

TRETOLINE®

Chemicals and Services

PETROLITE

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620346 • FAX: 713 589-4737

Reply to: P.O. Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax

WATER ANALYSIS REPORT

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

Date : 10/28/92
Date Sampled : 10/25/92
Analysis No. : 211

ANALYSIS		mg/L		* meq/L
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1. pH	5.8			
2. H2S	70 PPM			
3. Specific Gravity	1.140			
4. Total Dissolved Solids		218207.6		
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	183.0	HCO3	3.0
12. Chloride	Cl	137385.0	Cl	3875.5
13. Sulfate	SO4	750.0	SO4	15.6
14. Calcium	Ca	14800.0	Ca	738.5
15. Magnesium	Mg	8365.0	Mg	688.2
16. Sodium (calculated)	Na	56724.6	Na	2467.4
17. Iron	Fe	0.0		
18. Barium	Ba	0.0		
19. Strontium	Sr	0.0		
20. Total Hardness (CaCO3)		71400.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt	X meq/L	= mg/L
-----	-----	-----	-----	-----
739 *Ca <----- *HCO3	Ca(HCO3)2	81.0	3.0	243
----- /----->	CaSO4	68.1	15.6	1063
688 *Mg -----> *SO4	CaCl2	55.5	719.9	39948
----- <----- /	Mg(HCO3)2	73.2		
2467 *Na -----> *Cl	MgSO4	60.2		
-----	MgCl2	47.6	688.2	32761
Saturation Values Dist. Water 20 C	NaHCO3	84.0		
CaCO3 13 mg/L	Na2SO4	71.0		
CaSO4 * 2H2O 2090 mg/L	NaCl	58.4	2467.4	144193
BaSO4 2.4 mg/L				

REMARKS:

----- L. MALLETT / 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	: SUN "UW"	Analysis No.	: 211
Well	: SWD	Analyst	: STEVE TIGERT
Sample Pt.	: TANK		

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

S.I. =	0.1	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. =	0.3	at	160 deg. F	or	71 deg. C

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

S =	977	at	60 deg. F	or	16 deg. C
S =	1085	at	80 deg. F	or	27 deg. C
S =	1154	at	100 deg. F	or	38 deg. C
S =	1184	at	120 deg. F	or	49 deg. C
S =	1185	at	160 deg. F	or	71 deg. C

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Respectfully submitted,
STEVE TIGERT