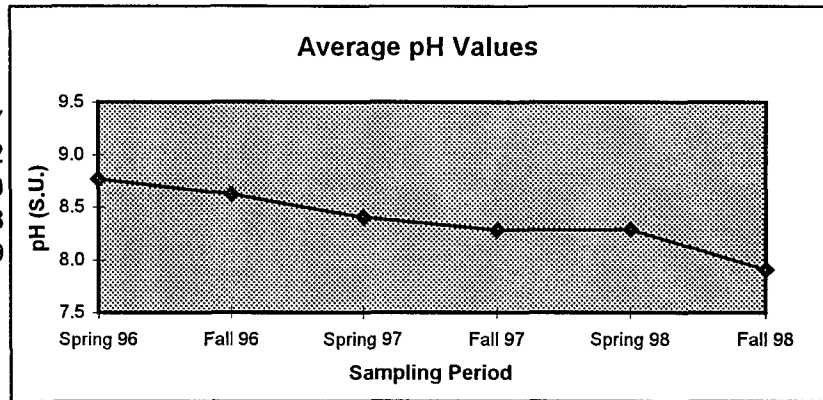
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	3.0	3.4	ND	mg/L	---
Magnesium	1.0	0.6	ND	mg/L	---
Potassium	0.78	0.24	ND	mg/L	---
Sodium	292	291	158	mg/L	---

General Chemistry / Other

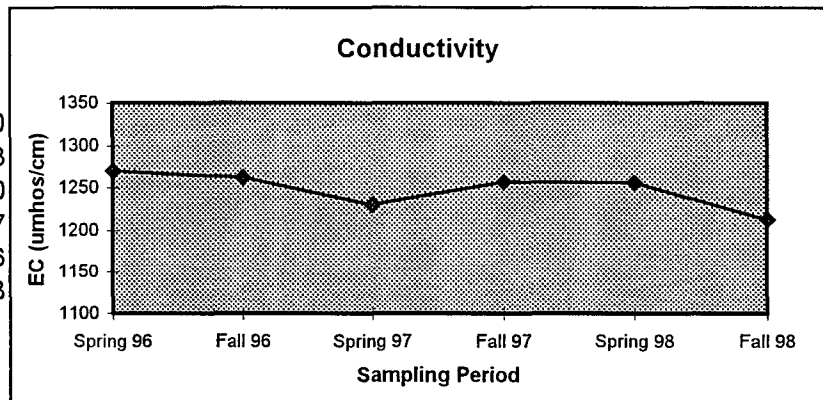
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	461		432		402		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	12		15		12		mg/L	5
Chloride	61		55		56		mg/L	3
pH (1st reading)	8.88	8.75	8.40	8.28	8.27	7.85	s.u.	---
pH (2nd reading)	8.69	8.63	8.40	8.19	8.30	7.90	s.u.	---
pH (3rd reading)	8.55	8.58	8.40	8.12	8.30	7.93	s.u.	---
pH (4th reading)	8.95	8.53	8.40	8.03	8.28	7.94	s.u.	---
pH Average	8.77	8.62	8.40	8.28	8.29	7.91	s.u.	---
Sulfate	170		175		191		mg/L	5
Spec. Conduct. @ 25° C	1255	1280	1230	1225	1245	1198	µmhos/cm	1
Spec. Conduct. @ 25° C	1278	1280	1230	1260	1254	1215	µmhos/cm	1
Spec. Conduct. @ 25° C	1273	1250	1230	1233	1260	1218	µmhos/cm	1
Spec. Conduct. @ 25° C	1273	1240	1230	1311	1265	1220	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1269.75	1262.5	1230	1257.25	1256	1212.75	µmhos/cm	1
Total Organic Carbon	1	0.9	1.2	11	2.08	ND	mg/L	1
Total Organic Carbon			1.2	10		ND	mg/L	1
Total Organic Carbon			1.2	10			mg/L	1
Total Organic Carbon			1.2				mg/L	1
Total Org. Halides as Cl	ND	<30	<30	ND	10	0.02	mg/L	30
Total Org. Halides as Cl	ND		<30	ND		0.02	mg/L	30
Total Org. Halides as Cl	ND		<30	ND			mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids	740		784		777		mg/L	10
Water Elevation	6849.98	6850.00	6847.60	6848.42	6849.08	6850.18	ft	---

SMW-4 Giant Refining - Ciniza

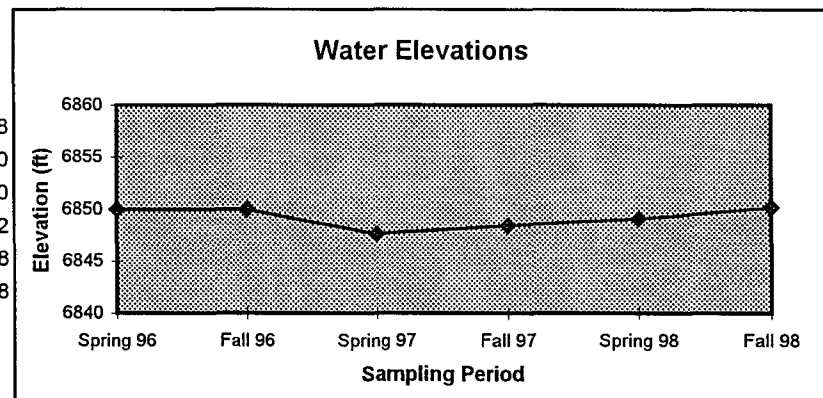
Spring 96	8.77
Fall 96	8.62
Spring 97	8.40
Fall 97	8.28
Spring 98	8.29
Fall 98	7.91



Spring 96	1270
Fall 96	1263
Spring 97	1230
Fall 97	1257
Spring 98	1256
Fall 98	1213

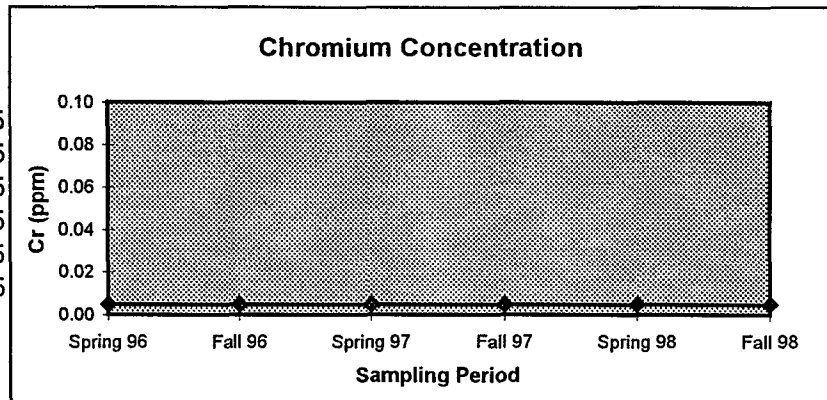


Spring 96	6849.98
Fall 96	6850.00
Spring 97	6847.60
Fall 97	6848.42
Spring 98	6849.08
Fall 98	6850.18

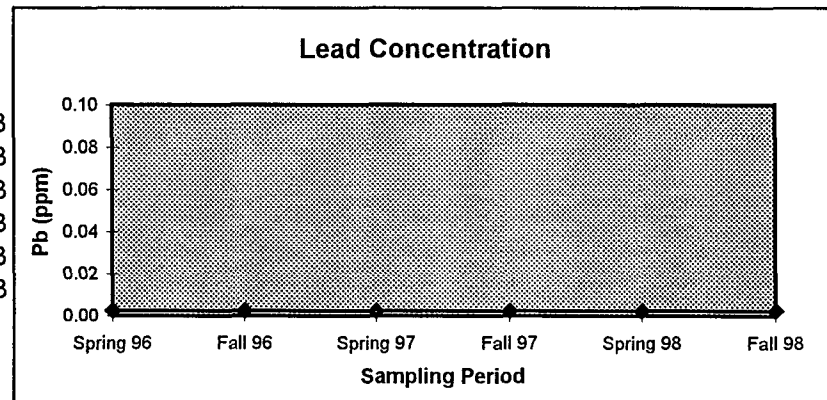


SMW-4 Giant Refining - Ciniza

Spring 96	0.005
Fall 96	0.005
Spring 97	0.005
Fall 97	0.005
Spring 98	0.005
Fall 98	0.005



Spring 96	0.003
Fall 96	0.003
Spring 97	0.003
Fall 97	0.003
Spring 98	0.003
Fall 98	0.003



TABULATED ANALYTICAL RESULTS

SMW-5 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 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-Dichloroethane	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	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	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Chromium	<0.01	<.01	<.01	ND	0.013	0.015	mg/L	0.01
Lead	<0.005	<.05 *	<.005	ND	ND	ND	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

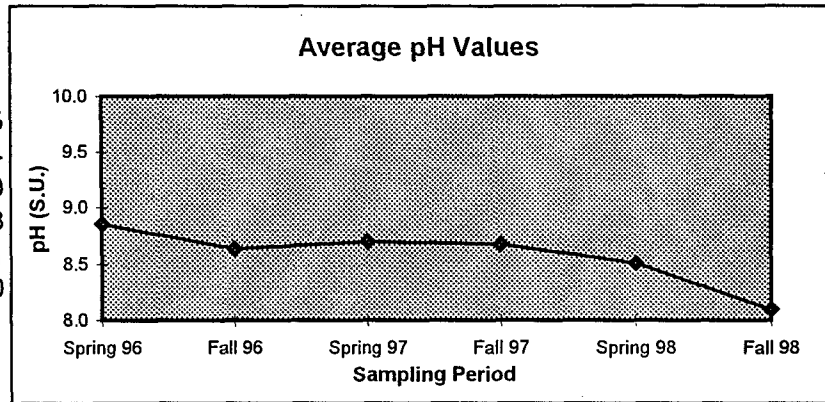
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	2.2	2.2	ND	mg/L	---
Magnesium	1.8	0.2	ND	mg/L	---
Potassium	1.96	0.27	ND	mg/L	---
Sodium	176	2.73	149	mg/L	---

General Chemistry / Other

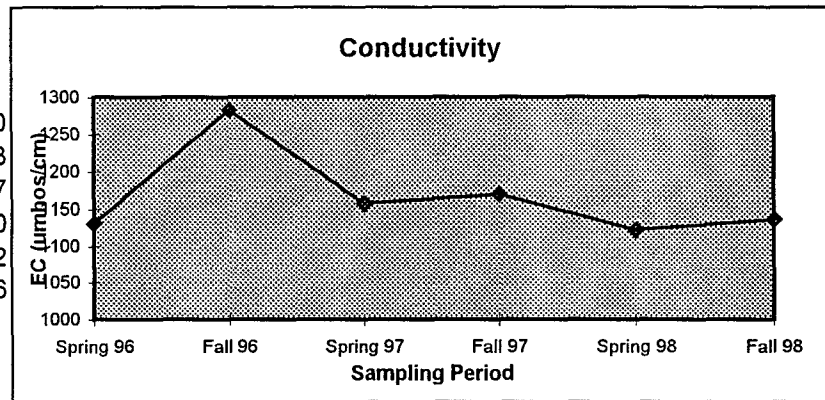
Parameter	Spring 96 Result	Fall 96 Result	Spring 97 Result	Fall 97 Result	Spring 98 Result	Fall 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as HCO ₃ @ pH 4.5	427		366		352		mg/L	5
Alkalinity, Carbonate as HCO ₃ @ pH 8.3	10		ND		15		mg/L	5
Chloride	67		56		58		mg/L	3
pH (1st reading)	8.60	8.60	8.70	8.68	8.55	8.12	s.u.	---
pH (2nd reading)	9.01	8.70	8.70	8.65	8.47	8.09	s.u.	---
pH (3rd reading)	8.90	8.64	8.70	8.72	8.53	8.09	s.u.	---
pH (4th reading)	8.89	8.60	8.70	8.65	8.48	8.10	s.u.	---
pH Average	8.85	8.64	8.70	8.68	8.51	8.10	s.u.	---
Sulfate	160		162		170		mg/L	5
Spec. Conduct. @ 25° C	1126	1280	1157	1163	1120	1129	µmhos/cm	1
Spec. Conduct. @ 25° C	1123	1290	1157	1180	1122	1134	µmhos/cm	1
Spec. Conduct. @ 25° C	1146	1280	1157	1172	1121	1136	µmhos/cm	1
Spec. Conduct. @ 25° C	1126	1280	1157	1163	1123	1144	µmhos/cm	1
Avg. Sp. Conduct. @ 25° C	1130	1283	1157	1170	1122	1136	µmhos/cm	1
Total Organic Carbon	1	1.2	<1	ND	1	ND	mg/L	1
Total Organic Carbon			<1	2		ND	mg/L	1
Total Organic Carbon			<1	2			mg/L	1
Total Organic Carbon			<1				mg/L	1
Total Org. Halides as Cl	ND	<30	<30	ND	10	0.01	mg/L	30
Total Org. Halides as Cl	ND		<30	ND		0.01	mg/L	30
Total Org. Halides as Cl	ND		<30	ND			mg/L	30
Total Org. Halides as Cl							mg/L	30
Total Dissolved Solids	704		730		705		mg/L	10
Water Elevation	6847.82	6847.00	6847.70	6846.52	6847.10	6847.92	ft	---

SMW-5 Giant Refining - Ciniza

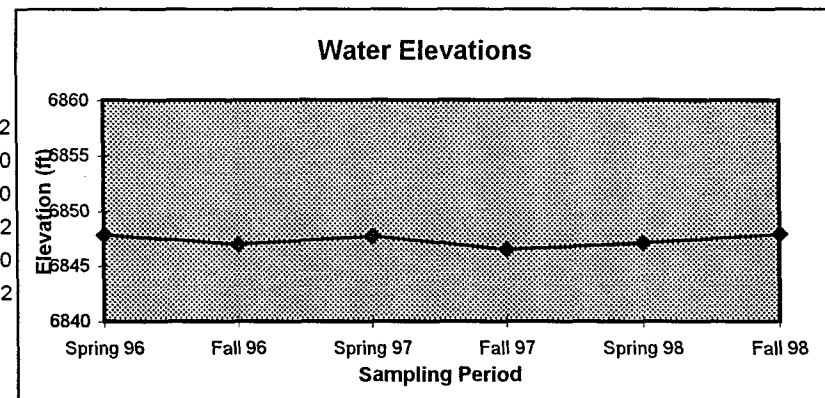
Spring 96	8.85
Fall 96	8.64
Spring 97	8.70
Fall 97	8.68
Spring 98	8.51
Fall 98	8.10



Spring 96	1130
Fall 96	1283
Spring 97	1157
Fall 97	1170
Spring 98	1122
Fall 98	1136

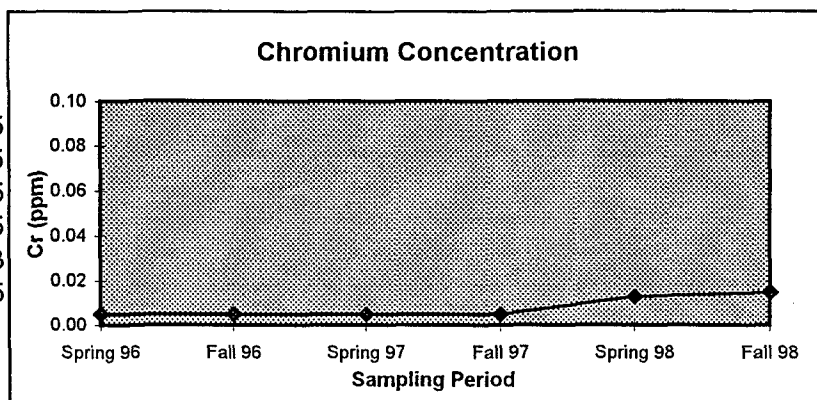


Spring 96	6847.82
Fall 96	6847.00
Spring 97	6847.70
Fall 97	6846.52
Spring 98	6847.10
Fall 98	6847.92

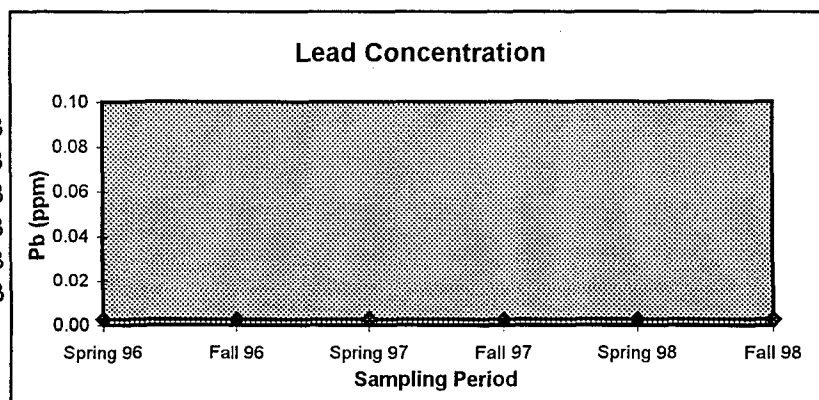


SMW-5 Giant Refining - Ciniza

Spring 96	0.005
Fall 96	0.005
Spring 97	0.005
Fall 97	0.005
Spring 98	0.013
Fall 98	0.015



Spring 96	0.003
Fall 96	0.003
Spring 97	0.003
Fall 97	0.003
Spring 98	0.003
Fall 98	0.003



TABULATED ANALYTICAL RESULTS

OW-1 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 94 Repeat	Spring 94 Repeat	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Dissolved Metals

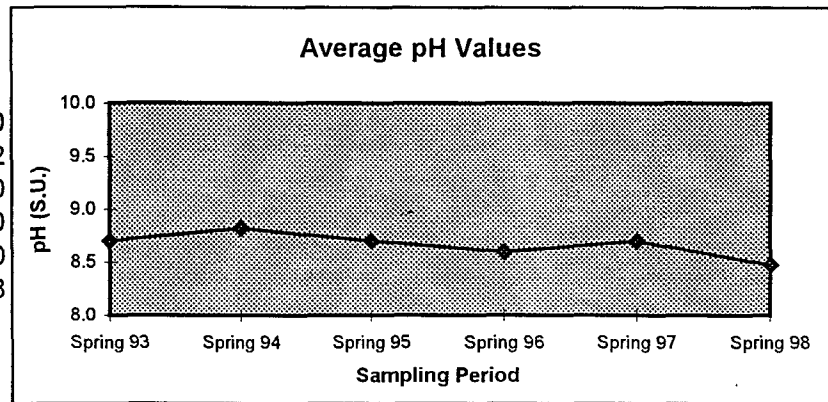
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	2.6	2.0	ND	mg/L	---
Magnesium	0.2	0.3	ND	mg/L	---
Potassium	0.8	1.3	ND	mg/L	---
Sodium	299	311	174	mg/L	---

General Chemistry / Other

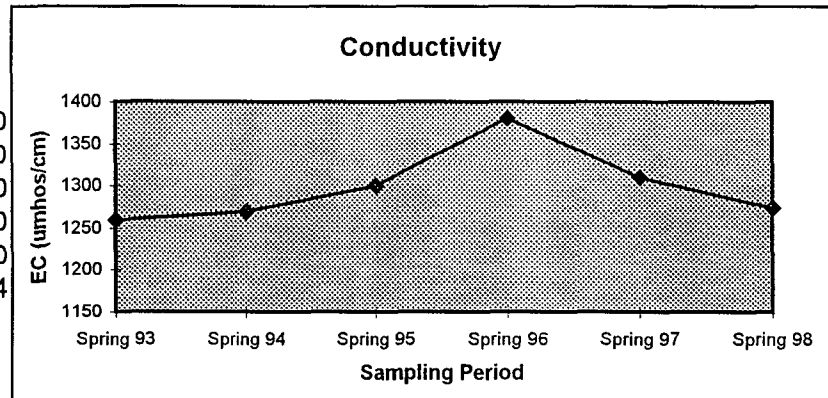
Parameter	Spring 93 Result	Spring 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as CaCO3 @ pH 4.5	387	388	410	467	401	392	mg/L	5
Alkalinity, Carbonate as CaCO3 @ pH 8.3	22	37	19	14	42	16	mg/L	5
Chloride	41	55	46	49	48	48	mg/L	3
pH	8.70	8.82	8.70	8.60	8.70	8.48	s.u.	---
Sulfate	210	210	10	216	221	229	mg/L	5
Spec. Conduct. @ 25° C	1260	1270	1300	1380	1310	1274	µmhos/cm	1
Total Dissolved Solids	870	840	830	832	842	795	mg/L	10

OW-1 Giant Refining - Ciniza

Spring 93	8.70
Spring 94	8.82
Spring 95	8.70
Spring 96	8.60
Spring 97	8.70
Spring 98	8.48



Spring 93	1260
Spring 94	1270
Spring 95	1300
Spring 96	1380
Spring 97	1310
Spring 98	1274



TABULATED ANALYTICAL RESULTS

OW-2 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 94 Repeat	Spring 94 Repeat	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98	Units	Reporting Limit
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Xylenes (total)	2.2	ND	ND	ND	ND	ND	µg/L	5

Dissolved Metals

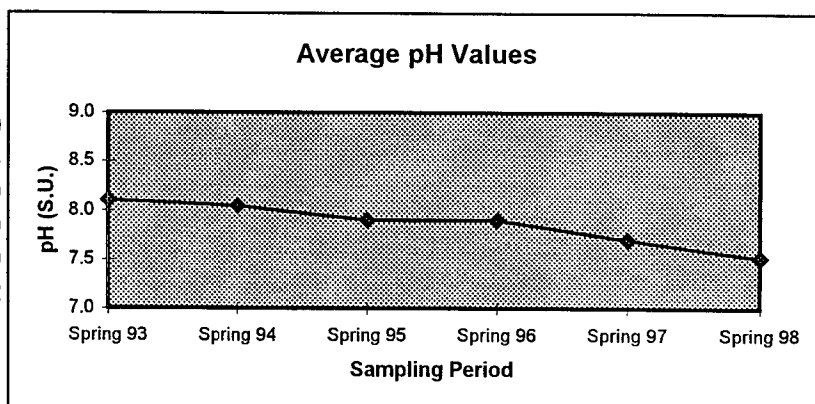
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	9.0	9.3	9.7	mg/L	---
Magnesium	3.2	3.2	ND	mg/L	---
Potassium	0.39	0.3	ND	mg/L	---
Sodium	320	322	170	mg/L	---

General Chemistry / Other

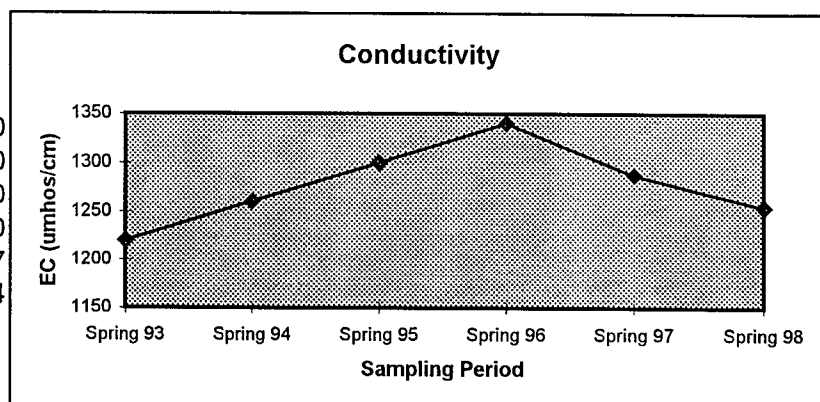
Parameter	Spring 93 Result	Spring 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as CaCO ₃ @ pH 4.5	662	668	660	810	785	662	mg/L	5
Alkalinity, Carbonate as CaCO ₃ @ pH 8.3	ND	ND	5	0	0	4	mg/L	5
Chloride	42	46	41	42	39	42	mg/L	3
pH	8.10	8.04	7.90	7.90	7.70	7.52	s.u.	---
Sulfate	19	20	19	12.3	16	27.2	mg/L	5
Spec. Conduct. @ 25° C	1220	1260	1300	1340	1287	1254	µmhos/cm	1
Total Dissolved Solids	1100	890	840	840	852	793	mg/L	10

OW-2 Giant Refining - Ciniza

Spring 93	8.10
Spring 94	8.04
Spring 95	7.90
Spring 96	7.90
Spring 97	7.70
Spring 98	7.52



Spring 93	1220
Spring 94	1260
Spring 95	1300
Spring 96	1340
Spring 97	1287
Spring 98	1254



TABULATED ANALYTICAL RESULTS

OW-3 Giant Refining - Ciniza

Volatile Organics (8260)

Parameter	Spring 93 Result	Spring 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Benzene	ND	ND	ND	ND	ND	ND	µg/L	5
Toluene	ND	ND	ND	ND	ND	ND	µg/L	5
Ethylbenzene	ND	ND	ND	ND	ND	ND	µg/L	5
Xylenes (total)	ND	ND	ND	ND	ND	ND	µg/L	5

Dissolved Metals

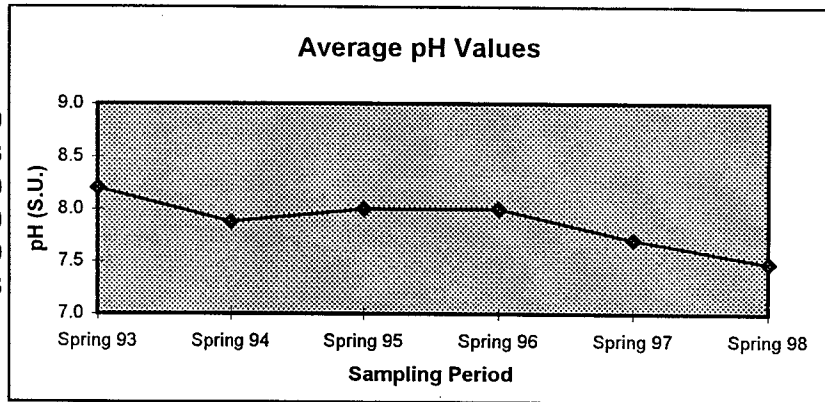
Parameter	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Calcium	9.4	9.2	10.0	mg/L	---
Magnesium	3.0	3.0	ND	mg/L	---
Potassium	0.78	0.3	ND	mg/L	---
Sodium	317	303	166	mg/L	---

General Chemistry / Other

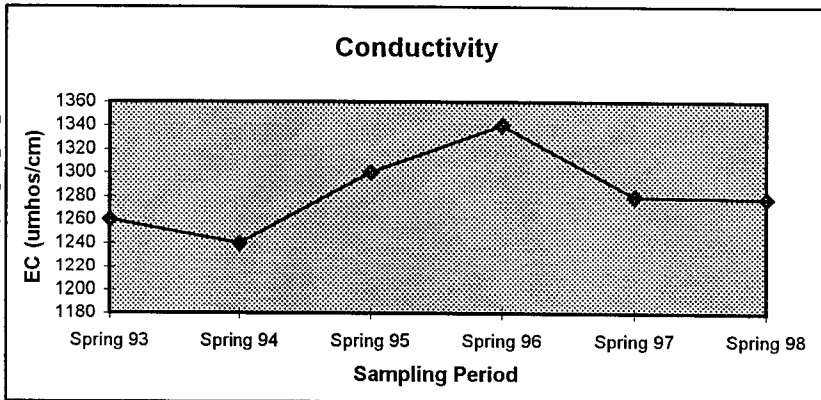
Parameter	Spring 93 Result	Spring 94 Result	Spring 95 Result	Spring 96 Result	Spring 97 Result	Spring 98 Result	Units	Reporting Limit
Alkalinity, Bicarbonate as CaCO ₃ @ pH 4.5	660	662	670	811	781	645	mg/L	5
Alkalinity, Carbonate as CaCO ₃ @ pH 8.3	ND	ND	6	0	0	4	mg/L	5
Chloride	41	42	39	42	37	41	mg/L	3
pH	8.20	7.88	8.00	8.00	7.70	7.48	s.u.	---
Sulfate	16	18	29	26.3	24	24.8	mg/L	5
Spec. Conduct. @ 25° C	1260	1240	1300	1340	1280	1278	µmhos/cm	1
Total Dissolved Solids	840	800	980	798	834	799	mg/L	10

OW-3 Giant Refining - Ciniza

Spring 93	8.20
Spring 94	7.88
Spring 95	8.00
Spring 96	8.00
Spring 97	7.70
Spring 98	7.48



Spring 93	1260
Spring 94	1240
Spring 95	1300
Spring 96	1340
Spring 97	1280
Spring 98	1278



American Environmental Network, Inc.

AEN I.D. 805333

June 2, 1998

GIANT REFINING COMPANY
ROUTE 3 BOX 7
GALLUP, NM 87301

Project Name (none)
Project Number (none)

Attention: STEVE MORRIS

On 5/8/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze aqueous samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

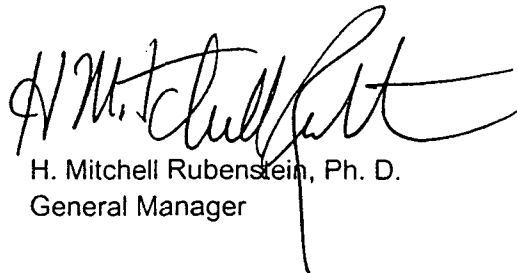
EPA method 150.1 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

All other parameters were performed by American Environmental Network (CT) Inc., Monroe, CT.

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



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

CHAIN OF CUSTODY

DATE: 5-5-98 PAGE: 1 OF 1

AEN/NM/ACCS/0001
805333

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY

PROJECT MANAGER:

COMPANY: Grant Logging Company
ADDRESS: Route 3 Box 7
Gallegos, NM 87301
PHONE: 505 722 3833
FAX: 505 722 0210
BILL TO: Grant Logging Co / Liniga
COMPANY: SA HE
ADDRESS:

SAMPLE ID

DATE: TIME: MATRIX: LAB ID:

MU-1-5598	5/5/98	0900	Water	el
MU-2-5598	5/5/98	1020	"	el
MU-3-5598	5/5/98	1130	"	el
MU-4-5598	5/5/98	1430	"	el
MU-11-5598	5/5/98	1530	"	el
Tripp Blank	4/6/98	1100	AD	el

Petroleum Hydrocarbons (418.1) TRPH
(MOD.8015) Diesel/Direct Inject
(M8015) Gas/Purge & Trap
8021 (BTEX)/8015 (Gasoline)
8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
8021 (TCL)
8021 (EDX)
8021 (HALO)
8021 (CUST)
504.1 EDB ☐ / DBCP ☐
8260 (TCL) Volatile Organics
8260 (Full) Volatile Organics
8260 (CUST) Volatile Organics
8260 (Landfill) Volatile Organics
Pesticides /PCB (608/8081)
Herbicides (615/8151)
Base/Neutral/Acid Compounds GC/MS (625/8270)
Polynuclear Aromatics (610/8310)
General Chemistry:
Priority Pollutant Metals (13)
Target Analyte List Metals (23)
RCRA Metals (8)
RCRA Metals by TCLP (Method 1311)
Metals:

NUMBER OF CONTAINERS

PROJECT INFORMATION

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

PROJ. NO.: (RUSH) ☐ 24hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☒

PROJ. NAME: CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

P.O. NO.: METHANOL PRESERVATION ☐

SHIPPED VIA: COMMENTS: FIXED FEE ☐

SAMPLE RECEIPT

NO CONTAINERS: ☒

CUSTODY SEALS: ☒

RECEIVED IN TAG: ☒

BOEING: ☒

Annual Groundwater Cont 1998

RELINQUISHED BY:

Signature: Steve Harris Time: 10:00

Printed Name: Steve Harris Date: 5-7-98

Company: Grant

RELINQUISHED BY:

Signature: _____ Time: _____

Printed Name: _____ Date: _____

Company: _____

RECEIVED BY:

Signature: _____ Time: _____

Printed Name: _____ Date: _____

Company: _____

RECEIVED BY:

Signature: _____ Time: _____

Printed Name: _____ Date: _____

Company: American Environmental Network (NM), Inc.

ANNUAL GROUNDWATER SAMPLING EVENT

ANALYTICAL PARAMETERS

WELL	pH	Cond	TOC*	TOX*	TDS	ALKAL BICARB	ALKAL CARB	CHLORIDE	SULFATE	PHENOL	VOL-ORG 8260	BTEX 8260	TOTAL METALS Cr	Pb	Hg	Aa	Ba	Cd	Ca	Mg	Mn	K	Se	Ag	Na
MW-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* TOC - 2 replicates & original

* TOX - 3 replicates & original

American Environmental Network, Inc.

CLIENT	: GIANT REFINING COMPANY	AEN I.D.	: 805333
PROJECT #	: (none)	DATE RECEIVED	: 5/8/98
PROJECT NAME	: (none)	REPORT DATE	: 6/2/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	MW-1-5598	AQUEOUS	5/5/98
02	MW-2-5598	AQUEOUS	5/5/98
03	MW-5-5598	AQUEOUS	5/5/98
04	MW-4-5598	AQUEOUS	5/5/98
05	OW-11-5598	AQUEOUS	5/5/98
06	TRIP BLANK	AQUEOUS	4/6/98

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY AEN I.D. : 805333
PROJECT # : (none) DATE RECEIVED : 5/8/98
PROJECT NAME : (none)

SAMPLE			DATE	DATE		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED		
01	MW-1-5598	AQUEOUS	5/5/98	5/12/98		
02	MW-2-5598	AQUEOUS	5/5/98	5/12/98		
03	MW-5-5598	AQUEOUS	5/5/98	5/12/98		
PARAMETER			UNITS	01	02	03
PH (150.1)			UNITS	9.04	9.06	9.07

CHEMIST NOTES:
N/A

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY AEN I.D. : 805333
PROJECT # : (none) DATE RECEIVED : 5/8/98
PROJECT NAME : (none)

SAMPLE			DATE	DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
04	MW-4-5598	AQUEOUS	5/5/98	5/12/98
05	OW-11-5598	AQUEOUS	5/5/98	5/12/98
PARAMETER			UNITS	04 05
PH (150.1)			UNITS	8.78 8.43

CHEMIST NOTES:

N/A

Contract:

SDG No.: A1044

Lab Sample ID: 1044001

Date Received: 05/11/98

[illegible]

Comments:

Contract:

1 MW-2-5598

SDG No.: A1044

Lab Sample ID: 1044002

Date Received: 05/11/98

[illegible]

Comments:

Contract:

1 MW-4-5598

SDG No.: A1044

Lab Sample ID: 1044004

% Solids:

Date Received: 05/11/98

[illegible]

Comments:

Contract:

1 MW-5-5598

SDG No.: A1044

Lab Sample ID: 1044003

% Solids:

Date Received: 05/11/98

[illegible]

Comments:

Lab Name: IEA

Contract:

OW-11-5598

Lab Code: IEA

Case No.: 1044A

SAS No. :

SDG No.: A1044

Matrix: (soil/water) WATER

Lab Sample ID: 1044005

% Solids:

Date Received: 05/11/98

Concentration Units (mg/L or mg/kg dry weight) : mg/L

[illegible]

Comments:

TABLE AS-1.0
7098-1044A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Dissolved)

Aqueous

All values are ug/L.

Client Sample I.D.	MW-1-5598	MW-2-5598	MW-5-5598	MW-4-5598
Lab Sample I.D.	981044A-01	981044A-02	981044A-03	981044A-04
Arsenic	10.0U	10.0U	10.0U	10.0U
Barium	200.U	200.U	200.U	200.U
Cadmium	5.0U	5.0U	5.0U	5.0U
Calcium	5000U	5000U	5000U	5000U
Chromium	NR	NR	NR	NR
Lead	NR	NR	NR	NR
Magnesium	5000U	5000U	5000U	5000U
Manganese	15.0U	15.0U	15.0U	15.0U
Mercury	NR	NR	NR	NR
Potassium	5000U	5000U	5000U	5000U
Selenium	5.0U	5.0U	5.0U	5.0U
Silver	10.0U	10.0U	10.0U	10.0U
Sodium	79200	159000	149000	146000

See Appendix for qualifier definitions

TABLE AS-1.1
7098-1044A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Dissolved)

Aqueous

All values are ug/L.

Client Sample I.D.	OW-11-5598			
Lab Sample I.D.	981044A-05			
Arsenic	10.0U			
Barium	200.U			
Cadmium	5.0U			
Calcium	9100			
Chromium	NR			
Lead	NR			
Magnesium	5000U			
Manganese	18.0			
Mercury	NR			
Potassium	5000U			
Selenium	8.4			
Silver	10.0U			
Sodium	194000			

See Appendix for qualifier definitions

TABLE AS-1.2
7098-1044A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Total)

Aqueous

All values are ug/L.

Client Sample I.D.	MW-1-5598	MW-2-5598	MW-5-5598	MW-4-5598
Lab Sample I.D.	981044A-01	981044A-02	981044A-03	981044A-04
Arsenic	NR	NR	NR	NR
Barium	NR	NR	NR	NR
Cadmium	NR	NR	NR	NR
Calcium	NR	NR	NR	NR
Chromium	10.0U	10.0U	10.0U	10.0U
Lead	3.0U	3.0U	3.0U	3.0U
Magnesium	NR	NR	NR	NR
Manganese	NR	NR	NR	NR
Mercury	0.20U	0.20U	0.20U	0.20U
Potassium	NR	NR	NR	NR
Selenium	NR	NR	NR	NR
Silver	NR	NR	NR	NR
Sodium	NR	NR	NR	NR

See Appendix for qualifier definitions

TABLE AS-1.3
7098-1044A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Total)

Aqueous

All values are ug/L.

Client Sample I.D.	OW-11-5598			
Lab Sample I.D.	981044A-05			
Arsenic	NR			
Barium	NR			
Cadmium	NR			
Calcium	NR			
Chromium	10.0U			
Lead	3.0U			
Magnesium	NR			
Manganese	NR			
Mercury	0.20U			
Potassium	NR			
Selenium	NR			
Silver	NR			
Sodium	NR			

See Appendix for qualifier definitions

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-01	MW-1-5598	AQUEOUS	5/5/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-01	MW-1-5598	AQUEOUS	5/5/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-02	MW-2-5598	AQUEOUS	5/5/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY
PROJECT # : (none)
PROJECT NAME : (none)

AEN I.D. : 805333
DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-02	MW-2-5598	AQUEOUS	5/5/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	102 (88 - 110)
Bromofluorobenzene	100 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY
PROJECT # : (none)
PROJECT NAME : (none)

AEN I.D. : 805333
DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-04	MW-4-5598	AQUEOUS	5/5/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-04	MW-4-5598	AQUEOUS	5/5/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT		UNITS			
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4 104
 (80 - 120)
 Toluene-d8 104
 (88 - 110)
 Bromofluorobenzene 98
 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-03	MW-5-5598	AQUEOUS	5/5/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
Dichlorodifluoromethane	1.0	< 1.0 ug/L
Chloromethane	1.0	< 1.0 ug/L
Vinyl Chloride	1.0	< 1.0 ug/L
Bromomethane	1.0	< 1.0 ug/L
Chloroethane	1.0	< 1.0 ug/L
Trichlorofluoromethane	1.0	< 1.0 ug/L
Acetone	10	< 10 ug/L
Acrolein	5.0	< 5.0 ug/L
1,1-Dichloroethene	1.0	< 1.0 ug/L
Iodomethane	1.0	< 1.0 ug/L
Methylene Chloride	1.0	< 1.0 ug/L
Acrylonitrile	5.0	< 5.0 ug/L
cis-1,2-Dichloroethene	1.0	< 1.0 ug/L
Methyl-t-butyl Ether	1.0	< 1.0 ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0 ug/L
1,1-Dichloroethane	1.0	< 1.0 ug/L
trans-1,2-Dichloroethene	1.0	< 1.0 ug/L
2-Butanone	10	< 10 ug/L
Carbon Disulfide	1.0	< 1.0 ug/L
Bromochloromethane	1.0	< 1.0 ug/L
Chloroform	1.0	< 1.0 ug/L
2,2-Dichloropropane	1.0	< 1.0 ug/L
1,2-Dichloroethane	1.0	< 1.0 ug/L
Vinyl Acetate	1.0	< 1.0 ug/L
1,1,1-Trichloroethane	1.0	< 1.0 ug/L
1,1-Dichloropropene	1.0	< 1.0 ug/L
Carbon Tetrachloride	1.0	< 1.0 ug/L
Benzene	1.0	< 1.0 ug/L
1,2-Dichloropropane	1.0	< 1.0 ug/L
Trichloroethene	1.0	< 1.0 ug/L
Bromodichloromethane	1.0	< 1.0 ug/L
2-Chloroethyl Vinyl Ether	10	< 10 ug/L
cis-1,3-Dichloropropene	1.0	< 1.0 ug/L
trans-1,3-Dichloropropene	1.0	< 1.0 ug/L
1,1,2-Trichloroethane	1.0	< 1.0 ug/L
1,3-Dichloropropane	1.0	< 1.0 ug/L
Dibromomethane	1.0	< 1.0 ug/L
Toluene	1.0	< 1.0 ug/L
1,2-Dibromoethane	1.0	< 1.0 ug/L
4-Methyl-2-Pentanone	10	< 10 ug/L
2-Hexanone	10	< 10 ug/L
Dibromochloromethane	1.0	< 1.0 ug/L
Tetrachloroethene	1.0	< 1.0 ug/L
Chlorobenzene	1.0	< 1.0 ug/L
Ethylbenzene	1.0	< 1.0 ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0 ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-03	MW-5-5598	AQUEOUS	5/5/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	99 (88 - 110)
Bromofluorobenzene	95 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY
PROJECT # : (none)
PROJECT NAME : (none)

AEN I.D. : 805333
DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-05	OW-11-5598	AQUEOUS	5/5/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805333
 DATE RECEIVED : 5/8/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-05	OW-11-5598	AQUEOUS	5/5/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	106 (80 - 120)
Toluene-d8	107 (88 - 110)
Bromofluorobenzene	103 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY AEN I.D. : 805333
 PROJECT # : (none) DATE RECEIVED : 5/8/98
 PROJECT NAME : (none)

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-06	Trip Blank	AQUEOUS	4/6/98	N/A	05/11/98	1

PARAMETER	DET. LIMIT	UNITS
Dichlorodifluoromethane	1.0 < 1.0	ug/L
Chloromethane	1.0 < 1.0	ug/L
Vinyl Chloride	1.0 < 1.0	ug/L
Bromomethane	1.0 < 1.0	ug/L
Chloroethane	1.0 < 1.0	ug/L
Trichlorofluoromethane	1.0 < 1.0	ug/L
Acetone	10 < 10	ug/L
Acrolein	5.0 < 5.0	ug/L
1,1-Dichloroethene	1.0 < 1.0	ug/L
Iodomethane	1.0 < 1.0	ug/L
Methylene Chloride	1.0 < 1.0	ug/L
Acrylonitrile	5.0 < 5.0	ug/L
cis-1,2-Dichloroethene	1.0 < 1.0	ug/L
Methyl-t-butyl Ether	1.0 < 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0 < 1.0	ug/L
1,1-Dichloroethane	1.0 < 1.0	ug/L
trans-1,2-Dichloroethene	1.0 < 1.0	ug/L
2-Butanone	10 < 10	ug/L
Carbon Disulfide	1.0 < 1.0	ug/L
Bromochloromethane	1.0 < 1.0	ug/L
Chloroform	1.0 < 1.0	ug/L
2,2-Dichloropropane	1.0 < 1.0	ug/L
1,2-Dichloroethane	1.0 < 1.0	ug/L
Vinyl Acetate	1.0 < 1.0	ug/L
1,1,1-Trichloroethane	1.0 < 1.0	ug/L
1,1-Dichloropropene	1.0 < 1.0	ug/L
Carbon Tetrachloride	1.0 < 1.0	ug/L
Benzene	1.0 < 1.0	ug/L
1,2-Dichloropropane	1.0 < 1.0	ug/L
Trichloroethene	1.0 < 1.0	ug/L
Bromodichloromethane	1.0 < 1.0	ug/L
2-Chloroethyl Vinyl Ether	10 < 10	ug/L
cis-1,3-Dichloropropene	1.0 < 1.0	ug/L
trans-1,3-Dichloropropene	1.0 < 1.0	ug/L
1,1,2-Trichloroethane	1.0 < 1.0	ug/L
1,3-Dichloropropane	1.0 < 1.0	ug/L
Dibromomethane	1.0 < 1.0	ug/L
Toluene	1.0 < 1.0	ug/L
1,2-Dibromoethane	1.0 < 1.0	ug/L
4-Methyl-2-Pentanone	10 < 10	ug/L
2-Hexanone	10 < 10	ug/L
Dibromochloromethane	1.0 < 1.0	ug/L
Tetrachloroethene	1.0 < 1.0	ug/L
Chlorobenzene	1.0 < 1.0	ug/L
Ethylbenzene	1.0 < 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0 < 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY AEN I.D. : 805333
 PROJECT # : (none) DATE RECEIVED : 5/8/98
 PROJECT NAME : (none)

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805333-06	Trip Blank	AQUEOUS	4/6/98	N/A	05/11/98	1
PARAMETER	DET. LIMIT	UNITS				
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4
 104
 (80 - 120)
 Toluene-d8
 104
 (88 - 110)
 Bromofluorobenzene
 101
 (86 - 115)

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 001 Sample Date/Time: 17-DEC-98 0810
Client Sample Id: 812073-01A MW-1-121798 Received Date: 19-DEC-98

Batch: TXW086 Extraction Date: N/A
Blank: B Dry Weight %: N/A Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	002	Sample Date/Time:	17-DEC-98 0810
Client Sample Id:	812073-01B MW-1-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	005	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-02A MW-2-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	006	Sample Date/Time:	17-DEC-98 0915
Client Sample Id:	812073-02B MW-2-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 013 Sample Date/Time: 17-DEC-98 1245
Client Sample Id: 812073-04A MW-4-121798 Received Date: 19-DEC-98
Batch: TXW086
Blank: B Dry Weight %: N/A Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	014	Sample Date/Time:	17-DEC-98 1245
Client Sample Id:	812073-04B MW-4-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	009	Sample Date/Time:	17-DEC-98 1050
Client Sample Id:	812073-03A MW-5-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

[0] Page 6
Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	010	Sample Date/Time:	17-DEC-98 1050
Client Sample Id:	812073-03B MW-5-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	029	Sample Date/Time:	17-DEC-98 1000
Client Sample Id:	812073-08A OW-11-121898	Received Date:	19-DEC-98
Batch:	TXW086	Extraction Date:	N/A
Blank:	B	Analysis Date:	09-JAN-99
Dry Weight %:	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.1	0.01	
ANALYST	INITIALS	LBL		

Comments :

American Environmental Network, Inc.

AEN I.D. 805345

June 11, 1998

GIANT REFINING COMPANY
ROUTE 3 BOX 7
GALLUP, NM 87301

Project Name (none)
Project Number (none)

Attention: STEVE MORRIS

On 5/14/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA methods 150.1 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

All other parameters were performed by American Environmental Network (CT) Inc., Monroe, CT.

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



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

American Environmental Network, Inc.

CLIENT	: GIANT REFINING COMPANY	AEN I.D.	: 805345
PROJECT #	: (none)	DATE RECEIVED	: 5/14/98
PROJECT NAME	: (none)	REPORT DATE	: 6/11/98

AEN ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	SMW-3-51298	AQUEOUS	5/12/98
02	SMW-4-51298	AQUEOUS	5/12/98
03	SMW-5-51298	AQUEOUS	5/12/98
04	TRIP BLANK	AQUEOUS	3/24/98

ANNUAL GROUNDWATER SAMPLING EVENT

ANALYTICAL PARAMETERS

WELL	pH	Cond	TOC*	TOX*	TDS	ALKAL. BICARB	ALKAL. CARB	CHLORIDE	SULFATE	PHENOL	VOL-ORG 8260	BTEX 8260	TOTAL METALS Cr	Pb	Hg	As	Ba	Cd	Ca	Mg	Mn	K	Se	Ag	Nd
MW-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
MW-5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-11	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-4	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-5	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
SMW-6	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-1	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-2	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-3	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-12	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-29	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
OW-30	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* TOC - 2 replicates & original
* TOX - 3 replicates & original

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY AEN I.D. : 805345
PROJECT # : (none) DATE RECEIVED : 5/14/98
PROJECT NAME : (none)

SAMPLE			DATE	DATE		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED		
01	SMW-3-51298	AQUEOUS	5/12/98	5/29/98		
02	SMW-4-51298	AQUEOUS	5/12/98	5/29/98		
03	SMW-5-51298	AQUEOUS	5/12/98	5/29/98		
PARAMETER			UNITS	01	02	03
PH (150.1)			UNITS	7.57	8.62	8.85

CHEMIST NOTES:
N/A

Contract: _____

805345-01 SMW-3-51298

SDG No.: A1090

Lab Sample ID: 1090001

Date Received: 05/15/98

[illegible]

Comments:

Contract: _____

SDG No.: A1090

Lab Sample ID: 1090002

Date Received: 05/15/98

[illegible]

Comments:

Contract: _____

SDG No.: A1090

Lab Sample ID: 1090003

Date Received: 05/15/98

[illegible]

FORM I - WC

Alkalinity
Bicarbonate/Carbonate

	Total		
	Alkalinity	Bicarb.	Carbonate
	ppm	ppm	ppm
SMW-3-51298	625	622.30	2.67
SMW-4-51298	414	401.90	11.95
SMW-5-51298	367	352.00	14.78

TABLE AS-1.0
7098-1090A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Dissolved)

Aqueous

All values are ug/L.

	SMW-3-51298	SMW-4-51298	SMW-5-51298	
Client Sample I.D.	805345-01	805345-02	805345-03	
Lab Sample I.D.	981090A-01	981090A-02	981090A-03	
Calcium	42800	5000U	5000U	
Chromium	NR	NR	NR	
Lead	NR	NR	NR	
Magnesium	12500	5000U	5000U	
Potassium	5000U	5000U	5000U	
Sodium	219000	158000	149000	

See Appendix for qualifier definitions

TABLE AS-1.1
7093-1090A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY (Total)

Aqueous

All values are ug/L.

	SMW-3-51298	SMW-4-51298	SMW-5-51298	
Client Sample I.D.	805345-01	805345-02	805345-03	
Lab Sample I.D.	981090A-01	981090A-02	981090A-03	
Calcium	NR	NR	NR	
Chromium	10.0U	10.0U	13.6	
Lead	3.0U	3.0U	3.0U	
Magnesium	NR	NR	NR	
Potassium	NR	NR	NR	
Sodium	NR	NR	NR	

See Appendix for qualifier definitions

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-01	SMW-3-51298	AQUEOUS	5/12/98	N/A	05/14/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	102 (80 - 120)
Toluene-d8	101 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-01	SMW-3-51298	AQUEOUS	5/12/98	N/A	05/14/98	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-02	SMW-4-51298	AQUEOUS	5/12/98	N/A	05/14/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0 < 1.0	ug/L
o-Xylene	1.0 < 1.0	ug/L
Styrene	1.0 < 1.0	ug/L
Bromoform	1.0 < 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0 < 1.0	ug/L
1,2,3-Trichloropropane	1.0 < 1.0	ug/L
Isopropyl Benzene	1.0 < 1.0	ug/L
Bromobenzene	1.0 < 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0 < 1.0	ug/L
n-Propylbenzene	1.0 < 1.0	ug/L
2-Chlorotoluene	1.0 < 1.0	ug/L
4-Chlorotoluene	1.0 < 1.0	ug/L
1,3,5-Trimethylbenzene	1.0 < 1.0	ug/L
tert-Butylbenzene	1.0 < 1.0	ug/L
1,2,4-Trimethylbenzene	1.0 < 1.0	ug/L
sec-Butylbenzene	1.0 < 1.0	ug/L
1,3-Dichlorobenzene	1.0 < 1.0	ug/L
1,4-Dichlorobenzene	1.0 < 1.0	ug/L
p-Isopropyltoluene	1.0 < 1.0	ug/L
1,2-Dichlorobenzene	1.0 < 1.0	ug/L
n-Butylbenzene	1.0 < 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0 < 1.0	ug/L
1,2,4-Trichlorobenzene	1.0 < 1.0	ug/L
Naphthalene	1.0 < 1.0	ug/L
Hexachlorobutadiene	1.0 < 1.0	ug/L
1,2,3-Trichlorobenzene	1.0 < 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	101
	(88 - 110)
Bromofluorobenzene	97
	(86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-02	SMW-4-51298	AQUEOUS	5/12/98	N/A	05/14/98	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-03	SMW-5-51298	AQUEOUS	5/12/98	N/A	05/14/98	1
PARAMETER	DET. LIMIT		UNITS			
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4 107
 (80 - 120)
 Toluene-d8 105
 (88 - 110)
 Bromofluorobenzene 102
 (86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-03	SMW-5-51298	AQUEOUS	5/12/98	N/A	05/14/98	1
PARAMETER	DET. LIMIT		UNITS			

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-04	Trip Blank	AQUEOUS	3/24/98	N/A	05/14/98	1

PARAMETER	DET. LIMIT	UNITS
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101
	(80 - 120)
Toluene-d8	99
	(88 - 110)
Bromofluorobenzene	98
	(86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : (none)

AEN I.D. : 805345
 DATE RECEIVED : 5/14/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805345-04	Trip Blank	AQUEOUS	3/24/98	N/A	05/14/98	1
PARAMETER	DET. LIMIT		UNITS			
Dichlorodifluoromethane	1.0	< 1.0	ug/L			
Chloromethane	1.0	< 1.0	ug/L			
Vinyl Chloride	1.0	< 1.0	ug/L			
Bromomethane	1.0	< 1.0	ug/L			
Chloroethane	1.0	< 1.0	ug/L			
Trichlorofluoromethane	1.0	< 1.0	ug/L			
Acetone	10	< 10	ug/L			
Acrolein	5.0	< 5.0	ug/L			
1,1-Dichloroethene	1.0	< 1.0	ug/L			
Iodomethane	1.0	< 1.0	ug/L			
Methylene Chloride	1.0	< 1.0	ug/L			
Acrylonitrile	5.0	< 5.0	ug/L			
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L			
Methyl-t-butyl Ether	1.0	< 1.0	ug/L			
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L			
1,1-Dichloroethane	1.0	< 1.0	ug/L			
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L			
2-Butanone	10	< 10	ug/L			
Carbon Disulfide	1.0	< 1.0	ug/L			
Bromochloromethane	1.0	< 1.0	ug/L			
Chloroform	1.0	< 1.0	ug/L			
2,2-Dichloropropane	1.0	< 1.0	ug/L			
1,2-Dichloroethane	1.0	< 1.0	ug/L			
Vinyl Acetate	1.0	< 1.0	ug/L			
1,1,1-Trichloroethane	1.0	< 1.0	ug/L			
1,1-Dichloropropene	1.0	< 1.0	ug/L			
Carbon Tetrachloride	1.0	< 1.0	ug/L			
Benzene	1.0	< 1.0	ug/L			
1,2-Dichloropropane	1.0	< 1.0	ug/L			
Trichloroethene	1.0	< 1.0	ug/L			
Bromodichloromethane	1.0	< 1.0	ug/L			
2-Chloroethyl Vinyl Ether	10	< 10	ug/L			
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L			
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L			
1,1,2-Trichloroethane	1.0	< 1.0	ug/L			
1,3-Dichloropropane	1.0	< 1.0	ug/L			
Dibromomethane	1.0	< 1.0	ug/L			
Toluene	1.0	< 1.0	ug/L			
1,2-Dibromoethane	1.0	< 1.0	ug/L			
4-Methyl-2-Pentanone	10	< 10	ug/L			
2-Hexanone	10	< 10	ug/L			
Dibromochloromethane	1.0	< 1.0	ug/L			
Tetrachloroethene	1.0	< 1.0	ug/L			
Chlorobenzene	1.0	< 1.0	ug/L			
Ethylbenzene	1.0	< 1.0	ug/L			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	017	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-05A SMW-3-121798	Received Date:	19-DEC-98
Batch:	TXW086	Extraction Date:	N/A
Blank:	B	Analysis Date:	09-JAN-99
Dry Weight %:	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.05	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	018	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-05B SMW-3-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.04	0.01	
ANALYST	INITIALS	LBL		

Comments:

[0] Page 11
Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	021	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06A SMW-4-121798	Received Date:	19-DEC-98
Batch:	TXW086	Extraction Date:	N/A
Blank:	B	Analysis Date:	09-JAN-99
Dry Weight %:	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

[0] Page 12
Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	022	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06B SMW-4-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

[0] Page 13
Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 025 Sample Date/Time: 17-DEC-98 1350
Client Sample Id: 812073-07A SMW-5-121798 Received Date: 19-DEC-98

Batch: TXW086 Extraction Date: N/A
Blank: B Dry Weight %: N/A Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

[0] Page 14
Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	026	Sample Date/Time:	17-DEC-98 1350
Client Sample Id:	812073-07B SMW-5-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

American Environmental Network, Inc.

AEN I.D. 805357

June 12, 1998

GIANT REFINING COMPANY
ROUTE 3 BOX 7
GALLUP, NM 87301

Project Name ANNUAL GW SAMPLING
Project Number (none)

Attention: STEVE MORRIS

On 5/15/98 American Environmental Network (NM), Inc. (ADHS License No. AZ0015), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

This report is being reissued in part to correct the client ID. This report was originally dated 6/10/98. We apologize for any inconvenience this may have caused.

EPA method 150.1 and 8260 were performed by American Environmental Network (NM) Inc., Albuquerque, NM.

All other parameters were performed by American Environmental Network (CT) Inc., Monroe, CT.

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



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

Interlab Chain of Custody

NETWORK PROJECT MANAGER: KIMBERLY D. MCNEILL

COMPANY: AMERICAN ENVIRONMENTAL NETWORK
ADDRESS: 2709-D Pan American Freeway, NE
Albuquerque, NM 87107

7098-11034

CLIENT PROJECT MANAGER:

Kim McNeill

SAMPLE ID	DATE	TIME	MATRIX	LAB ID	Metals - TAL	Metals - PP List	Metals - RCRA	RCRA Metals by TCLP (1311)	TOX	TOC	Gen Chemistry	Oil and Grease	BOD	COD	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral Acid Compounds GC/MS (625/8270)	Volatile Organics GC/MS (624/8240)	Polynuclear Aromatics (610/8310)	8240 (TCLP 1311) ZHE	8270 (TCLP 1311)	TO-14	Gross Alpha/Beta	NUMBER OF CONTAINERS
805357 - 01	5/13/98	1030	AR	01				X Ca, Mg, K, Na																
-02		1130	AR	02																				
-03		1345	AR	03																				

PROJECT INFORMATION

SAMPLE RECEIPT

SAMPLES SENT TO:

RELINQUISHED BY:

RELINQUISHED BY:

PROJECT NUMBER: 805357

TOTAL NUMBER OF CONTAINERS

CONNECTICUT X

Signature: [Signature] Date: 5/15/98

Signature: [Signature] Time: [Time]

PROJECT NAME: Grant & Perkins Co.

CHAIN OF CUSTODY SEALS

ILLINOIS

Printed Name: [Name] Date: 5/15/98

Printed Name: [Name] Date: [Date]

OC LEVEL: STD IV

INTACT?

MASSACHUSETTS

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

OC REQUIRED: MS MSD BLANK

RECEIVED GOOD COND/COLD

PORTLAND

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

TAT: STANDARD RUSH

LAB NUMBER

PHOENIX

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

DUE DATE: 5/22-6/5

X = Dissolved Metals

N. CAROLINA

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

RUSH SURCHARGE:

Company: [Company]

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

SPECIAL CERTIFICATION REQUIRED: ☐ YES ☐ NO

Company: [Company]

Signature: [Signature] Date: 5/15/98

Printed Name: [Name] Date: [Date]

[illegible]

PROJECT MANAGER:

COMPANY: Giant Refining Company
 ADDRESS: Route 3, Box 7
 PHONE: Galup NM 89381
505-722-3833
 FAX: 505-722-0210
 BILL TO: Giant Refining Co. Linica
 COMPANY: Same
 ADDRESS: _____

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR REFERENCE ONLY

ANALYST	DATE	TIME	MATRIX	LAB ID	ANALYSIS REQUEST
OW-1-51398	5/13/98	1030	H ₂ O	1030	Petroleum Hydrocarbons (418.1) TRPH
OW-2-51398	"	1130	"	"	(MOD.8015) Diesel/Direct Inject
OW-3-51398	"	1345	"	"	(M8015) Gas/Purge & Trap
					8021 (BTEX)/8015 (Gasoline)
					8021 (BTEX) ☐ MTBE ☐ TMB ☐ PCE
					8021 (TCL)
					8021 (EDX)
					8021 (HALO)
					8021 (CUST)
					504.1 EDB ☐ / DBCP ☐
					SEE ATTACHED LIST
					8260 (TCL) Volatile Organics
					8260 (Full) Volatile Organics
					8260 (CUST) Volatile Organics
					8260 (Landfill) Volatile Organics
					Pesticides /PCB (608/8081)
					Herbicides (615/8151)
					Base/Neutral/Acid Compounds GC/MS (625/8270)
					Polynuclear Aromatics (610/8310)
					General Chemistry:
					Priority Pollutant Metals (13)
					Target Analyte List Metals (23)
					RCRA Metals (8)
					RCRA Metals by TCLP (Method 1311)
					Metals:

PROJECT INFORMATION

PROJECT NO: General
 PROJ. NAME: groundwater
 P.O. NO: Sampling
 SHIPPED VIA: air 5/14/98

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

(RUSH) ☐ 12hr ☐ 48hr ☐ 72hr ☐ 1 WEEK (NORMAL) ☐
 CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER
 METHANOL PRESERVATION ☐
 COMMENTS: ☐ FIXED FEE ☐

RELINQUISHED BY: 1. ANALYST

Signature: [Signature] Time: 0830
 Printed Name: Steve Morris Date: 5/14/98
 Company: Giant

RELINQUISHED BY: 2. COMPANY

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

American Environmental Network, Inc.

CLIENT	: GIANT REFINING COMPANY	AEN I.D.	: 805357
PROJECT #	: (none)	DATE RECEIVED	: 5/15/98
PROJECT NAME	: ANNUAL GW SAMPLING	REPORT DATE	: 6/10/98

June 12, 1998

ID. #	CLIENT DESCRIPTION	MATRIX	DATE COLLECTED
01	OW-1-51398	AQUEOUS	5/13/98
02	OW-2-51398	AQUEOUS	5/13/98
03	OW-3-51398	AQUEOUS	5/13/98

ANALYTICAL PARAMETERS

* TOC - 2 replicates & original
* TOX - 3 replicates & original

World/General M/F On/Off Annual G-V

American Environmental Network, Inc.

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY AEN I.D. : 805357
PROJECT # : (none) DATE RECEIVED : 5/15/98
PROJECT NAME : ANNUAL GW SAMPLING

SAMPLE			DATE	DATE		
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED		
01	OW-1-51398	AQUEOUS	5/13/98	5/29/98		
02	OW-2-51398	AQUEOUS	5/13/98	5/29/98		
03	OW-3-51398	AQUEOUS	5/13/98	5/29/98		
PARAMETER			UNITS	01	02	03
PH (150.1)			UNITS	8.82	7.95	7.95

CHEMIST NOTES:

N/A

Contract:

1805357-01 OW-1-51398

SDG No.: A1103

Lab Sample ID: 1103001

Date Received: 05/16/98

[illegible]

Comments:

Contract:

Contract: _____

1805357-03 OW-3-51398

SDG No.: A1103

Lab Sample ID: 1103003

Date Received: 05/16/98

[illegible]

Comments:

Alkalinity
Bicarbonate/Carbonate

	Total		
	Alkalinity	Bicarb.	Carbonate
	ppm	ppm	ppm
OW-1-51398	408	392.07	15.72
OW-2-51398	667	662.56	4.41
OW-3-51398	650	645.77	4.20

TABLE AS-1.0
7098-1103A
AEN-NEW MEXICO
MISCELLANEOUS ATOMIC SPECTROSCOPY

Aqueous

All values are ug/L.

	OW-1-51398	OW-2-51398	OW-3-51398	
Client Sample I.D.	805357-01	805357-02	805357-03	
Lab Sample I.D.	981103A-01	981103A-02	981103A-03	
Calcium	5000U	9770	10100	
Magnesium	5000U	5000U	5000U	
Potassium	5000U	5000U	5000U	
Sodium	174000	170000	166000	

See Appendix for qualifier definitions

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

AEN I.D. : 805357
 DATE RECEIVED : 5/15/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805357-01	OW-1-51398	AQUEOUS	5/13/98	N/A	05/19/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY
PROJECT # : (none)
PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

AEN I.D. : 805357
DATE RECEIVED : 5/15/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805357-01	OW-1-51398	AQUEOUS	5/13/98	N/A	05/19/98	1
PARAMETER	DET. LIMIT		UNITS			
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4 106
(80 - 120)
Toluene-d8 104
(88 - 110)
Bromofluorobenzene 100
(86 - 115)

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY AEN I.D. : 805357
 PROJECT # : (none) DATE RECEIVED : 5/15/98
 PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805357-02	OW-2-51398	AQUEOUS	5/13/98	N/A	05/19/98	1

PARAMETER	DET. LIMIT	UNITS
-----------	------------	-------

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

American Environmental Network, Inc.

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

AEN I.D. : 805357
 DATE RECEIVED : 5/15/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805357-02	OW-2-51398	AQUEOUS	5/13/98	N/A	05/19/98	1
PARAMETER	DET. LIMIT	UNITS				
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4 102
 (80 - 120)
 Toluene-d8 102
 (88 - 110)
 Bromofluorobenzene 95
 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY AEN I.D. : 805357
 PROJECT # : (none) DATE RECEIVED : 5/15/98
 PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
805357-03	OW-3-51398	AQUEOUS	5/13/98	N/A	05/19/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
 CLIENT : GIANT REFINING COMPANY
 PROJECT # : (none)
 PROJECT NAME : ANNUAL GROUNDWATER SAMPLING EVENT

AEN I.D. : 805357
 DATE RECEIVED : 5/15/98

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
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805357-03	OW-3-51398	AQUEOUS	5/13/98	N/A	05/19/98	1
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PARAMETER	DET. LIMIT		UNITS
m&p Xylenes	1.0	< 1.0	ug/L
o-Xylene	1.0	< 1.0	ug/L
Styrene	1.0	< 1.0	ug/L
Bromoform	1.0	< 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L
1,2,3-Trichloropropane	1.0	< 1.0	ug/L
Isopropyl Benzene	1.0	< 1.0	ug/L
Bromobenzene	1.0	< 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L
n-Propylbenzene	1.0	< 1.0	ug/L
2-Chlorotoluene	1.0	< 1.0	ug/L
4-Chlorotoluene	1.0	< 1.0	ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L
tert-Butylbenzene	1.0	< 1.0	ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L
sec-Butylbenzene	1.0	< 1.0	ug/L
1,3-Dichlorobenzene	1.0	< 1.0	ug/L
1,4-Dichlorobenzene	1.0	< 1.0	ug/L
p-Isopropyltoluene	1.0	< 1.0	ug/L
1,2-Dichlorobenzene	1.0	< 1.0	ug/L
n-Butylbenzene	1.0	< 1.0	ug/L
1,2-Dibromomono-3-chloropropane	1.0	< 1.0	ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L
Naphthalene	1.0	< 1.0	ug/L
Hexachlorobutadiene	1.0	< 1.0	ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	110 (80 - 120)
Toluene-d8	106 (88 - 110)
Bromofluorobenzene	101 (86 - 115)

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

Pinnacle Lab ID number 812073
January 13, 1999

GIANT REFINING COMPANY
ROUTE 3 BOX 7
GALLUP, NM 87301

Project Name SEMI-ANNUAL GROUNDWATER EVENT 1998
Project Number (none)

Attention: STEVE MORRIS

On 12/18/98 Pinnacle Laboratories, Inc. Inc., (ADHS License No. AZ0592), received a request to analyze **aqueous** samples. The samples were analyzed with EPA methodology or equivalent methods. The results of these analyses and the quality control data, which follow each set of analyses, are enclosed.

EPA method 150.1 and 8260 were performed by Pinnacle Laboratories, Inc., Albuquerque, NM.

Metals were performed by ESL (OR) Inc., Portland, OR.

All other parameters were performed by Severn Trent (FL) Inc., Pensacola, FL.

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



Kimberly D. McNeill
Project Manager



H. Mitchell Rubenstein, Ph. D.
General Manager

MR: mt

Enclosure

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

CLIENT : GIANT REFINING COMPANY
PROJECT # : (none)
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

PINNACLE ID : 812073
DATE RECEIVED : 12/18/98
REPORT DATE : 1/13/99

AEN			DATE
ID. #	CLIENT DESCRIPTION	MATRIX	COLLECTED
01	MW-1-121798	AQUEOUS	12/17/98
02	MW-2-121798	AQUEOUS	12/17/98
03	MW-5-121798	AQUEOUS	12/17/98
04	MW-4-121798	AQUEOUS	12/17/98
05	SMW-3-121798	AQUEOUS	12/17/98
06	SMW-4-121798	AQUEOUS	12/17/98
07	SMW-5-121798	AQUEOUS	12/17/98
08	OW-11-121898	AQUEOUS	12/18/98

CHAIN OF CUSTODY

AEN LAB I.D.

812013

DATE: 12-17-98 PAGE: 1 OF 1

ANALYSIS REQUEST

PROJECT MANAGER:

COMPANY: Green Engineering Company
 ADDRESS: Route 5 of Rd 17 Gallup NM 87301
 PHONE: 505 722 3833
 FAX: 505 722 0210
 BILL TO: SAITE
 COMPANY:
 ADDRESS:

SAMPLE ID	DATE	TIME	MATRIX	LAB I.D.	Petroleum Hydrocarbons (418.1) TRPH (MOD.8015) Diesel/Direct/Inject	Cr Pb (M8015) Gas/Purge & Trap	Gasoline/BTEX & MTBE (M8015/8020)	BTXE/MTBE (8020)	BTEX & Chlorinated Aromatics (602/8020)	BTEX/MTBE/EDC & EDB (8020/8010/Short)	Chlorinated Hydrocarbons (601/8010)	PH, EC, TOC, TOX	504 EDB DBCP	Polynuclear Aromatics (610/8310)	Volatile Organics (624/8240) GC/MS	Volatile Organics (8260) GC/MS	Pesticides/PCB (608/8080)	Herbicides (615/8150)	Base/Neutral/Acid Compounds GC/MS (625/8270)	General Chemistry:	Priority Pollutant Metals (13)	Target Analyte List Metals (23)	RCRA Metals (8)	RCRA Metals by TCLP (Method 1311)	Metals:	NUMBER OF CONTAINERS
MW-1-121798	12/17/98	0810	H ₂ O	01								X														8
MW-2-121798	"	0915	"	02								X														8
MW-5-121798	"	1050	"	03								X														8
MW-4-121798	"	1245	"	04								X														8
SMW-3-121798	"	1500	"	05								X														9
SMW-4-121798	"	1730	"	06								X														9
SMW-5-121798	"	1350	"	07								X														9
OW-11-121898	12/18/98	1000	"	08								X														8

PROJECT INFORMATION

PRIOR AUTHORIZATION IS REQUIRED FOR RUSH PROJECTS

PROJECT: Sevin amud

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

PROJ. NAME: Groundwater

CERTIFICATION REQUIRED: ☐ NM ☐ SDWA ☐ OTHER

DATE: 12/17/98

METHANOL PRESERVATION ☐

SAMPLE RECEIPT

COMMENTS: ☐ FIXED FEE ☐

NO. CONTAINERS: 10

CUSTODY SEALS: Y/N/NA

RECEIVED INTACT: Yes

BLUE ICE: Yes

RELINQUISHED BY:

RELINQUISHED BY:

Signature: SC [Signature] Time: 1400

Signature: [Signature] Time: 1400

Printed Name: Sc Morris Date: 12/18/98

Printed Name: [Name] Date: [Date]

Company: Green Engineering

Company: American Environmental Network

RECEIVED BY: [Signature] Time: 1

RECEIVED BY: (LAB) [Signature] Time: 2

Printed Name: [Name] Date: [Date]

Printed Name: Francine Tonino Date: 12/18/98

Company: American Environmental Network (NM), Inc.

Company: American Environmental Network (NM), Inc.

PLEASE FILL THIS FORM IN COMPLETELY.

SHADED AREAS ARE FOR LAB USE ONLY.

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
1A	MW-1-121798	AQUEOUS	12/17/98	12/22/98
1B	MW-1-121798	AQUEOUS	12/17/98	12/22/98
1C	MW-1-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	MW-1-121798	MW-1-121798	MW-1-121798
PH (150.1)	UNITS	9.20	9.21	9.22

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
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Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
1D	MW-1-121798	AQUEOUS	12/17/98	12/22/98
2A	MW-2-121798	AQUEOUS	12/17/98	12/22/98
2B	MW-2-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	MW-1-121798	MW-2-121798	MW-2-121798
PH (150.1)	UNITS	9.22	9.24	9.24

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE	
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED	
2C	MW-2-121798	AQUEOUS	12/17/98	12/22/98	
2D	MW-2-121798	AQUEOUS	12/17/98	12/22/98	
3A	MW-5-121798	AQUEOUS	12/17/98	12/22/98	
PARAMETER		UNITS	MW-2-121798	MW-2-121798	MW-5-121798
PH (150.1)		UNITS	9.26	9.24	9.25

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
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GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
3B	MW-5-121798	AQUEOUS	12/17/98	12/22/98
3C	MW-5-121798	AQUEOUS	12/17/98	12/22/98
3D	MW-5-121798	AQUEOUS	12/17/98	12/22/98
PARAMETER		UNITS	MW-5-121798	MW-5-121798
PH (150.1)		UNITS	9.25	9.23

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
4A	MW-4-121798	AQUEOUS	12/17/98	12/22/98
4B	MW-4-121798	AQUEOUS	12/17/98	12/22/98
4C	MW-4-121798	AQUEOUS	12/17/98	12/22/98
PARAMETER		UNITS	MW-4-121798	MW-4-121798
PH (150.1)		UNITS	8.83	8.83

CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
4D	MW-4-121798	AQUEOUS	12/17/98	12/22/98
5A	SMW-3-121798	AQUEOUS	12/17/98	12/22/98
5B	SMW-3-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	MW-4-121798	SMW-3-121798	SMW-3-121798
PH (150.1)	UNITS	8.83	7.78	7.80

CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
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GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
5C	SMW-3-121798	AQUEOUS	12/17/98	12/22/98
5D	SMW-3-121798	AQUEOUS	12/17/98	12/22/98
6A	SMW-4-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	SMW-3-121798	SMW-3-121798	SMW-4-121798
PH (150.1)	UNITS	7.80	7.80	8.78

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
6B	SMW-4-121798	AQUEOUS	12/17/98	12/22/98
6C	SMW-4-121798	AQUEOUS	12/17/98	12/22/98
6D	SMW-4-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	SMW-4-121798	SMW-4-121798	SMW-4-121798
PH (150.1)	UNITS	8.82	8.83	8.83

CHEMIST NOTES:
N/A



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Albuquerque, New Mexico 87107
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GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
7A	SMW-5-121798	AQUEOUS	12/17/98	12/22/98
7B	SMW-5-121798	AQUEOUS	12/17/98	12/22/98
7C	SMW-5-121798	AQUEOUS	12/17/98	12/22/98

PARAMETER	UNITS	SMW-5-121798	SMW-5-121798	SMW-5-121798
PH (150.1)	UNITS	8.87	8.92	8.94

CHEMIST NOTES:
N/A

PINNACLE
LABORATORIES

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Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
7D	SMW-5-121798	AQUEOUS	12/17/98	12/22/98
8A	OW-11-121898	AQUEOUS	12/18/98	12/22/98
8B	OW-11-121898	AQUEOUS	12/18/98	12/22/98

PARAMETER	UNITS	SMW-5-121798	OW-11-121898	OW-11-121898
PH (150.1)	UNITS	8.95	8.47	8.48

CHEMIST NOTES:
N/A



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

GENERAL CHEMISTRY RESULTS

CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT # : (none) DATE RECEIVED : 12/18/98
PROJECT NAME : SEMI-ANNUAL GROUNDWATER EVENT 1998

SAMPLE		DATE		DATE
ID. #	CLIENT I.D.	MATRIX	SAMPLED	ANALYZED
8C	OW-11-121898	AQUEOUS	12/18/98	12/22/98
8D	OW-11-121898	AQUEOUS	12/18/98	12/22/98

PARAMETER	UNITS	OW-11-121898	OW-11-121898
PH (150.1)	UNITS	8.48	8.48

CHEMIST NOTES:
N/A

Environmental Services Laboratory, Inc. E S L

17400 SW Upper Boones Ferry Road • Suite 270 • Portland, OR 97224 • (503) 670-8520

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

Date: 12/29/1998
ESL Account No.: 90147
ESL Job Number: 98.02465

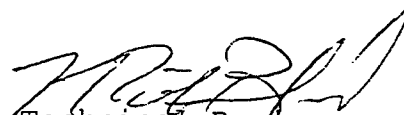
Project: 812073 / GRC
Location: Semi-Annual Groundwater Event 1998

Sample analysis in support of the project referenced above has been completed and results are presented on the following pages. Should you have questions regarding procedures or results, please feel welcome to contact Client Services.

Sample Number	Sample Description	Matrix Type	Date Taken	Date Received
108222	812073-05	Water	12/17/1998	12/22/1998
108223	812073-06	Water	12/17/1998	12/22/1998
108224	812073-07	Water	12/17/1998	12/22/1998

Approved by:


Andi Hoevet
Project Manager
ESL, INC.


Technical Review
ESL, INC.

The results from these samples relate only to the items tested. This report shall not be reproduced, except in full, without the written approval of the laboratory.

ANALYTICAL SERVICES FOR THE ENVIRONMENT

ANALYTICAL REPORT

Kim McNeill
Pinnacle Laboratories
2709-D Pan American Fwy NE
Albuquerque, NM 87107

12/29/1998
Job No.: 98.02465

Page: 2

Project Name: 812073 / GRC
Date Received: 12/22/1998

Sample Number Sample Description
108222 812073-05 SMW-3-121798

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			12/28/1998	
Chromium, ICP	6010	0.010	0.005	mg/L	12/28/1998	
Lead, ICP	6010	ND	0.005	mg/L	12/28/1998	

Sample Number Sample Description
108223 812073-06 SMW-4-121798

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			12/28/1998	
Chromium, ICP	6010	ND	0.005	mg/L	12/28/1998	
Lead, ICP	6010	ND	0.005	mg/L	12/28/1998	

Sample Number Sample Description
108224 812073-07 SMW-5-121798

<u>PARAMETERS</u>	<u>METHODS</u>	<u>RESULTS</u>	<u>REPORT LIMIT</u>	<u>UNITS</u>	<u>DATE ANALYZED</u>	<u>FLAG</u>
ICP/AA Digestion - Water	ICP	-			12/28/1998	
Chromium, ICP	6010	0.015	0.005	mg/L	12/28/1998	
Lead, ICP	6010	ND	0.005	mg/L	12/28/1998	

A sample result of ND indicates the parameter was Not Detected at the reporting limit.
mg = ppm ug = ppb su = standard units

Environmental Services Laboratory, Inc. (503) 670-8520 (503) 670-9243 FAX
17400 SW Upper Boones Ferry Rd., Suite 270, Portland, OR 97224

[0] Page 1
Date 28-Dec-98

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 812073-01A	MW-1-121798		Lab ID: 001		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100	1	CDW024	
Comments:					
Client ID: 812073-01B	MW-1-121798		Lab ID: 002		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100	1	CDW024	
Comments:					
Client ID: 812073-01C	MW-1-121798		Lab ID: 003		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100	1	CDW024	
Comments:					
Client ID: 812073-01D	MW-1-121798		Lab ID: 004		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100	1	CDW024	
Comments:					
Client ID: 812073-02A	MW-2-121798		Lab ID: 005		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-02B	MW-2-121798		Lab ID: 006		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-02C	MW-2-121798		Lab ID: 007		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 812073-02D	MW-2-121798		Lab ID: 008		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-03A	MW-5-121798		Lab ID: 009		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-03B	MW-5-121798		Lab ID: 010		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-03C	MW-5-121798		Lab ID: 011		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-03D	MW-5-121798		Lab ID: 012		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-04A	MW-4-121798		Lab ID: 013		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-04B	MW-4-121798		Lab ID: 014		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 812073-04C	MW-4-121798		Lab ID: 015		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-04D	MW-4-121798		Lab ID: 016		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW024	
Comments:					
Client ID: 812073-05A	SMW-3-121798		Lab ID: 017		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000	1	CDW024	
Comments:					
Client ID: 812073-05B	SMW-3-121798		Lab ID: 018		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000	1	CDW024	
Comments:					
Client ID: 812073-05C	SMW-3-121798		Lab ID: 019		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000	1	CDW024	
Comments:					
Client ID: 812073-05D	SMW-3-121798		Lab ID: 020		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000	1	CDW024	
Comments:					
Client ID: 812073-06A	SMW-4-121798		Lab ID: 021		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300	1	CDW025	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 812073-06B	SMW-4-121798		Lab ID: 022		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300	1	CDW025	
Comments:					
Client ID: 812073-06C	SMW-4-121798		Lab ID: 023		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300	1	CDW025	
Comments:					
Client ID: 812073-06D	SMW-4-121798		Lab ID: 024		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300	1	CDW025	
Comments:					
Client ID: 812073-07A	SMW-5-121798		Lab ID: 025		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW025	
Comments:					
Client ID: 812073-07B	SMW-5-121798		Lab ID: 026		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW025	
Comments:					
Client ID: 812073-07C	SMW-5-121798		Lab ID: 027		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW025	
Comments:					
Client ID: 812073-07D	SMW-5-121798		Lab ID: 028		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200	1	CDW025	
Comments:					

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem
QcLevel: II

Parameter:	Unit:	Result:	R.L:	Batch:	Q:
Client ID: 812073-08A	OW-11-121898		Lab ID: 029		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600	1	CDW025	
Comments:					
Client ID: 812073-08B	OW-11-121898		Lab ID: 030		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600	1	CDW025	
Comments:					
Client ID: 812073-08C	OW-11-121898		Lab ID: 031		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600	1	CDW025	
Comments:					
Client ID: 812073-08D	OW-11-121898		Lab ID: 032		
CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600	1	CDW025	
Comments:					

[0] Page 6
Date 28-Dec-98

"FINAL REPORT FORMAT - MULTIPLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem

Client ID:	Lab Matrix: ID:	Date/Time Sampled:	Date Received:
812073-01A	001 WATER	17-DEC-98 0810	19-DEC-98
812073-01B	002 WATER	17-DEC-98 0810	19-DEC-98
812073-01C	003 WATER	17-DEC-98 0810	19-DEC-98
812073-01D	004 WATER	17-DEC-98 0810	19-DEC-98
812073-02A	005 WATER	17-DEC-98 1500	19-DEC-98
812073-02B	006 WATER	17-DEC-98 0915	19-DEC-98
812073-02C	007 WATER	17-DEC-98 0915	19-DEC-98
812073-02D	008 WATER	17-DEC-98 0915	19-DEC-98
812073-03A	009 WATER	17-DEC-98 1050	19-DEC-98
812073-03B	010 WATER	17-DEC-98 1050	19-DEC-98
812073-03C	011 WATER	17-DEC-98 1050	19-DEC-98
812073-03D	012 WATER	17-DEC-98 1050	19-DEC-98
812073-04A	013 WATER	17-DEC-98 1245	19-DEC-98
812073-04B	014 WATER	17-DEC-98 1245	19-DEC-98
812073-04C	015 WATER	17-DEC-98 1245	19-DEC-98
812073-04D	016 WATER	17-DEC-98 1245	19-DEC-98
812073-05A	017 WATER	17-DEC-98 1500	19-DEC-98
812073-05B	018 WATER	17-DEC-98 1500	19-DEC-98
812073-05C	019 WATER	17-DEC-98 1500	19-DEC-98
812073-05D	020 WATER	17-DEC-98 1500	19-DEC-98
812073-06A	021 WATER	17-DEC-98 1430	19-DEC-98
812073-06B	022 WATER	17-DEC-98 1430	19-DEC-98
812073-06C	023 WATER	17-DEC-98 1430	19-DEC-98
812073-06D	024 WATER	17-DEC-98 1430	19-DEC-98
812073-07A	025 WATER	17-DEC-98 1350	19-DEC-98
812073-07B	026 WATER	17-DEC-98 1350	19-DEC-98
812073-07C	027 WATER	17-DEC-98 1350	19-DEC-98
812073-07D	028 WATER	17-DEC-98 1350	19-DEC-98
812073-08A	029 WATER	17-DEC-98 1000	19-DEC-98
812073-08B	030 WATER	17-DEC-98 1000	19-DEC-98
812073-08C	031 WATER	17-DEC-98 1000	19-DEC-98
812073-08D	032 WATER	17-DEC-98 1000	19-DEC-98

"Method Report Summary"

Accession Number: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
812073-01A MW-1-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100
812073-01B MW-1-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100
812073-01C MW-1-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100
812073-01D MW-1-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1100
812073-02A MW-2-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-02B MW-2-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-02C MW-2-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-02D MW-2-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-03A MW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-03B MW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-03C MW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-03D MW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-04A MW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-04B MW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-04C MW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-04D MW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-05A SMW-3-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000
812073-05B SMW-3-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000
812073-05C SMW-3-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000

"Method Report Summary"

Accession Number: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: Group of Single Wetchem

Client Sample Id:	Parameter:	Unit:	Result:
812073-05D SMW-3-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	3000
812073-06A SMW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300
812073-06B SMW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300
812073-06C SMW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300
812073-06D SMW-4-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1300
812073-07A SMW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-07B SMW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-07C SMW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-07D SMW-5-121798	CONDUCTIVITY (120.1/2510 B)	UMH/CM	1200
812073-08A OW-11-121898	CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600
812073-08B OW-11-121898	CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600
812073-08C OW-11-121898	CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600
812073-08D OW-11-121898	CONDUCTIVITY (120.1/2510 B)	UMH/CM	2600

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

Analysis Report

Analysis: TOTAL ORGANIC CARBON

Accession:	812338
Client:	PINNACLE LABORATORIES
Project Number:	812073
Project Name:	GRC
Project Location:	SEMI ANNUAL GROUNDWATER EVENT 1998
Department:	SEMI-VOLATILE FUELS

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	001	Sample Date/Time:	17-DEC-98 0810
Client Sample Id:	812073-01A MW-1-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	002	Sample Date/Time:	17-DEC-98 0810
Client Sample Id:	812073-01B MW-1-121798	Received Date:	19-DEC-98

Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	005	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-02A MW-2-121798	Received Date:	19-DEC-98
Batch:	TOW116	Extraction Date:	N/A
Blank:	A	Analysis Date:	31-DEC-98
Dry Weight %:	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	006	Sample Date/Time:	17-DEC-98 0915
Client Sample Id:	812073-02B MW-2-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	013	Sample Date/Time:	17-DEC-98 1245
Client Sample Id:	812073-04A MW-4-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	014	Sample Date/Time:	17-DEC-98 1245
Client Sample Id:	812073-04B MW-4-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	009		Sample Date/Time:	17-DEC-98 1050
Client Sample Id:	812073-03A	MW-5-121798	Received Date:	19-DEC-98
Batch: TOW116			Extraction Date:	N/A
Blank: A	Dry Weight %:	N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	2	1	
ANALYST	INITIALS	BT		

Comments:

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Date 31-Dec-98

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	010	Sample Date/Time:	17-DEC-98 1050
Client Sample Id:	812073-03B MW-5-121798	Received Date:	19-DEC-98
Batch:	TOW116	Extraction Date:	N/A
Blank:	A	Analysis Date:	31-DEC-98
Dry Weight %:	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	2	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	029	Sample Date/Time:	17-DEC-98 1000
Client Sample Id:	812073-08A OW-11-121898	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	2	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	030	Sample Date/Time:	17-DEC-98 1000
Client Sample Id:	812073-08B OW-11-121898	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	2	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	017	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-05A SMW-3-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	3	1	
ANALYST	INITIALS	BT		

Comments:

"FINAL REPORT FORMAT - SINGLE"

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Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	018	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-05B SMW-3-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	3	1	
ANALYST	INITIALS	BT		

Comments:

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Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	021	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06A SMW-4-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

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Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	022	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06B SMW-4-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

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Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	025	Sample Date/Time:	17-DEC-98 1350
Client Sample Id:	812073-07A SMW-5-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:

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Date 31-Dec-98

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC CARBON
Analysis Method: 415.1/EPA-600/4-79-020, March 1983.
Extraction Method: N/A
Matrix: WATER
QC Level: II

Lab Id:	026	Sample Date/Time:	17-DEC-98 1350
Client Sample Id:	812073-07B SMW-5-121798	Received Date:	19-DEC-98
Batch: TOW116		Extraction Date:	N/A
Blank: A	Dry Weight %: N/A	Analysis Date:	31-DEC-98

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC CARBON	MG/L	ND	1	
ANALYST	INITIALS	BT		

Comments:



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
Phone (505) 344-3777
Fax (505) 344-4413

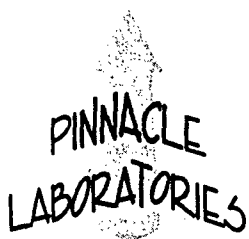
GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE	DATE	DATE	DATE	DIL.
ID #	SAMPLED	EXTRACTED	ANALYZED	FACTOR
812073-01	12/17/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
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Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L



2709-D Pan American Freeway NE
Albuquerque, New Mexico 87107
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GC/MS RESULTS

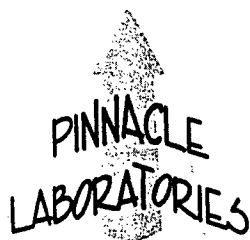
TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-01	MW-1-121798	AQUEOUS	12/17/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0 ug/L
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	96 (80 - 120)
Toluene-d8	99 (88 - 110)
Bromofluorobenzene	99 (86 - 115)



2709-D Pan American Freeway NE
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GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-02	MW-2-121798	AQUEOUS	12/17/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
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Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-02	MW-2-121798	AQUEOUS	12/17/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0 ug/L
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	96 (80 - 120)
Toluene-d8	98 (88 - 110)
Bromofluorobenzene	96 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-04	MW-4-121798	AQUEOUS	12/17/98	N/A	12/28/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-04	MW-4-121798	AQUEOUS	12/17/98	N/A	12/28/98	1
PARAMETER	DET. LIMIT		UNITS			
1,1,1,2-Tetrachloroethane	1.0	< 1.0	ug/L			
m&p Xylenes	1.0	< 1.0	ug/L			
o-Xylene	1.0	< 1.0	ug/L			
Styrene	1.0	< 1.0	ug/L			
Bromoform	1.0	< 1.0	ug/L			
1,1,2,2-Tetrachloroethane	1.0	< 1.0	ug/L			
1,2,3-Trichloropropane	1.0	< 1.0	ug/L			
Isopropyl Benzene	1.0	< 1.0	ug/L			
Bromobenzene	1.0	< 1.0	ug/L			
trans-1,4-Dichloro-2-Butene	1.0	< 1.0	ug/L			
n-Propylbenzene	1.0	< 1.0	ug/L			
2-Chlorotoluene	1.0	< 1.0	ug/L			
4-Chlorotoluene	1.0	< 1.0	ug/L			
1,3,5-Trimethylbenzene	1.0	< 1.0	ug/L			
tert-Butylbenzene	1.0	< 1.0	ug/L			
1,2,4-Trimethylbenzene	1.0	< 1.0	ug/L			
sec-Butylbenzene	1.0	< 1.0	ug/L			
1,3-Dichlorobenzene	1.0	< 1.0	ug/L			
1,4-Dichlorobenzene	1.0	< 1.0	ug/L			
p-Isopropyltoluene	1.0	< 1.0	ug/L			
1,2-Dichlorobenzene	1.0	< 1.0	ug/L			
n-Butylbenzene	1.0	< 1.0	ug/L			
1,2-Dibromomo-3-chloropropane	1.0	< 1.0	ug/L			
1,2,4-Trichlorobenzene	1.0	< 1.0	ug/L			
Naphthalene	1.0	< 1.0	ug/L			
Hexachlorobutadiene	1.0	< 1.0	ug/L			
1,2,3-Trichlorobenzene	1.0	< 1.0	ug/L			

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	95 (80 - 120)
Toluene-d8	100 (88 - 110)
Bromofluorobenzene	99 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-03	MW-5-121798	AQUEOUS	12/17/98	N/A	12/28/98	1
PARAMETER	DET. LIMIT	UNITS				

Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-03	MW-5-121798	AQUEOUS	12/17/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
1,1,1,2-Tetrachloroethane	1.0	< 1.0 ug/L
m&p Xylenes	1.0	< 1.0 ug/L
o-Xylene	1.0	< 1.0 ug/L
Styrene	1.0	< 1.0 ug/L
Bromoform	1.0	< 1.0 ug/L
1,1,2,2-Tetrachloroethane	1.0	< 1.0 ug/L
1,2,3-Trichloropropane	1.0	< 1.0 ug/L
Isopropyl Benzene	1.0	< 1.0 ug/L
Bromobenzene	1.0	< 1.0 ug/L
trans-1,4-Dichloro-2-Butene	1.0	< 1.0 ug/L
n-Propylbenzene	1.0	< 1.0 ug/L
2-Chlorotoluene	1.0	< 1.0 ug/L
4-Chlorotoluene	1.0	< 1.0 ug/L
1,3,5-Trimethylbenzene	1.0	< 1.0 ug/L
tert-Butylbenzene	1.0	< 1.0 ug/L
1,2,4-Trimethylbenzene	1.0	< 1.0 ug/L
sec-Butylbenzene	1.0	< 1.0 ug/L
1,3-Dichlorobenzene	1.0	< 1.0 ug/L
1,4-Dichlorobenzene	1.0	< 1.0 ug/L
p-Isopropyltoluene	1.0	< 1.0 ug/L
1,2-Dichlorobenzene	1.0	< 1.0 ug/L
n-Butylbenzene	1.0	< 1.0 ug/L
1,2-Dibromomo-3-chloropropane	1.0	< 1.0 ug/L
1,2,4-Trichlorobenzene	1.0	< 1.0 ug/L
Naphthalene	1.0	< 1.0 ug/L
Hexachlorobutadiene	1.0	< 1.0 ug/L
1,2,3-Trichlorobenzene	1.0	< 1.0 ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	101 (80 - 120)
Toluene-d8	105 (88 - 110)
Bromofluorobenzene	108 (86 - 115)

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-08	OW-11-121898	AQUEOUS	12/18/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
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Dichlorodifluoromethane	1.0	< 1.0	ug/L
Chloromethane	1.0	< 1.0	ug/L
Vinyl Chloride	1.0	< 1.0	ug/L
Bromomethane	1.0	< 1.0	ug/L
Chloroethane	1.0	< 1.0	ug/L
Trichlorofluoromethane	1.0	< 1.0	ug/L
Acetone	10	< 10	ug/L
Acrolein	5.0	< 5.0	ug/L
1,1-Dichloroethene	1.0	< 1.0	ug/L
Iodomethane	1.0	< 1.0	ug/L
Methylene Chloride	1.0	< 1.0	ug/L
Acrylonitrile	5.0	< 5.0	ug/L
cis-1,2-Dichloroethene	1.0	< 1.0	ug/L
Methyl-t-butyl Ether	1.0	< 1.0	ug/L
1,1,2,1,2,2-Trichlorotrifluoroethane	1.0	< 1.0	ug/L
1,1-Dichloroethane	1.0	< 1.0	ug/L
trans-1,2-Dichloroethene	1.0	< 1.0	ug/L
2-Butanone	10	< 10	ug/L
Carbon Disulfide	1.0	< 1.0	ug/L
Bromochloromethane	1.0	< 1.0	ug/L
Chloroform	1.0	< 1.0	ug/L
2,2-Dichloropropane	1.0	< 1.0	ug/L
1,2-Dichloroethane	1.0	< 1.0	ug/L
Vinyl Acetate	1.0	< 1.0	ug/L
1,1,1-Trichloroethane	1.0	< 1.0	ug/L
1,1-Dichloropropene	1.0	< 1.0	ug/L
Carbon Tetrachloride	1.0	< 1.0	ug/L
Benzene	1.0	< 1.0	ug/L
1,2-Dichloropropane	1.0	< 1.0	ug/L
Trichloroethene	1.0	< 1.0	ug/L
Bromodichloromethane	1.0	< 1.0	ug/L
2-Chloroethyl Vinyl Ether	10	< 10	ug/L
cis-1,3-Dichloropropene	1.0	< 1.0	ug/L
trans-1,3-Dichloropropene	1.0	< 1.0	ug/L
1,1,2-Trichloroethane	1.0	< 1.0	ug/L
1,3-Dichloropropane	1.0	< 1.0	ug/L
Dibromomethane	1.0	< 1.0	ug/L
Toluene	1.0	< 1.0	ug/L
1,2-Dibromoethane	1.0	< 1.0	ug/L
4-Methyl-2-Pentanone	10	< 10	ug/L
2-Hexanone	10	< 10	ug/L
Dibromochloromethane	1.0	< 1.0	ug/L
Tetrachloroethene	1.0	< 1.0	ug/L
Chlorobenzene	1.0	< 1.0	ug/L
Ethylbenzene	1.0	< 1.0	ug/L

GC/MS RESULTS

TEST : VOLATILE ORGANICS EPA METHOD 8260
CLIENT : GIANT REFINING COMPANY PINNACLE I.D. : 812073
PROJECT NAME : SEMI ANNUAL GROUNDWATER DATE RECEIVED : 12/18/98
EVENT 1998

SAMPLE ID #	CLIENT ID	MATRIX	DATE SAMPLED	DATE EXTRACTED	DATE ANALYZED	DIL. FACTOR
812073-08	OW-11-121898	AQUEOUS	12/18/98	N/A	12/28/98	1

PARAMETER	DET. LIMIT	UNITS
1,1,1,2-Tetrachloroethane	1.0 < 1.0	ug/L
m&p Xylenes	1.0 < 1.0	ug/L
o-Xylene	1.0 < 1.0	ug/L
Styrene	1.0 < 1.0	ug/L
Bromoform	1.0 < 1.0	ug/L
1,1,2,2-Tetrachloroethane	1.0 < 1.0	ug/L
1,2,3-Trichloropropane	1.0 < 1.0	ug/L
Isopropyl Benzene	1.0 < 1.0	ug/L
Bromobenzene	1.0 < 1.0	ug/L
trans-1,4-Dichloro-2-Butene	1.0 < 1.0	ug/L
n-Propylbenzene	1.0 < 1.0	ug/L
2-Chlorotoluene	1.0 < 1.0	ug/L
4-Chlorotoluene	1.0 < 1.0	ug/L
1,3,5-Trimethylbenzene	1.0 < 1.0	ug/L
tert-Butylbenzene	1.0 < 1.0	ug/L
1,2,4-Trimethylbenzene	1.0 < 1.0	ug/L
sec-Butylbenzene	1.0 < 1.0	ug/L
1,3-Dichlorobenzene	1.0 < 1.0	ug/L
1,4-Dichlorobenzene	1.0 < 1.0	ug/L
p-Isopropyltoluene	1.0 < 1.0	ug/L
1,2-Dichlorobenzene	1.0 < 1.0	ug/L
n-Butylbenzene	1.0 < 1.0	ug/L
1,2-Dibromomo-3-chloropropane	1.0 < 1.0	ug/L
1,2,4-Trichlorobenzene	1.0 < 1.0	ug/L
Naphthalene	1.0 < 1.0	ug/L
Hexachlorobutadiene	1.0 < 1.0	ug/L
1,2,3-Trichlorobenzene	1.0 < 1.0	ug/L

SURROGATE % RECOVERY

1,2-Dichloroethane-d4	93 (80 - 120)
Toluene-d8	100 (88 - 110)
Bromofluorobenzene	97 (86 - 115)

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	001	Sample Date/Time:	17-DEC-98 0810
Client Sample Id:	812073-01A MW-I-121798	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	002	Sample Date/Time:	17-DEC-98 0810
Client Sample Id:	812073-01B MW-1-121798	Received Date:	19-DEC-98

Batch: TXW086	Extraction Date:	N/A
Blank: B	Analysis Date:	09-JAN-99
Dry Weight %:	N/A	

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	005	Sample Date/Time:	17-DEC-98 1500
Client Sample Id:	812073-02A MW-2-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 006
Client Sample Id: 812073-02B MW-2-121798
Sample Date/Time: 17-DEC-98 0915
Received Date: 19-DEC-98

Batch: TXW086
Blank: B Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 009
Client Sample Id: 812073-03A MW-5-121798
Sample Date/Time: 17-DEC-98 1050
Received Date: 19-DEC-98

Batch: TXW086
Blank: B Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	010	Sample Date/Time:	17-DEC-98 1050
Client Sample Id:	812073-03B MW-5-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	013	Sample Date/Time:	17-DEC-98 1245
Client Sample Id:	812073-04A MW-4-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 014
Client Sample Id: 812073-04B MW-4-121798
Sample Date/Time: 17-DEC-98 1245
Received Date: 19-DEC-98

Batch: TXW086
Blank: B Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	ND	0.01	
ANALYST	INITIALS	LBL		

Comments:

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 017
Client Sample Id: 812073-05A SMW-3-121798
Sample Date/Time: 17-DEC-98 1500
Received Date: 19-DEC-98

Batch: TXW086
Blank: B
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.05	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 018
Client Sample Id: 812073-05B SMW-3-121798
Sample Date/Time: 17-DEC-98 1500
Received Date: 19-DEC-98

Batch: TXW086
Blank: B Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.04	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	021	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06A SMW-4-121798	Received Date:	19-DEC-98

Batch: TXW086	Extraction Date:	N/A
Blank: B	Analysis Date:	09-JAN-99

Dry Weight %:	N/A
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Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

SEVERN TRENT LABORATORIES

11 East Olive Road Pensacola, Florida 32514 (850) 474-1001

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Date 11-Jan-99

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	022	Sample Date/Time:	17-DEC-98 1430
Client Sample Id:	812073-06B SMW-4-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id: 025
Client Sample Id: 812073-07A SMW-5-121798
Sample Date/Time: 17-DEC-98 1350
Received Date: 19-DEC-98

Batch: TXW086
Blank: B
Dry Weight %: N/A
Extraction Date: N/A
Analysis Date: 09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	026	Sample Date/Time:	17-DEC-98 1350
Client Sample Id:	812073-07B SMW-5-121798	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %:	Analysis Date:	09-JAN-99
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.01	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	029	Sample Date/Time:	17-DEC-98 1000
Client Sample Id:	812073-08A OW-11-121898	Received Date:	19-DEC-98

Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %:	Analysis Date:	09-JAN-99
	N/A		

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.02	0.01	
ANALYST	INITIALS	LBL		

Comments:

"FINAL REPORT FORMAT - SINGLE"

Accession: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER
Analysis Method: 9020/Test Methods for Evaluating Solid and Haz Waste, SW-846, 3rd Ed.
Extraction Method: N/A
Matrix: WATER
QC Level: IIM

Lab Id:	030	Sample Date/Time:	17-DEC-98 1000
Client Sample Id:	812073-08B OW-11-121898	Received Date:	19-DEC-98
Batch: TXW086		Extraction Date:	N/A
Blank: B	Dry Weight %: N/A	Analysis Date:	09-JAN-99

Parameter:	Units:	Results:	Rpt Lmts:	Q:
TOTAL ORGANIC HALIDES	MG/L	0.1	0.01	
ANALYST	INITIALS	LBL		

Comments:

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Date 11-Jan-99

"Method Report Summary"

Accession Number: 812338
Client: PINNACLE LABORATORIES
Project Number: 812073
Project Name: GRC
Project Location: SEMI ANNUAL GROUNDWATER EVENT 1998
Test: TOTAL ORGANIC HALIDES IN WATER

Client Sample Id:	Parameter:	Unit:	Result:
812073-02A MW-2-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-02B MW-2-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-03A MW-5-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-03B MW-5-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-05A SMW-3-121798	TOTAL ORGANIC HALIDES	MG/L	0.05
812073-05B SMW-3-121798	TOTAL ORGANIC HALIDES	MG/L	0.04
812073-06A SMW-4-121798	TOTAL ORGANIC HALIDES	MG/L	0.02
812073-06B SMW-4-121798	TOTAL ORGANIC HALIDES	MG/L	0.02
812073-07A SMW-5-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-07B SMW-5-121798	TOTAL ORGANIC HALIDES	MG/L	0.01
812073-08A OW-11-121898	TOTAL ORGANIC HALIDES	MG/L	0.02
812073-08B OW-11-121898	TOTAL ORGANIC HALIDES	MG/L	0.1

Data Qualifiers for Final Report

STL-Pensacola Inorganic/Organic and AFCEE Projects (under QAPP)

J4	(For positive results)	Temperature limits exceeded ($\leq 2^{\circ}\text{C}$ or $\geq 6^{\circ}\text{C}$)
J5	(TICs)	The reported value is quantitated as a TIC; therefore, it is estimated
J6	(For positive results)	LCS or Surrogate %R is $>$ upper control limit (UCL) or $<$ lower control limit (LCL)
J7	(For positive results)	The reported value is $>$ the laboratory MDL and $<$ lowest calibration standards; therefore, the quantitation is an estimation.
J (AFCEE description)		The analyte was positively identified, the quantitation is an estimation
R1	(For nondetects)	Temperature limits exceeded ($\leq 2^{\circ}\text{C}$ or $\geq 6^{\circ}\text{C}$)
R2		Improper preservation, no preservative present in sample upon receipt
R3		Improper preservation, incorrect preservative present in sample upon receipt
R4		Holding time exceeded
R5		Collection requirements not met, improper container used for sample
R6		LCS or surrogate %R is $<$ LCL and analyte is not detected or surrogate %R is $<$ 10% for detects/nondetects
R7		Internal standard area outside -50% to +100% of initial calibration midpoint standard.
R8		Second source calibration verification exceeds acceptance criteria.
R (AFCEE description)		The data are unusable due to deficiencies in the ability to analyze the sample and meet QC criteria
F		$<$ laboratory or AFCEE RL and $>$ laboratory MDL
F (AFCEE description)		The analyte was positively identified but the associated numerical value is below the AFCEE or lab RL
U2		$<$ Laboratory MDL (value for result will be the MDL, never below the MDL)
U (AFCEE description)		The analyte was analyzed for but not detected. The associated numerical value is at or below the MDL
B (AFCEE description)		The analyte was found in the associated blank, as well as in the sample
@		Adjusted reporting limit due to sample matrix (dilution prior to digestion and/or analysis)
+		Elevated reporting limit due to dilution into calibration range
#		Elevated reporting limit due to matrix interference (dilution prior to digestion and/or analysis)
D		Elevated reporting limit due to insufficient sample size
M		Diluted out
S		A matrix effect was present (sample was analyzed twice to confirm or chromatogram had interfering peaks)
		Incorrect sample amount was submitted to the laboratory for analysis

ND = Not Detected at or above the STL-Pensacola reporting limit (RL)

N/S = Not Submitted

N/A = Not Applicable

IDL = Laboratory Instrument Detection Limit

MDL = Laboratory Method Detection Limit

RL = Reporting Limit (AFCEE RLs are listed in the AFCEE QAPP)

Any time a sample arrives at the laboratory improperly preserved (at improper pH or temperature) or after holding time has expired or prepared or analyzed after holding time, client must be notified in writing (i.e. case narrative)

Florida Projects Inorganic/Organic

Y1	Improper preservation, no preservative present in sample upon receipt
Y2	Improper preservation, incorrect preservative present in sample upon receipt
Y3	Improper preservation, sample temperature exceeded EPA temperature limits of 2-6°C upon receipt
Y (FL description)	The analysis was from an unpreserved or improperly preserved sample. Data may not be accurate
Q	Sample held beyond the accepted holding time
	The reported value is $<$ Laboratory RL and $>$ laboratory MDL
J1	The reported value is $\leq$ Laboratory MDL (value for sample result is reported as the MDL)
U (FL description)	Indicates the compound was analyzed for but not detected
T	The reported value is $<$ Laboratory MDL (value shall not be used for statistical analysis)
Y	The analyte was detected in both the sample and the associated method blank
1	Surrogate recovery limits have been exceeded
J2	The sample matrix interfered with the ability to make any accurate determinations
J3	The reported value failed to meet the established quality control criteria for either precision or accuracy
(FL description)	Estimated value; not accurate

ICR Projects Inorganic/Organic

A1	Acceptable	R6	Rejected
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Examples: ICR Flags

R6 = Laboratory extracted the sample but the refrigerator malfunctioned so the extract became warm and client was notified

R6 = Sample arrived in laboratory in good condition; however, the laboratory did not analyze it within EPA's established holding time limit

CLP and CLP-like Projects: Refer to referenced CLP Statement of Work (SOW) for explanation of data qualifiers