

TRETOLITE®

Chemicals and Services

PETROLITE

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WATER ANALYSIS REPORT

Company : YATES PETROLEUM Date : 10/29/92
Address : ARTESIA, NEW MEXICO Date Sampled : 10/27/92
Lease : FLAMENCO FEDERAL Analysis No. : 930
Well : SWD #1
Sample Pt. : WELLHEAD 7-22-92

ANALYSIS		mg/L	* meq/L	
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1.	pH	6.0		
2.	H2S	3 PPM		
3.	Specific Gravity	1.190		
4.	Total Dissolved Solids	310062.2		
5.	Suspended Solids	NR		
6.	Dissolved Oxygen	NR		
7.	Dissolved CO2	100 PPM		
8.	Oil In Water	NR		
9.	Phenolphthalein Alkalinity (CaCO3)			
10.	Methyl Orange Alkalinity (CaCO3)	30.0		
11.	Bicarbonate	HCO3 36.6	HCO3	0.6
12.	Chloride	Cl 192445.3	Cl	5428.6
13.	Sulfate	SO4 300.0	SO4	6.2
14.	Calcium	Ca 29883.6	Ca	1491.2
15.	Magnesium	Mg 3704.8	Mg	304.8
16.	Sodium (calculated)	Na 83671.8	Na	3639.5
17.	Iron	Fe 20.0		
18.	Barium	Ba NR		
19.	Strontium	Sr NR		
20.	Total Hardness (CaCO3)	89880.8		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt	X meq/L	= mg/L
1491 *Ca <----- *HCO3	Ca(HCO3)2	81.0	0.6	49
----- /----->	CaSO4	68.1	6.2	425
305 *Mg -----> *SO4	CaCl2	55.5	1484.4	82367
----- <----- /	Mg(HCO3)2	73.2		
3639 *Na -----> *Cl	MgSO4	60.2		
-----	MgCl2	47.6	304.8	14510
Saturation Values Dist. Water: 20 C	NaHCO3	84.0		
CaCO3 13 mg/L	Na2SO4	71.0		
CaSO4 * 2H2O 2090 mg/L	NaCl	58.4	3639.5	212692
BaSO4 2.4 mg/L				

REMARKS:

----- L. MALLET / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

SCALE TENDENCY REPORT -----

Company	: YATES PETROLEUM	Date	: 10/29/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 10/27/92
Lease	: FLAMENCO FEDERAL	Analysis No.	: 930
Well	: SWD #1	Analyst	: ROZANNE JOHNSON
Sample Pt.	: WELLHEAD		

STABILITY INDEX CALCULATIONS (Stiff-Davis Method) CaCO₃ Scaling Tendency

S.I. =	0.1	at	80 deg. F	or	27 deg. C
S.I. =	0.1	at	100 deg. F	or	38 deg. C
S.I. =	0.1	at	120 deg. F	or	49 deg. C
S.I. =	0.0	at	140 deg. F	or	60 deg. C
S.I. =	0.1	at	160 deg. F	or	71 deg. C

CALCIUM SULFATE SCALING TENDENCY CALCULATIONS (Skillman-McDonald-Stiff Method) Calcium Sulfate

S =	420	at	80 deg. F	or	27 deg C
S =	447	at	100 deg. F	or	38 deg C
S =	458	at	120 deg. F	or	49 deg C
S =	465	at	140 deg. F	or	60 deg C
S =	456	at	160 deg. F	or	71 deg C

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Respectfully submitted,
ROZANNE JOHNSON