

TRETOLITE®

Chemicals and Services

PETROLITE

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WATER ANALYSIS REPORT

Company : YATES PETROLEUM
Address : ARTESIA, NEW MEXICO
Lease : LOVELADY
Well : SWD
Sample Pt. : TANK

Date : 10/28/92
Date Sampled : 10/25/92
Analysis No. : 210

ANALYSIS		mg/L		* meq/L	
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1.	pH	6.6			
2.	H2S	2 PPM			
3.	Specific Gravity	1.070			
4.	Total Dissolved Solids	106683.4			
5.	Suspended Solids	NR			
6.	Dissolved Oxygen	NR			
7.	Dissolved CO2	NR			
8.	Oil In Water	NR			
9.	Phenolphthalein Alkalinity (CaCO3)				
10.	Methyl Orange Alkalinity (CaCO3)				
11.	Bicarbonate	HCO3	97.0	HCO3	1.6
12.	Chloride	Cl	65604.0	Cl	1850.6
13.	Sulfate	SO4	250.0	SO4	5.2
14.	Calcium	Ca	6000.0	Ca	299.4
15.	Magnesium	Mg	1218.4	Mg	100.2
16.	Sodium (calculated)	Na	33514.0	Na	1457.8
17.	Iron	Fe	0.0		
18.	Barium	Ba	0.0		
19.	Strontium	Sr	0.0		
20.	Total Hardness (CaCO3)		20000.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter				Compound Equiv wt X meq/L = mg/L			
+-----+				-----			
299	*Ca <-----	*HCO3	2	Ca(HCO3)2	81.0	1.6	129
-----	/----->		-----	CaSO4	68.1	5.2	354
100	*Mg ----->	*SO4	5	CaCl2	55.5	292.6	16237
-----	<-----/		-----	Mg(HCO3)2	73.2		
1458	*Na ----->	*Cl	1851	MgSO4	60.2		
+-----+				MgCl2	47.6	100.2	4772
Saturation Values Dist. Water 20 C				NaHCO3	84.0		
CaCO3		13 mg/L		Na2SO4	71.0		
CaSO4 * 2H2O		2090 mg/L		NaCl	58.4	1457.8	85192
BaSO4		2.4 mg/L					

REMARKS:

----- L. MALLET / FILE

Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

SCALE TENDENCY REPORT

Company	: YATES PETROLEUM	Date	: 10/28/92
Address	: ARTESIA, NEW MEXICO	Date Sampled	: 10/25/92
Lease	: LOVELADY	Analysis No.	: 210
Well	: SWD	Analyst	: STEVE TIGERT
Sample Pt.	: TANK		

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

S.I. =	0.0	at	60 deg.	F or	16 deg.	C
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. =	0.2	at	120 deg.	F or	49 deg.	C
S.I. =	0.4	at	160 deg.	F or	71 deg.	C

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

S =	2152	at	60 deg.	F or	16 deg.	C
S =	2366	at	80 deg.	F or	27 deg.	C
S =	2504	at	100 deg.	F or	38 deg.	C
S =	2571	at	120 deg.	F or	49 deg.	C
S =	2590	at	160 deg.	F or	71 deg.	C

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Respectfully submitted,
STEVE TIGERT