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RESULT OF WATER ANALYSES

TO: Mr. Mike Burton LABORATORY NO. 1206111
Oil Heat Illinois, Suite 500, Midland, TX SAMPLE RECEIVED 12-12-86
RESULTS REPORTED 12-15-86

COMPANY Santa Fe Energy Company LEASE N.M. "D" Federal #1
FIELD OR POOL Wildcat
SECTION BLOCK SURVEY COUNTY Lea STATE NM
SOURCE OF SAMPLE AND DATE TAKEN:

- NO. 1 Recovery water - top of recovery. 12-11-86
NO. 2 Recovery water - middle of recovery. 12-11-86
NO. 3 Recovery water - sampler. 12-11-86
NO. 4 Recovery water - bottom of recovery. 12-11-86

REMARKS: DST #7 - Wolfcamp - Samples submitted by Baker

CHEMICAL AND PHYSICAL PROPERTIES

	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60° F.	1.0031	1.0118	1.0292	
pH When Sampled				
pH When Received	9.77	12.31	9.23	
Bicarbonate as HCO ₃	205	1,536	159	
Supersaturation as CaCO ₃				
Undersaturation as CaCO ₃				
Total Hardness as CaCO ₃	30	40	2,975	
Calcium as Ca	4	6	1,140	
Magnesium as Mg	5	9	50	
Sodium and/or Potassium	532	4,583	12,434	
Sulfate as SO ₄	350	4,559	5,888	
Chloride as Cl	270	1,150	16,760	2,876
Iron as Fe	0.40	0.40	0.80	
Barium as Ba				
Turbidity, Electric				
Color as Pt				
Total Solids, Calculated	1,886	13,570	26,484	
Temperature °F.				
Carbon Dioxide, Calculated				
Dissolved Oxygen, Winkler				
Hydrogen Sulfide	0.0	0.0	0.0	
Resistivity, ohms/m at 77° F.	3.70	0.570	0.233	
Suspended Oil				
Filtrable Solids as mg/l				
Volume Filtered, ml				
Carbonate, as CO ₂	120	1.440	72	

Results Reported As Milligrams Per Liter

Additional Determinations And Remarks The above results show some significant changes in the water at the sampler, but we are not confident that this is the result of any natural connate water as the high pH and ratios of salts suggest that this is possibly a light-weight commercial brine.

Note: Insufficient water in sample from bottom of recovery to make any other determination.

By Waylan C. Martin, R.A.