

TRETOLITE

Chemicals and Services

16010 Barker's Point Lane • Houston, Texas 77079
713 558-5200 • Telex: 4620348 • FAX: 713 589-4737Reply to: P.O. Box FF
Artesia, New Mexico 88210
(505) 746-3588 Phone
(505) 746-3580 Fax**WATER ANALYSIS REPORT**Company : POGO PRODUCING
Address : MIDLAND, TEXAS
Lease : 28-3
Well : SWD
Sample Pt. : TANKDate : 10/22/93
Date Sampled : 10/22/93
Analysis No. : 370

ANALYSIS		mg/L		meq/L
1. pH	5.3			
2. H ₂ S	NR			
3. Specific Gravity	1.140			
4. Total Dissolved Solids		223918.2		
5. Suspended Solids		NR		
6. Dissolved Oxygen		NR		
7. Dissolved CO ₂		NR		
8. Oil In Water		NR		
9. Phenolphthalein Alkalinity (CaCO ₃)				
10. Methyl Orange Alkalinity (CaCO ₃)				
11. Bicarbonate	HCO ₃	97.0	HCO ₃	1.6
12. Chloride	Cl	138024.0	Cl	3393.5
13. Sulfate	SO ₄	375.0	SO ₄	7.8
14. Calcium	Ca	13600.0	Ca	578.6
15. Magnesium	Mg	2583.6	Mg	212.6
16. Sodium (calculated)	Na	69238.6	Na	3011.7
17. Iron	Fe	NR		
18. Barium	Ba	NR		
19. Strontium	Sr	NR		
20. Total Hardness (CaCO ₃)		44600.0		

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter	Compound	Equiv wt	X meq/L	= mg/
679 *Ca <----- *HCO ₃	Ca(HCO ₃) ₂	81.0	1.6	129
213 *Mg <----- *SO ₄	CaSO ₄	68.1	7.8	531
3012 *Na <----- *Cl	CaCl ₂	55.5	669.2	37136
	Mg(HCO ₃) ₂	73.2		
	MgSO ₄	60.2		
	MgCl ₂	47.6	212.6	10119
Saturation Values Dist. Water 20 C	NaHCO ₃	84.0		
CaCO ₃ 13 mg/L	Na ₂ SO ₄	71.0		
CaSO ₄ * 2H ₂ O 2090 mg/L	NaCl	58.4	3011.7	176003
BaSO ₄ 2.4 mg/L				

REMARKS:

A. MILLER / FILE

RED TANK 23 SWD

Petrolite, Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT

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WATER ANALYSIS REPORT

Company : POGO PRODUCING
Address : MIDLAND, TEXAS
Lease : CALMON #5
Well : SWD
Sample Pt. : UNKNOWN

Date : 09/03/93
Date Sampled : 09/02/93
Analysis No. : 330

ANALYSIS		mg/L	* meq/L
-----		----	-----
1. pH	5.1		
2. H ₂ S	0 PPM		
3. Specific Gravity	1.165		
4. Total Dissolved Solids		261670.1	
5. Suspended Solids		NR	
6. Dissolved Oxygen		NR	
7. Dissolved CO ₂		NR	
8. Oil In Water		NR	
9. Phenolphthalein Alkalinity (CaCO ₃)			
10. Methyl Orange Alkalinity (CaCO ₃)			
11. Bicarbonate	HCO ₃	61.0	HCO ₃ 1.0
12. Chloride	Cl	161880.0	Cl 4566.4
13. Sulfate	SO ₄	50.0	SO ₄ 1.0
14. Calcium	Ca	16400.0	Ca 818.4
15. Magnesium	Mg	3338.4	Mg 274.7
16. Sodium (calculated)	Na	79900.7	Na 3475.5
17. Iron	Fe	40.0	
18. Barium	Ba	NR	
19. Strontium	Sr	NR	
20. Total Hardness (CaCO ₃)		54700.0	

PROBABLE MINERAL COMPOSITION

*milli equivalents per Liter			Compound	Equiv wt	X meq/L	= mg/L
+-----+			-----			
818	*Ca <-----	*HCO ₃	1	Ca(HCO ₃) ₂	81.0	1.0 81
-----	/----->		-----	CaSO ₄	68.1	1.0 71
275	*Mg ----->	*SO ₄	1	CaCl ₂	55.5	816.3 45298
-----	<----->	/	-----	Mg(HCO ₃) ₂	73.2	
3475	*Na ----->	*Cl	4566	MgSO ₄	60.2	
+-----+			+-----+	MgCl ₂	47.6	274.7 13075
Saturation Values Dist. Water 20 C				NaHCO ₃	84.0	
CaCO ₃	13 mg/L			Na ₂ SO ₄	71.0	
CaSO ₄ * 2H ₂ O	2090 mg/L			NaCl	58.4	3475.5 203106
BaSO ₄	2.4 mg/L					

REMARKS:

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Petrolite Oilfield Chemicals Group

Respectfully submitted,
STEVE TIGERT