ATTACHMENT 13

Formation Water Analysis

WATER QUALITY DATA - TULARE SOURCE WELLS			
WELL	AVERAGE TDS CONCENTRATION (ppm)	YEAR	REMARKS
43WS-13B	4,485	1993	Active Source well
284WS-13B	4,545	1993	Active Source Well
282WS-14B	5,820	1993	Active Source Well
45WS-18G	6,142	1993	Active Source Well
86WS-18G	5,665	1993	Active Source Well
1MW-23S	2,950	1994	Monitoring Well
48-9G	7,168	1978	Sample above Amnicola Clay. Well Abandoned.*
48-9G	11,788	1978	Sample below Amnicola Clay. Well Abandoned.*
57WS-9G	6,570	1979	Sample above Amnicola Clay. Well Abandoned.*
57WS-9G	11,752	1979	Sample below Amnicola Clay. Well Abandoned.*
61WS-8R	7,009	1987	Well shut-in.*
57WS-20S	5,139	1979	Well shut-in.*
* Data taken from Phillips (1992)			

Source: Bechtel Petroleum Operations, Inc., 1995.

STATISTICAL ANALYSIS OF DATA FOR 1993 TULARE WATER SOURCE WELL #45WS-18G (mg/kg)				
CONSTITUENT	MEAN (x)	AVG TEST STAT (t^*)	CRITICAL TEST STAT (t_c)	SIGNIFICANT INCREASE?
Antimony	<0.20	N/A	N/A	No
Arsenic	0.0195	2.6132	3.712	No
Barium	<0.10	N/A	N/A	No
Beryllium	<0.01	N/A	N/A	No
Cadmium	<0.01	N/A	N/A	No
Chromium	<0.05	N/A	N/A	No
Cobalt	<0.10	N/A	N/A	No
Copper	<0.05	N/A	N/A	No
Lead	<0.05	N/A	N/A	No
Mercury	<0.002	N/A	N/A	No
Molybdenum	<0.10	N/A	N/A	No
Nickel	<0.05	N/A	N/A	No
Selenium+	0.0057	N/A	N/A	No
Silver	<0.02	N/A	N/A	No
Thallium	<0.2	N/A	N/A	No
Vanadium	<0.1	N/A	N/A	No
Zinc+	0.0553	-0.0381	3.712	No
Sodium	1300.01	0.3377	3.712	No
Chloride	2759.98	2.0380	3.712	No
Sulfate	814.98	-1.7172	3.712	No
Boron	13.00	2.6404	3.712	No
TDS (Grav)	6142.49	1.6634	3.712	No

+ Cohen's method was used to calculate the summary statistics

Source: Bechtel Petroleum Operations, Inc., 1995.

STATISTICAL ANALYSIS OF DATA FOR 1993 TULARE WATER SOURCE WELL #284WS-13B (mg/kg)				
CONSTITUENT	MEAN (x)	AVG TEST STAT (t^*)	CRITICAL TEST STAT (t_c)	SIGNIFICANT INCREASE?
Antimony	<0.20	N/A	N/A	No
Arsenic+	0.0047	0.00	3.712	No
Barium	<0.10	N/A	N/A	No
Beryllium	<0.01	N/A	N/A	No
Cadmium	<0.01	N/A	N/A	No
Chromium	<0.05	N/A	N/A	No
Cobalt	<0.10	N/A	N/A	No
Copper	<0.05	N/A	N/A	No
Lead	<0.05	N/A	N/A	No
Mercury	<0.002	N/A	N/A	No
Molybdenum	<0.10	N/A	N/A	No
Nickel	<0.05	N/A	N/A	No
Selenium	<0.005	N/A	N/A	No
Silver	<0.02	N/A	N/A	No
Thallium	<0.2	N/A	N/A	No
Vanadium	<0.1	N/A	N/A	No
Zinc	<0.5	N/A	N/A	No
Sodium	1132.49	-0.3438	3.712	No
Chloride	1352.51	-0.4893	3.712	No
Sulfate	1467.49	0.0907	3.712	No
Boron	4.38	-0.6871	3.712	No
TDS (Grav)	4544.97	-0.7156	3.712	No

+ Cohen's method was used to calculate the summary statistics

Source: Bechtel Petroleum Operations, Inc., 1995.

BAKER PETROLITE
A Baker Hughes company

EPA FRS ID No. 110012191430

Note: WATER SAMPLE COLLECTED FROM 33S PLANT. WATER SOURCED FROM WATER SOURCE WELLS IN SECTIONS 18G, 13B, and 14B, AND COMMINGLED TOGETHER.

Water Analysis Report by Baker Petrolite

OXY USA INCORPORATED
ELK HILLS
WELL #33 S
TULARE WATER

Account Manager
CLYDE REESE

Summary	
Sampling Date	8/7/98
Analysis Date	8/14/98
Analyst	SHEILA DEARMAN
TDS (mg/l or g/m³)	4692.19
Density (g/cm³ or tonne/m³)	1.004
Anion/Cation Ratio	1.00
Carbon Dioxide	
Oxygen	

Analysis of Sample 21813 @ 75°F

Anions	mg/l	meq/l	Cations	mg/l	meq/l
Chloride	1661	46.9	Sodium	1179	51.3
Bicarbonate	220	3.61	Magnesium	91.0	7.49
Carbonate	0.00	0.00	Calcium	327	16.3
Sulfate	1200	25.0	Strontium	4.00	0.09
Phosphate	N/A	N/A	Barium	0.05	0.00
Borate	N/A	N/A	Iron	0.10	0.00
Silicate	N/A	N/A	Potassium	10.0	0.26
			Aluminum	N/A	N/A
			Chromium	N/A	N/A
			Copper	N/A	N/A
pH at time of sampling		7.00	Lead	N/A	N/A
pH at time of analysis			Manganese	N/A	N/A
pH used in Calculations		7.00	Nickel	N/A	N/A

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000bbl										
Temp.	Gauge Press.	Calcite $CaCO_3$		Gypsum $CaSO_4 \cdot 2H_2O$		Anhydrite $CaSO_4$		Celestite $SrSO_4$		Barite $BaSO_4$		CO_2 Press.
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0.	-0.05		-0.46		-0.52		-0.68		0.56	0.02	0.27
120	0.	0.22	6.66	-0.46		-0.38		-0.65		0.28	0.01	0.44
160	0.	0.51	16.6	-0.42		-0.15		-0.58		0.11	0.01	0.64
200	0.	0.83	27.2	-0.36		0.15	88.9	-0.49		0.02	0.00	0.84
240	10.3	1.16	37.2	-0.29		0.48	225	-0.38		-0.01		1.03

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.
Note 3: The reported CO_2 pressure is actually the calculated CO_2 fugacity. It is usually nearly the same as the CO_2 partial pressure.

PRODUCT WARRANTY, DISCLAIMER AND LIMITATION OF LIABILITY ARE FOUND ON THE BACK OF THIS SHEET