

1R - 208

REPORTS

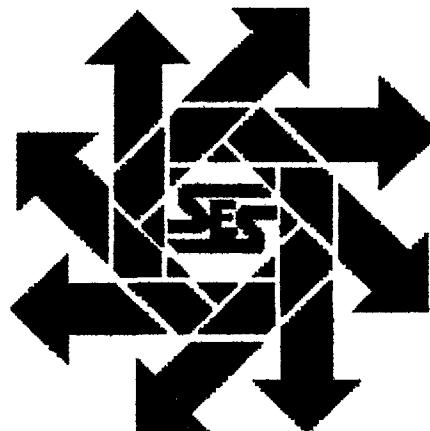
DATE:

9/2000 - MW

**Chevron USA
Dynegy – Monument Site
Monitor Well Report
Lea County, New Mexico**

September 28, 2000

COPY



RECEIVED

NOV 02 2000

**ENVIRONMENTAL BUREAU
OIL CONSERVATION DIVISION**

Prepared for:

**Chevron USA
P.O. Box 1949
Eunice, New Mexico 88231**

By:

**Safety & Environmental Solutions, Inc.
703 E. Clinton, Suite 103
Hobbs, New Mexico 88240
(505) 397-0510**

TABLE OF CONTENTS

I. Background	1
II. Work Performed	1
III. Analytical Results	2
IV. Maps and Appendices	3

I. Background

The subject property is located in Lea County approximately 5 miles southwest of Monument, New Mexico. Mr. James Cooper currently owns the surface rights of the property and the mineral rights are under lease to Chevron. The property has been the site of condensate/liquid product leaks from a pipeline previously operated by Warren Petroleum as well as an abandoned burn pit.

Safety & Environmental Solutions, Inc. (SESI) performed sampling and data collection on the six (6) ground water monitor wells at the site (See Vicinity Map). The casing size in all wells is 4".

II. Work Performed

SESI's environmental technician, Sergio Contreras, Jr., arrived at the site on September 28, 2000. Ground water samples were taken from each well after a hand bailer was used to develop the wells. Three to five casing volumes of water were removed from each well until pH and temperature of the water were stabilized. The development water was stored in a 400-gallon drum under the custody of Safety & Environmental Solutions, Inc. for disposal upon completion of analytical testing. The samples were obtained and placed in appropriate containers, preserved and transported under chain of custody to Cardinal Laboratories of Hobbs, New Mexico for analysis. (See Analytical Data)

In addition to the sampling, SESI also measured the depth to the top of the water table and the total depth of each well. The depth to the top of ground water was measured using a Solinst water level indicator. The total depth of each well was measured in order to compute the proper casing volumes. A summary of this data follows:

ID	DATE	TOP OF CASING ELEVATION	DEPTH TO WATER	GROUNDWATER POTENTIOMETRIC ELEVATION	TOTAL WELL DEPTH	FREE PRODUCT THICKNESS
MW - 1	9/28/00	3565.24'	37.58'	3527.66'	49.00'	0.00
MW - 2	9/28/00	3564.21'	36.67'	3527.54'	45.75'	0.00
MW - 3	9/28/00	3564.06'	36.47'	3527.59'	46.93'	0.00
MW - 4	9/28/00	3564.62'	36.90'	3527.72'	37.62'	0.00
MW - 5	9/28/00	3564.58'	36.81'	3527.77'	44.90'	0.00
MW - 6	9/28/00	3564.58'	37.06'	3527.52'	43.25'	0.00

III. Analytical Results

The analysis of the groundwater samples performed by Cardinal Laboratories are summarized as follows:

CONTAMINANT	WQCC STANDARD	MW #1	MW #2	MW #3	MW #4	MW #5	MW #6
Chloride	250.0ppm	2765ppm	1240ppm	1144ppm	1716ppm	2193ppm	1526ppm
Fluoride	1.6ppm	2.15ppm	2.24ppm	2.25ppm	2.29ppm	2.44ppm	2.46ppm
Lead	0.05ppm	0.509ppm	0.305ppm	0.379ppm	0.444ppm	0.483ppm	0.208ppm
Manganese	0.2ppm	<0.2ppm	0.284ppm	<0.2ppm	0.462ppm	0.397ppm	<0.2ppm
Silver	0.05ppm	0.05ppm	0.05ppm	<0.05ppm	<0.05ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	3437ppm	788ppm	800ppm	850ppm	2598ppm	823ppm
TDS	1000ppm	8854ppm	3822ppm	3764ppm	4818ppm	7926ppm	3332ppm
pH	> 6 & <9	7.33	7.33	7.12	7.35	7.15	7.37
TPH	N/A	<1.0	1.72	<1.0	3.31	1.17	<1.0
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm	<0.006ppm	<0.006ppm	<0.006ppm

SAMPLE ID	NA (MG/L)	CA (MG/L)	MG (MG/L)	K (MG/L)	CO ₃ (MG/L)	HCO ₃ (MG/L)
MW – 1	2750ppm	332ppm	248ppm	4.95ppm	0ppm	360ppm
MW – 2	1000ppm	294ppm	107ppm	5.05ppm	0ppm	885ppm
MW – 3	1085ppm	100ppm	148ppm	6.90ppm	0ppm	975ppm
MW – 4	1485ppm	132ppm	153ppm	13.71ppm	0ppm	1150ppm
MW – 5	2300ppm	256ppm	210ppm	1.75ppm	0ppm	775ppm
MW – 6	1190ppm	123ppm	102ppm	6.15ppm	0ppm	435ppm

*Red exceeds WQCC Standards

IV. Figures and Appendices

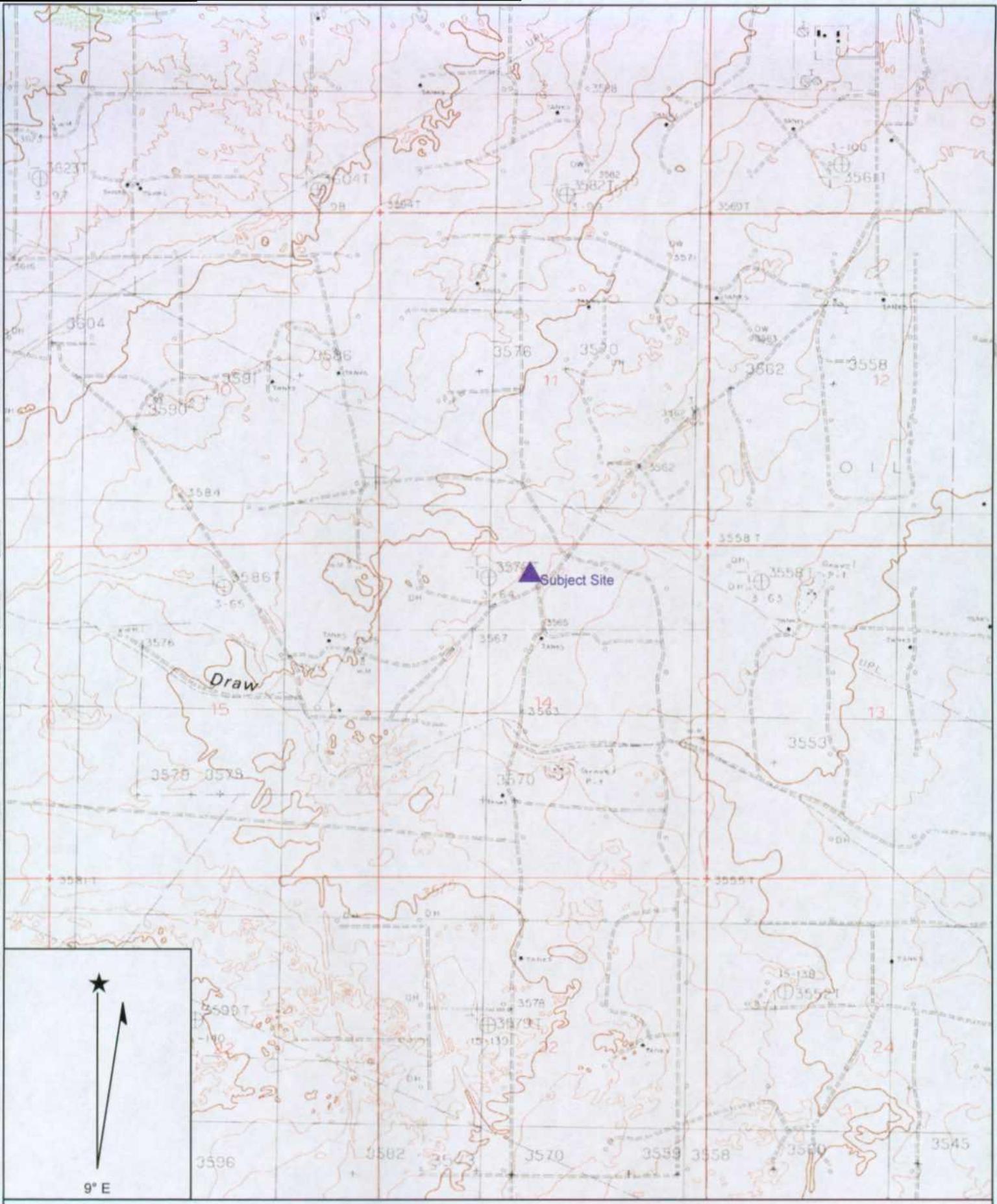
Figures:

Vicinity Map
Potentiometric Map

Appendices:

Cumulative Well Water Quality Data
Analytical Results
Water Analysis Validation

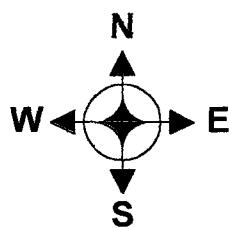
Figure 1
Vicinity Map



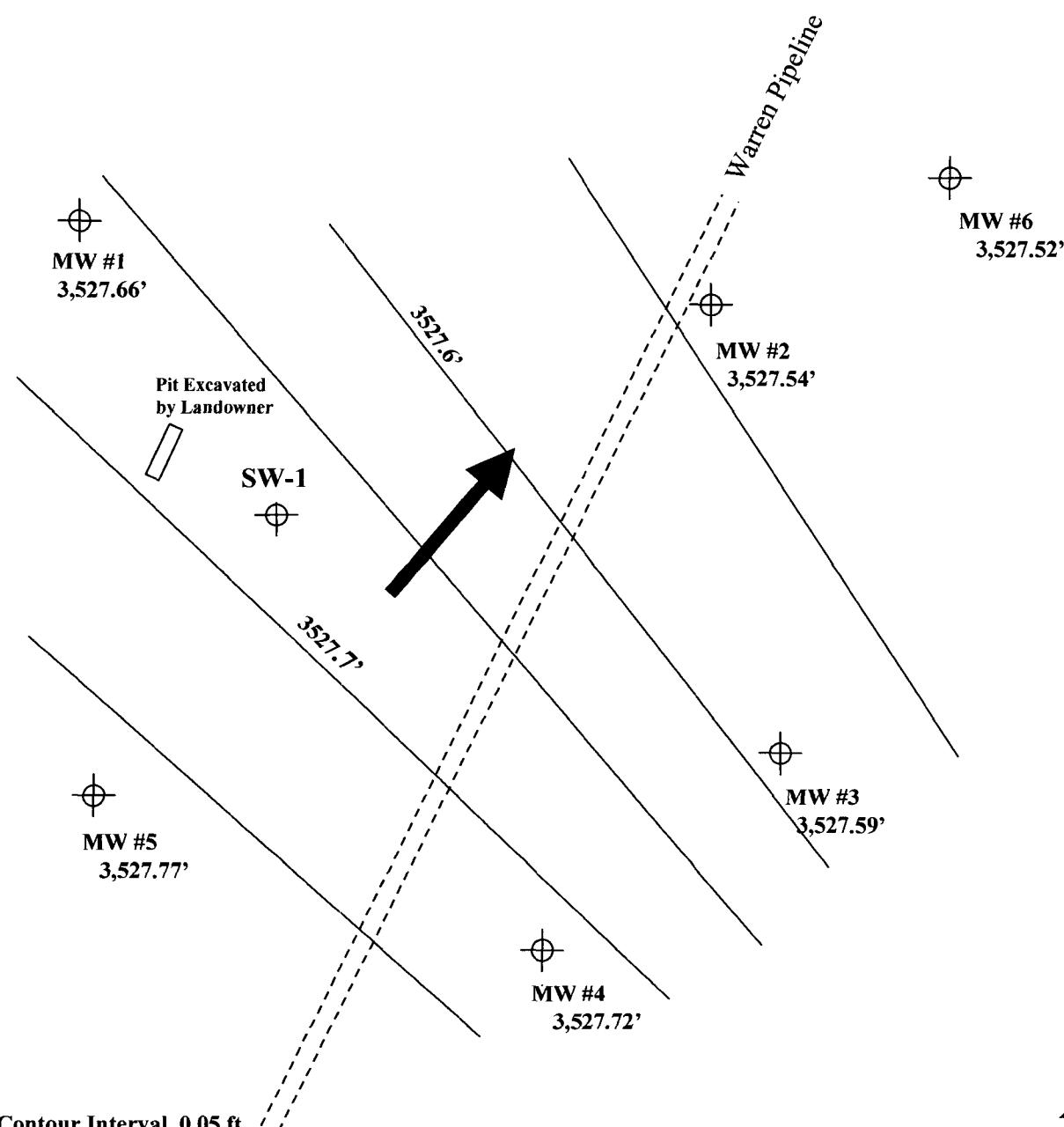
Name: MONUMENT SOUTH
Date: 10/30/2000
Scale: 1 inch equals 2000 feet

Location: 032° 34' 40.1" N 103° 19' 36.9" W
Caption: Chevron USA
Dynegy-Monument Monitor Well
Vicinity Map

Figure 2
Potentiometric Map



----- Pipeline
○ Monitor Well
→ Groundwater Flow



Chevron USA

Potentiometric Map
Dynegy Monument Site
September 28, 2000

Safety & Environmental Solutions, Inc.

Appendix A
Cumulative Well Water Quality Data

Chevron Dynegy -Monument Cumulative Well Data

Monitor Well #1

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	2291ppm	1839ppm	3130ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.04ppm	1.76ppm	4.01ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.261ppm	0.34ppm	<0.05ppm
Manganese	0.2ppm	<0.20ppm	0.24ppm	<0.20ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	0.22ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.067ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	1837ppm	2628ppm	390ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	6910ppm	7740ppm	8130ppm
pH	> 6 & <9	7.74	7.36	7.25
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	<1.0ppm	1.58ppm
Sodium	N/a	N/a	1767ppm	1558ppm
Calcium	N/a	N/a	440ppm	316ppm
Magnesium	N/a	N/a	284ppm	199ppm
Potassium	N/a	N/a	17.01ppm	30ppm
Conductivity	N/a	N/a	1929ppm	11170ppm
T-Alkalinity	N/a	N/a	224ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	273ppm	288ppm

CONTAMINANT	WQCC STANDARD	TEST DATE 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	2433ppm	2405ppm	2765ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.90ppm	1.97ppm	2.15ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.597ppm	<0.05ppm	0.509ppm
Manganese	0.2ppm	<0.2ppm	<0.2ppm	<0.2ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	0.051ppm	0.302ppm	0.05ppm
Sulfate	600ppm	2899ppm	2773ppm	3437ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	9212	8876ppm	8854ppm
pH	> 6 & <9	7.26	7.55	7.33
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	<1.0	1.39	<1.0
Sodium	N/a	2065ppm	1643ppm	2750ppm
Calcium	N/a	445ppm	525ppm	332ppm
Magnesium	N/a	417ppm	334ppm	248ppm
Potassium	N/a	11.6ppm	8.01ppm	4.95ppm
Conductivity	N/a	11.46ppm	11170ppm	10809ppm
T-Alkalinity	N/a	232ppm	244ppm	295ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	282ppm	298ppm	360ppm

Monitor Well #2

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	1395ppm	934ppm	1520ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.01ppm	1.85ppm	4.04ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.195ppm	0.21ppm	<0.05ppm
Manganese	0.2ppm	0.225ppm	0.48ppm	.310ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	0.20ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.060ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	508ppm	874ppm	157ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	4060ppm	7740ppm	3540ppm
PH	> 6 & <9	7.60	7.38	7.23
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	0.004ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	10.3ppm	5.17ppm
Sodium	N/a	N/a	934ppm	927ppm
Calcium	N/a	N/a	200ppm	154ppm
Magnesium	N/a	N/a	160ppm	92ppm
Potassium	N/a	N/a	10.99ppm	20ppm
Conductivity	N/a	N/a	1881ppm	6170ppm
T-Alkalinity	N/a	N/a	508ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	620ppm	610ppm

CONTAMINANT	WQCC STANDARD	INITIAL TEST 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	1216ppm	1296ppm	1240ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.87	1.93	2.24ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.580ppm	<0.05ppm	0.305ppm
Manganese	0.2ppm	0.324ppm	0.320ppm	0.284ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	<0.05ppm	0.198ppm	0.05ppm
Sulfate	600ppm	1180ppm	948ppm	788ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	3898ppm	3988ppm	3822ppm
pH	> 6 & <9	7.18	7.41	7.33
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002	0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006	<0.006ppm	<0.006ppm
TPH	N/a	2.36	<1.0	1.72
Sodium	N/a	N/a	N/a	1000ppm
Calcium	N/a	186ppm	208ppm	294ppm
Magnesium	N/a	152ppm	157ppm	107ppm
Potassium	N/a	6.8	2.46	5.05ppm
Conductivity	N/a	5770ppm	5757ppm	5447ppm
T-Alkalinity	N/a	552ppm	588ppm	726ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	673ppm	717ppm	885ppm

Monitor Well #3

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	948ppm	1095ppm	1414ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.12ppm	1.74ppm	4.03ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.242ppm	0.18ppm	<0.05ppm
Manganese	0.2ppm	<0.20ppm	0.24ppm	<0.20ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	0.20ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.053ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	505ppm	971ppm	186ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	3700ppm	3930ppm	3610ppm
PH	> 6 & <9	7.32	7.23	7.22
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	2.52ppm	<1.0ppm
Sodium	N/a	N/a	827ppm	881ppm
Calcium	N/a	N/a	96ppm	95ppm
Magnesium	N/a	N/a	272ppm	149ppm
Potassium	N/a	N/a	11.85ppm	24ppm
Conductivity	N/a	N/a	1850ppm	1850ppm
T-Alkalinity	N/a	N/a	620ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	756ppm	747ppm

CONTAMINANT	WQCC STANDARD	INITIAL TEST 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	1086ppm	1033ppm	1144ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.92ppm	2.02ppm	2.25ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.611ppm	<0.05ppm	0.379ppm
Manganese	0.2ppm	<0.2ppm	<0.2ppm	<0.2ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	<0.05ppm	0.200ppm	<0.05ppm
Sulfate	600ppm	1230ppm	971ppm	800ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	4058ppm	3848ppm	3764ppm
pH	> 6 & <9	7.08	7.26	7.12
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	1.47	<1.0	<1.0
Sodium	N/a	N/a	N/a	1085ppm
Calcium	N/a	158ppm	142ppm	100ppm
Magnesium	N/a	236ppm	238ppm	148ppm
Potassium	N/a	8.5ppm	4.35ppm	6.90ppm
Conductivity	N/a	5550ppm	5372ppm	5117ppm
T-Alkalinity	N/a	624ppm	664ppm	800ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	761ppm	810ppm	975ppm

Monitor Well #4

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	1893ppm	1612ppm	2220ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.12ppm	1.68ppm	4.04ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.239ppm	0.20ppm	<0.05ppm
Manganese	0.2ppm	0.475ppm	0.71ppm	.417ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	0.22ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.059ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	651ppm	1088ppm	187ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	6200ppm	5190ppm	4770ppm
PH	> 6 & <9	7.51	7.30	7.30
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	2.76ppm	<1.0ppm
Sodium	N/a	N/a	1167ppm	1393ppm
Calcium	N/a	N/a	176ppm	136ppm
Magnesium	N/a	N/a	272ppm	159ppm
Potassium	N/a	N/a	20.83ppm	32ppm
Conductivity	N/a	N/a	1812ppm	1812ppm
T-Alkalinity	N/a	N/a	720ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	878ppm	891ppm

CONTAMINANT	WQCC STANDARD	TEST DATE 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	1554ppm	1691ppm	1716ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.83ppm	1.98ppm	2.29ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.603ppm	<0.05ppm	0.444ppm
Manganese	0.2ppm	0.403ppm	0.435ppm	0.462ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	<0.05ppm	0.249ppm	<0.05ppm
Sulfate	600ppm	1040ppm	804ppm	850ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	4730ppm	5144ppm	4818ppm
pH	> 6 & <9	7.52	7.39	7.35
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006	<0.006ppm	<0.006ppm
TPH	N/a	1.11	<1.0	3.31
Sodium	N/a	1224ppm	822ppm	1485ppm
Calcium	N/a	178ppm	242ppm	132ppm
Magnesium	N/a	228ppm	217ppm	153ppm
Potassium	N/a	12.1ppm	12.39ppm	13.71ppm
Conductivity	N/a	6950ppm	7380ppm	6737ppm
T-Alkalinity	N/a	800ppm	840ppm	943ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	673ppm	1025ppm	1150ppm

Monitor Well #5

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	2092ppm	2139ppm	2320ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.32ppm	1.88ppm	4.04ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.264ppm	0.27ppm	<0.05ppm
Manganese	0.2ppm	0.476ppm	0.57ppm	.404ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	1.92ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.061ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	2278ppm	2259ppm	387ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	7260ppm	8230ppm	7000ppm
PH	> 6 & <9	7.23	7.10	7.44
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	2.90ppm	<1.0ppm
Sodium	N/a	N/a	1600ppm	1285ppm
Calcium	N/a	N/a	336ppm	206ppm
Magnesium	N/a	N/a	360ppm	210ppm
Potassium	N/a	N/a	44.35ppm	40ppm
Conductivity	N/a	N/a	1760ppm	10650ppm
T-Alkalinity	N/a	N/a	490ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	598ppm	671ppm

CONTAMINANT	WQCC STANDARD	INITIAL TEST 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	2059ppm	2104ppm	2193ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.98ppm	2.10ppm	2.44ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.747ppm	<0.005ppm	0.483ppm
Manganese	0.2ppm	0.380ppm	0.402ppm	0.397ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	0.103ppm	0.327ppm	<0.05ppm
Sulfate	600ppm	2254ppm	2247ppm	2598ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	8054ppm	7744ppm	7926ppm
pH	> 6 & <9	7.14	7.38	7.15
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	2.38	<1.0	1.17
Sodium	N/a	N/a	N/a	2300ppm
Calcium	N/a	283ppm	333ppm	256ppm
Magnesium	N/a	441ppm	349ppm	210ppm
Potassium	N/a	14.5ppm	13.38ppm	1.75ppm
Conductivity	N/a	10370ppm	10210ppm	9956ppm
T-Alkalinity	N/a	532ppm	560ppm	636ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	649ppm	683ppm	775ppm

Monitor Well #6

CONTAMINANT	WQCC STANDARD	INITIAL TEST 4/08/99	TEST DATE 9/23/99	TEST DATE 12/09/99
Arsenic	0.1ppm	<0.1ppm	N/a	N/a
Barium	1.0ppm	<1.0ppm	N/a	N/a
Cadmium	0.01ppm	<0.01ppm	N/a	N/a
Chloride	250.0ppm	785ppm	933ppm	1310ppm
Chromium	0.05ppm	<0.05ppm	N/a	N/a
Copper	1.0ppm	<1.0ppm	N/a	N/a
Cyanide	0.2ppm	<0.02ppm	N/a	N/a
Fluoride	1.6ppm	2.30ppm	1.94ppm	4.04ppm
Iron	1.0ppm	<1.0ppm	N/a	N/a
Lead	0.05ppm	.208ppm	0.16ppm	<0.05ppm
Manganese	0.2ppm	<0.20ppm	<0.20ppm	<0.20ppm
Mercury	0.002ppm	<0.002ppm	N/a	N/a
Nitrate	10.0ppm	0.13ppm	N/a	N/a
Phenols	0.005ppm	<0.005ppm	N/a	N/a
Selenium	0.05ppm	<0.05ppm	N/a	N/a
Silver	0.05ppm	0.056ppm	<0.05ppm	<0.05ppm
Sulfate	600ppm	399ppm	501ppm	76ppm
Zinc	10.0ppm	<1.0ppm	N/a	N/a
TDS	1000.0ppm	2800ppm	2640ppm	2090ppm
pH	> 6 & <9	7.61	7.32	7.33
PAH	0.03ppm	<0.005ppm	N/a	N/a
PCBs	0.001ppm	<0.001ppm	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	N/a	2.66ppm	<1.0ppm
Sodium	N/a	N/a	578ppm	728ppm
Calcium	N/a	N/a	144ppm	115ppm
Magnesium	N/a	N/a	122ppm	84ppm
Potassium	N/a	N/a	6.49ppm	22ppm
Conductivity	N/a	N/a	1796ppm	4770ppm
T-Alkalinity	N/a	N/a	290ppm	N/a
CO ₃	N/a	N/a	0ppm	0ppm
HCO ₃	N/a	N/a	354ppm	390ppm

CONTAMINANT	WQCC STANDARD	TEST DATE 3/25/00	TEST DATE 6/14/00	TEST DATE 9/28/00
Arsenic	0.1ppm	N/a	N/a	N/a
Barium	1.0ppm	N/a	N/a	N/a
Cadmium	0.01ppm	N/a	N/a	N/a
Chloride	250.0ppm	1104ppm	1090ppm	1526ppm
Chromium	0.05ppm	N/a	N/a	N/a
Copper	1.0ppm	N/a	N/a	N/a
Cyanide	0.2ppm	N/a	N/a	N/a
Fluoride	1.6ppm	1.97ppm	2.03ppm	2.46ppm
Iron	1.0ppm	N/a	N/a	N/a
Lead	0.05ppm	0.770ppm	<0.05ppm	0.208ppm
Manganese	0.2ppm	<0.2ppm	<0.2ppm	<0.2ppm
Mercury	0.002ppm	N/a	N/a	N/a
Nitrate	10.0ppm	N/a	N/a	N/a
Phenols	0.005ppm	N/a	N/a	N/a
Selenium	0.05ppm	N/a	N/a	N/a
Silver	0.05ppm	0.088ppm	0.250ppm	<0.05ppm
Sulfate	600ppm	533ppm	694ppm	823ppm
Zinc	10.0ppm	N/a	N/a	N/a
TDS	1000.0ppm	3096ppm	3244ppm	3332ppm
pH	> 6 & <9	7.33	7.44	7.37
PAH	0.03ppm	N/a	N/a	N/a
PCBs	0.001ppm	N/a	N/a	N/a
Benzene	0.01ppm	<0.002ppm	<0.002ppm	<0.002ppm
Toluene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Ethyl Benzene	0.75ppm	<0.002ppm	<0.002ppm	<0.002ppm
Total Xylenes	0.62ppm	<0.006ppm	<0.006ppm	<0.006ppm
TPH	N/a	<1.0	<1.0	<1.0
Sodium	N/a	N/a	N/a	1190ppm
Calcium	N/a	182ppm	200ppm	123ppm
Magnesium	N/a	133ppm	152ppm	102ppm
Potassium	N/a	5.9ppm	2.46ppm	6.15ppm
Conductivity	N/a	4700ppm	4721ppm	4872ppm
T-Alkalinity	N/a	316ppm	320ppm	357ppm
CO ₃	N/a	0ppm	0ppm	0ppm
HCO ₃	N/a	386ppm	390ppm	435ppm

Appendix B Analytical Results



PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
 PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**ANALYTICAL RESULTS FOR
 SAFETY & ENVIRONMENTAL SOLUTIONS, INC.**
ATTN: DEE WHATLEY
703 E. CLINTON, STE. 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/28/00
 Reporting Date: 10/02/00
 Project Owner: CHEVRON
 Project Name: DYNEGY
 Project Location: MONUMENT

Sampling Date: 09/28/00
 Sample Type: GROUNDWATER
 Sample Condition: COOL & INTACT
 Sample Received By: GP
 Analyzed By: AH

LAB NUMBER	SAMPLE ID	Na (mg/L)	Ca (mg/L)	Mg (mg/L)	K (mg/L)	Conductivity (μ S/cm)	T-Alkalinity (mgCaCO ₃ /L)
------------	-----------	--------------	--------------	--------------	-------------	-------------------------------	--

ANALYSIS DATE:		10/02/00	09/29/00	09/29/00	09/29/00	09/29/00	09/29/00
H5219-1	MW #1	2750	332	248	4.95	10809	295
H5219-2	MW #2	1000	294	107	5.05	5447	726
H5219-3	MW #3	1085	100	148	6.90	5117	800
H5219-4	MW #4	1485	132	153	13.71	6737	943
H5219-5	MW #5	2300	266	210	1.75	9958	636
H5219-6	MW #6	1190	123	102	6.15	4872	357
Quality Control		2.051	44	55	4.72	1368	NR
True Value QC		2.000	50	50	5.00	1413	NR
% Recovery		103	88	110	94.3	88.7	NR
Relative Percent Difference		1.7	4.5	1.8	7.0	0.1	NR
METHODS:		273.1	3500-Ca-D	3500-Mg E	8049	120.1	310.1

	Cl ⁻ (mg/L)	SO ₄ (mg/L)	CO ₃ (mg/L)	HCO ₃ (mg/L)	pH (s.u.)	TDS (mg/L)
--	---------------------------	---------------------------	---------------------------	----------------------------	--------------	---------------

ANALYSIS DATE:		09/29/00	09/29/00	09/29/00	09/29/00	09/29/00	10/02/00
H5219-1	MW #1	2765	3437	0	360	7.33	8854
H5219-2	MW #2	1240	788	0	885	7.33	3822
H5219-3	MW #3	1144	800	0	975	7.12	3764
H5219-4	MW #4	1716	850	0	1150	7.35	4818
H5219-5	MW #5	2193	2598	0	775	7.15	7926
H5219-6	MW #6	1526	823	0	435	7.37	3332
Quality Control		971	56.50	NR	1000	7.04	NR
True Value QC		1000	50.00	NR	1000	7.00	NR
% Recovery		97.1	113	NR	100	101	NR
Relative Percent Difference		0.9	8.8	NR	8.8	0	NR
METHODS:	SM4500-Cl-B	375.4	310.1	310.1	150.1	160.1	


 Chemist

10/02/2000
 Date



PHONE (915) 675-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 393-2326 • 101 E. MARLAND • HOBBS, NM 88240

**ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.
ATTN: DEE WHATLEY
703 E. CLINTON, STE. 103
HOBBS, NM 88240
FAX TO:**

Receiving Date: 09/26/00
Reporting Date: 10/02/00
Project Owner: CHEVRON
Project Name: DYNEGY
Project Location: MONUMENT

Sampling Date: 09/26/00
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: AH

LAB NUMBER	SAMPLE ID	F ⁻ (mg/L)	Ag (mg/L)	Mn (mg/L)	Pb (mg/L)
ANALYSIS DATE		09/29/00	09/29/00	09/29/00	09/29/00
H5219-1	MW #1	2.15	0.05	<0.2	0.508
H5219-2	MW #2	2.24	0.05	0.284	0.305
H5219-3	MW #3	2.25	<0.05	<0.2	0.379
H5219-4	MW #4	2.29	<0.05	0.462	0.444
H5219-5	MW #5	2.44	<0.05	0.397	0.483
H5219-6	MW #6	2.46	<0.05	<0.2	0.208
Quality Control		1.02	4.995	1.011	5.149
True Value QC		1.00	5.000	1.000	5.000
% Accuracy		102	99.1	101	103
Relative Percent Difference		0	0.4	0.8	1.8
METHODS:	EPA 600/4-79-020	*4500-F'D	272.1	243.1	239.1
	*Std. Methods				

Sayle W. Brown
Chemist

10/02/2000
Date



PHONE (915) 673-7001 • 2111 BEECHWOOD • ABILENE, TX 79603
PHONE (505) 383-2328 • 101 E. MARLAND • HOBBS, NM 88240

**ANALYTICAL RESULTS FOR
SAFETY & ENVIRONMENTAL SOLUTIONS, INC.**
ATTN: DEE WHATLEY
703 E. CLINTON, STE. 103
HOBBS, NM 88240
FAX TO:

Receiving Date: 09/28/00
Reporting Date: 10/02/00
Project Owner: CHEVRON
Project Name: DYNEGY
Project Location: MONUMENT

Sampling Date: 09/28/00
Sample Type: GROUNDWATER
Sample Condition: COOL & INTACT
Sample Received By: GP
Analyzed By: BC

LAB NO.	SAMPLE ID	TPH (mg/L)	BENZENE (mg/L)	TOLUENE (mg/L)	ETHYL BENZENE (mg/L)	TOTAL XYLEMES (mg/L)
ANALYSIS DATE:		09/29/00	09/28/00	09/28/00	09/28/00	09/28/00
H5219-1	MW #1	<1.0	<0.002	<0.002	<0.002	<0.006
H5219-2	MW #2	1.72	<0.002	<0.002	<0.002	<0.006
H5219-3	MW #3	<1.0	<0.002	<0.002	<0.002	<0.006
H5219-4	MW #4	3.31	<0.002	<0.002	<0.002	<0.006
H5219-5	MW #5	1.17	<0.002	<0.002	<0.002	<0.006
H5219-6	MW #6	<1.0	<0.002	<0.002	<0.002	<0.006
Quality Control		12.5	0.090	0.102	0.105	0.310
True Value QC		12.0	0.100	0.100	0.100	0.300
% Recovery		104	90.0	102	105	103
Relative Percent Difference		11.5	2.5	5.9	4.3	2.6

METHODS: TRPHC - EPA 600/4-79-020, 418.1; BTEX - EPA SW-846 8260

Dee Whatley
Chemist

10/2/00
Date

H5219B.XLS

PLEASE NOTE: **Liability and Damages.** Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its Subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above-stated reasons or otherwise.



ARDINAL LABORATORIES, INC.

2111 Beechwood, Abilene, TX 79603 101 East Marland, Hobbs, NM 88240
 (915) 673-7001 Fax (915) 673-7020 (505) 393-2326 Fax (505) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Page _____ of _____

Company Name: S E S T

Project Manager: Dave Wiltse

Address:

City:

Phone #:

Fax #:

Project #: Project

Project Name: Project

Project Location: 1100 N 4th St

FOR LAB USE ONLY

(G)RAB OR (C)OMP.

CONTAINERS

GROUNDWATER	MATRIX	PRES.	SAMPLING
G			
WASTEWATER			
SOIL			
OIL			
SLUDGE			
OTHER :			
ACID:			
ICE / COOL			
OTHER :			

LAB I.D. Sample I.D.

DATE TIME

2-28-00 12:00

HS219-1
-2
-3
-4
-5
-6

C4
C4
C4
C3
C4
C4

BTEx
TPH 4/8.1
Flouride
Cations
Anions
Mn
Pb
Ag

PLEASE NOTE: Liability and Damage: Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analysis. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless set in writing and received by Cardinal within 30 days after completion of the applicable services. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, purchase interruptions, loss of use, or loss of profits incurred by client. In addition, client waives all rights to sue Cardinal for any claim arising from the performance of services rendered by Cardinal regardless of whether such claim is based upon any of the above stated reasons or otherwise.

TERMS AND CONDITIONS: Interest will be charged on all accounts more than 30 days past due at the rate of 2% per annum from the original date of invoice, and all costs of collection, including attorney's fees.

Sample Relinquished: Date: 2/28/00 Time: 12:00 Received By: Lab Staff

REMARKS:
 Phone Result: Yes No Additional Fax #:

Fax Result: Yes No

Delivered By: (Circle One)
 Relinquished By: Dave Wiltse

Sample - UPS - Bus - Other: Sample

Sample Condition
 Yes
 No

Sample Condition
 Yes
 No

† Cardinal cannot accept verbal changes. Please fax written changes to 915-673-7020.

Appendix C Water Analysis Validation

Cations and Anions Calculation Check							
	Sample Name	H5219-1	H5219-2	H5219-3	H5219-4	H5219-5	H5219-6
	Well Number	MW1	MW2	MW3	MW4	MW5	MW6
	Date	09/28/00	09/28/00	09/28/00	09/28/00	09/28/00	09/28/00
Equivalent Weight:	Lab	Cardinal	Cardinal	Cardinal	Cardinal	Cardinal	Cardinal
22.99	Sodium (mg/L)	2,750	1,000	1,085	1,485	2,300	1,190
20.04	Calcium (mg/L)	332	294	100	132	256	123
12.15	Magnesium (mg/L)	248	107	148	153	210	102
39.09	Potassium (mg/L)	5.0	5.1	6.9	13.7	1.8	6.2
35.45	Chloride (mg/L)	2,765	1,240	1,144	1,716	2,193	1,526
48.04	Sulfate (mg/L)	3,437	788	800	850	2,598	823
30.00	Carbonate (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
61.01	Bicarbonate (mg/L)	360	885	975	1150	775	435
50.04	Alkalinity (mg/L CaCO ₃)	295	726	800	943	636	357
62.00	Nitrate (mg/L)	0.0	0.0	0.0	0.0	0.0	0.0
	Sum Cations (meq/L)	156.7	67.1	64.5	84.1	130.2	66.5
	Sum Anions (meq/L)	155.4	65.9	64.9	84.9	128.7	67.3
	Percent Difference	-0.4	-0.9	0.3	0.5	-0.6	0.6
	Measured TDS (evap., mg/L)	8,854	3,822	3,764	4,818	7,926	3,332
	TDS (calc. USGS sum, mg/L)	9,714	3,870	3,764	4,916	7,940	3,984
	TDS (meas.) / TDS (calc. USGS)	0.9	1.0	1.0	1.0	1.0	0.8
	TDS (calc. sum, mg/L)	9,897	4,319	4,259	5,500	8,334	4,205
	Elect. Conductivity (umhos/cm)	10,809	5,447	5,117	6,737	9,956	4,872
	TDS (C*0.7, mg/L)	7,566	3,813	3,582	4,716	6,969	3,410
	TDS (calc. USGS) / Conductivity	0.90	0.71	0.74	0.73	0.80	0.82
Test Criteria							
1. Anion-Cation Balance:		Anion Sum	Max % diff.				
		0 - 3.0	± 0.2				
		3.0 - 10.0	± 2				
		10.0 - 800	± 5				
2. TDS, Measured to Calculated:		1.0 < (measured TDS/calculated TDS) < 1.2					
3. TDS (calculated USGS) to EC Ratio:		Calculated TDS/conductivity = 0.55 - 0.7					