

TRETOLITE®

Chemicals and Services

PETROLITE

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WATER ANALYSIS REPORT

Company : YATES PETROLEUM
Address : ARTESIA, NEW MEXICO
Lease : BROWN #1
Well : SWD
Sample Pt. : WELLHEAD

Date : 10/29/92
Date Sampled : 10/23/92
Analysis No. : 933

ANALYSIS		mg/L	* meq/L	
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1.	pH	6.4		
2.	H2S	20 PPM		
3.	Specific Gravity	1.050		
4.	Total Dissolved Solids	71573.4		
5.	Suspended Solids	NR		
6.	Dissolved Oxygen	NR		
7.	Dissolved CO2	75 PPM		
8.	Oil In Water	NR		
9.	Phenolphthalein Alkalinity (CaCO3)			
10.	Methyl Orange Alkalinity (CaCO3)	340.0		
11.	Bicarbonate	HCO3 414.8	HCO3	6.8
12.	Chloride	Cl 43199.2	Cl	1218.6
13.	Sulfate	SO4 1150.0	SO4	23.9
14.	Calcium	Ca 2589.2	Ca	129.2
15.	Magnesium	Mg 1726.0	Mg	142.0
16.	Sodium (calculated)	Na 22487.5	Na	978.1
17.	Iron	Fe 6.7		
18.	Barium	Ba NR		
19.	Strontium	Sr NR		
20.	Total Hardness (CaCO3)	13572.2		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter			Compound	Equiv wt	X meq/L	= mg/L
-----	-----	-----	-----	-----	-----	-----
129	*Ca <-----	*HCO3 7	Ca (HCO3) 2	81.0	6.8	551
-----	/----->	-----	CaSO4	68.1	23.9	1630
142	*Mg ----->	*SO4 24	CaCl2	55.5	98.5	5463
-----	<-----/	-----	Mg (HCO3) 2	73.2		
978	*Na ----->	*Cl 1219	MgSO4	60.2		
-----	-----	-----	MgCl2	47.6	142.0	6760
Saturation Values Dist. Water 20 C			NaHCO3	84.0		
CaCO3	13 mg/L		Na2SO4	71.0		
CaSO4 * 2H2O	2090 mg/L		NaCl	58.4	978.1	57163
BaSO4	2.4 mg/L					

REMARKS:

----- L. MALLETT / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
ROZANNE JOHNSON

PETROLITE

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/29/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 10/23/92
Lease	: BROWN	Analysis No.	: 933
Well	: SWD	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. =	0.2	at	100 deg.	F or	38 deg.	C
S.I. =	0.3	at	120 deg.	F or	49 deg.	C
S.I. =	0.4	at	140 deg.	F or	60 deg.	C
S.I. =	0.5	at	160 deg.	F or	71 deg.	C

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

S =	3911	at	80 deg.	F or	27 deg	C
S =	4072	at	100 deg.	F or	38 deg	C
S =	4133	at	120 deg.	F or	49 deg	C
S =	4170	at	140 deg.	F or	60 deg	C
S =	4113	at	160 deg.	F or	71 deg	C

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Respectfully submitted,
ROZANNE JOHNSON