

Water Analysis Report by Baker Petrolite

Company:	EL PASO E & P	Sales RDT:	44625
Region:	ROCKY MOUNTAINS	Account Manager:	TY CLINESMITH (575) 447-0621
Area:	RATON, NM	Sample #:	48985
Lease/Platform:	VERMEJO PARK RANCH 'E'	Analysis ID #:	113117
Entity (or well #):	02	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 48985 @ 75 °F					
Sampling Date:	09/23/11	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	10/07/11	Chloride:	26.0	0.73	Sodium:	688.3	29.94
Analyst:	SANDRA GOMEZ	Bicarbonate:	1800.0	29.5	Magnesium:	0.9	0.07
		Carbonate:	0.0	0.	Calcium:	3.5	0.17
TDS (mg/l or g/m3):	2526.1	Sulfate:	3.0	0.06	Strontium:	0.4	0.01
Density (g/cm3, tonne/m3):	1.001	Phosphate:			Barium:	0.4	0.01
Anion/Cation Ratio:	0.9999994	Borate:			Iron:	0.1	0.
		Silicate:			Potassium:	3.5	0.09
Carbon Dioxide:		Hydrogen Sulfide:			Aluminum:		
Oxygen:					Chromium:		
Comments:		pH at time of sampling:		8.2	Copper:		
		pH at time of analysis:			Lead:		
		pH used in Calculation:		8.2	Manganese:	0.025	0.
					Nickel:		

Conditions		Values Calculated at the Given Conditions - Amounts of Scale in lb/1000 bbl										
Temp	Gauge Press.	Calcite CaCO ₃		Gypsum CaSO ₄ *2H ₂ O		Anhydrite CaSO ₄		Celestite SrSO ₄		Barite BaSO ₄		CO ₂ Press
°F	psi	Index	Amount	Index	Amount	Index	Amount	Index	Amount	Index	Amount	psi
80	0	0.29	1.40	-4.64	0.00	-4.71	0.00	-3.82	0.00	-0.72	0.00	0.16
100	0	0.35	1.75	-4.66	0.00	-4.66	0.00	-3.80	0.00	-0.85	0.00	0.24
120	0	0.40	1.75	-4.66	0.00	-4.59	0.00	-3.76	0.00	-0.96	0.00	0.35
140	0	0.46	2.10	-4.66	0.00	-4.50	0.00	-3.72	0.00	-1.05	0.00	0.5

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered.

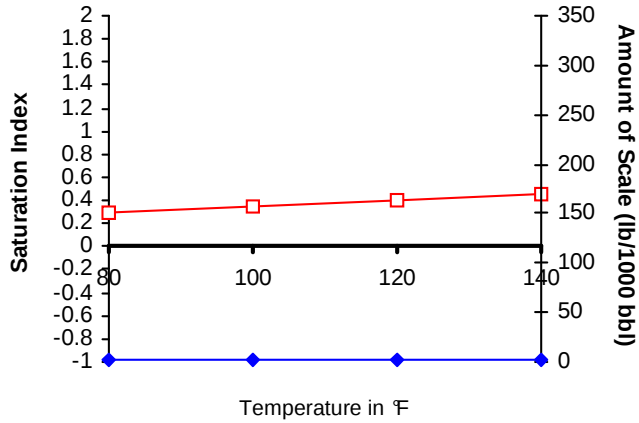
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the five scales.

Note 3: The reported CO2 pressure is actually the calculated CO2 fugacity. It is usually nearly the same as the CO2 partial pressure.

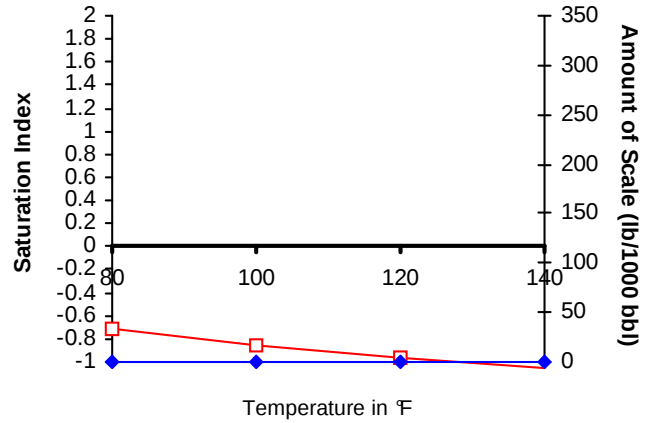
Scale Predictions from Baker Petrolite

Analysis of Sample 48985 @ 75 °F for EL PASO E & P, 10/07/11

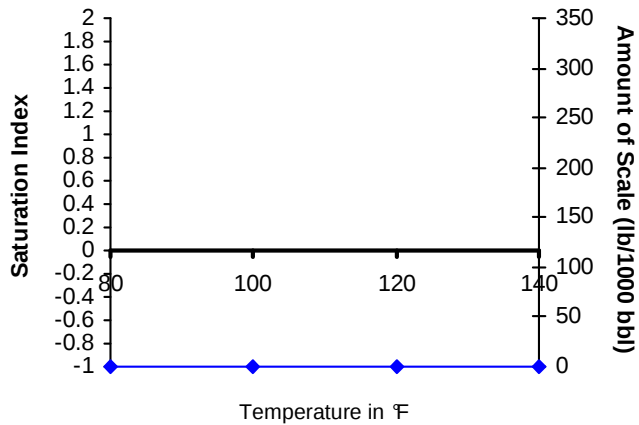
Calcite - CaCO_3



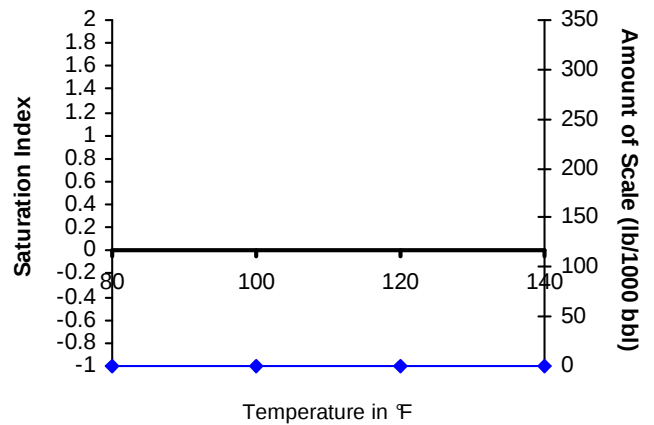
Barite - BaSO_4



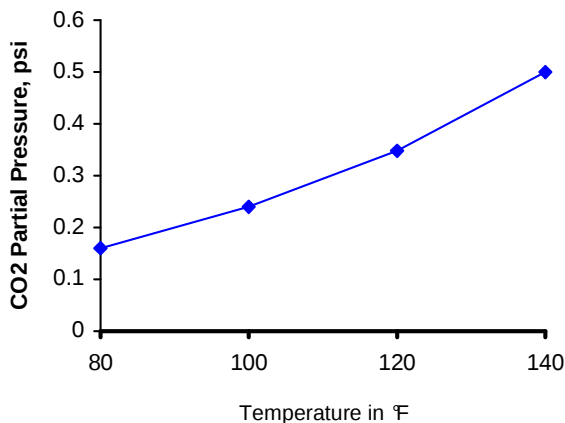
Gypsum - $\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$



Anhydrite - CaSO_4



Carbon Dioxide Partial Pressure



Celestite - SrSO_4

