

14-21-35W

BACHMAN PRODUCTION SPECIALTIES, Inc.

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WATER ANALYSIS REPORT

Company: Lebsack Oil Production
Source: Foster D #3

Date Sampled: 5-18-99

Date Analyzed: 5-27-99

pH:	7.40	Total Dissolved Solids (mg/L):	129,924
Dissolved H ₂ S:	0		
Dissolved CO ₂ :	90	Total Ionic Strength:	2.446346
Specific Gravity:	1.076		
Density (lbs/gal):	8.9738		

	mg/L	Meq/L
Anions		
Bicarbonate:	128	2
Chloride:	78,292	2,205
Sulfate:	1,792	37
Cations		
Calcium:	4,925	246
Magnesium:	1,334	109
Sodium:	43,454	1,889
Barium:	0	
Strontium:	0	
Total Hardness:	17,800	
Total Iron:	0.0	
Ferrous Iron:	0.0	

PROBABLE MINERAL COMPOSITION

		Meq/L	mg/L
246 Ca	2 HCO ₃		
109 Mg	37 SO ₄		
1,889 Na	2,205 Cl		
Calcium Bicarbonate:		2	162
Calcium Sulfate:		37	2,519
Calcium Chloride:		207	11,489
Magnesium Bicarbonate:		0	0
Magnesium Sulfate:		0	0
Magnesium Chloride:		109	5,191
Sodium Bicarbonate:		0	0
Sodium Sulfate:		0	0
Sodium Chloride:		1,889	110,431

Saturation Values
In Distilled Water @ 20 C

CaCO ₃	13 mg/L
CaSO ₄ * 2H ₂ O	2,090 mg/L
MgCO ₃	103 mg/L

Remarks:

SCALE CALCULATIONS

FIELD NAME : Lebsack Oil Production

SOURCE : Foster D #3

SAMPLE NO: 5-18-99

ION	mg/L
Na	43454
Ca	4925
Mg	1334
Ba	0
Sr	0
Cl	78292
SO ₄	1792
CO ₃	0
HCO ₃	128
TDS	129925
pH	7.4
SG	1.076
I (Molar)	2.45

TWO PHASE PRODUCTION SYSTEM (WATER + GAS)

CALCIUM CARBONATE SCALING CALCULATIONS

%A	TF	Psia	XCO ₂	pHc	[-----STIFF & DAVIS-----]	SI	PTB	Sic	PTBc	[-O&T-]	Is
100	100	200	0	****		.84	62.8	*****	*****		*****

SULFATE SCALE CALCULATIONS

%A	TF	Psia	[-----CaSO ₄ -----]	SR	PTB	[-----BaSO ₄ -----]	SR	PTB	[-----SrSO ₄ -----]	SR	PTB
100	100	200		.7	-261.9		0	-.1		0	-72.5

NOTE: Values of SI & PTB for CaCO₃, and SR & PTB for CaSO₄ and BaSO₄ are calculated at 14.7 psia.