

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 : 10/22/92
Lease : HOOVER AGR State #1-I Analysis No. : 934
Well : SWD
Sample Pt. : WELLHEAD 1-17-33

ANALYSIS		mg/L	* meq/L	
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1.	pH	6.0		
2.	H2S	3 PPM		
3.	Specific Gravity	1.195		
4.	Total Dissolved Solids	333306.1		
5.	Suspended Solids	NR		
6.	Dissolved Oxygen	NR		
7.	Dissolved CO2	260 PPM		
8.	Oil In Water	NR		
9.	Phenolphthalein Alkalinity (CaCO3)			
10.	Methyl Orange Alkalinity (CaCO3)	150.0		
11.	Bicarbonate	HCO3 183.0	HCO3	3.0
12.	Chloride	Cl 201535.0	Cl	5685.0
13.	Sulfate	SO4 1650.0	SO4	34.4
14.	Calcium	Ca 2725.4	Ca	136.0
15.	Magnesium	Mg 1400.3	Mg	115.2
16.	Sodium (calculated)	Na 125783.1	Na	5471.2
17.	Iron	Fe 29.2		
18.	Barium	Ba NR		
19.	Strontium	Sr NR		
20.	Total Hardness (CaCO3)	12571.3		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound	Equiv wt	X meq/L	=	mg/L
+-----+				-----				
136	*Ca <-----	*HCO3	3	Ca (HCO3) 2	81.0	3.0		243
-----	/----->		-----	CaSO4	68.1	34.4		2339
115	*Mg <-----	*SO4	34	CaCl2	55.5	98.6		5474
-----	<-----/		-----	Mg (HCO3) 2	73.2			
5471	*Na <-----	*Cl	5685	MgSO4	60.2			
+-----+			+-----+	MgCl2	47.6	115.2		5484
Saturation Values Dist. Water 20 C				NaHCO3	84.0			
CaCO3 13 mg/L				Na2SO4	71.0			
CaSO4 * 2H2O 2090 mg/L				NaCl	58.4	5471.2		319738
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	: 10/22/92
Lease	: HOOVER	Analysis No.	: 934
Well	: SWD	Analyst	: ROZANNE JOHNSON
Sample Pt.	: WELLHEAD		

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

S.I. =	-0.3	at	80 deg.	F or	27 deg.	C
S.I. =	-0.3	at	100 deg.	F or	38 deg.	C
S.I. =	-0.3	at	120 deg.	F or	49 deg.	C
S.I. =	-0.3	at	140 deg.	F or	60 deg.	C
S.I. =	-0.2	at	160 deg.	F or	71 deg.	C

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

S =	4238	at	80 deg.	F or	27 deg	C
S =	4430	at	100 deg.	F or	38 deg	C
S =	4510	at	120 deg.	F or	49 deg	C
S =	4562	at	140 deg.	F or	60 deg	C
S =	4502	at	160 deg.	F or	71 deg	C

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Respectfully submitted,
ROZANNE JOHNSON