

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 #:	48201
Lease/Platform:	VERMEJO PARK RANCH 'A'	Analysis ID #:	109765
Entity (or well #):	231	Analysis Cost:	\$90.00
Formation:	UNKNOWN		
Sample Point:	WELLHEAD		

Summary		Analysis of Sample 48201 @ 75 °F					
Sampling Date:	06/08/11	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	06/30/11	Chloride:	4050.0	114.24	Sodium:	2685.8	116.83
Analyst:	JENNIFER HARDELL	Bicarbonate:	717.0	11.75	Magnesium:	17.0	1.4
TDS (mg/l or g/m3):	7654	Carbonate:	0.0	0.	Calcium:	140.0	6.99
Density (g/cm3, tonne/m3):	1.005	Sulfate:	3.0	0.06	Strontium:	19.0	0.43
Anion/Cation Ratio:	1.0000001	Phosphate:			Barium:	15.0	0.22
Carbon Dioxide:		Borate:			Iron:	0.1	0.
Oxygen:		Silicate:			Potassium:	7.0	0.18
Comments:		Hydrogen Sulfide:			Aluminum:		
		pH at time of sampling:		7.1	Chromium:		
		pH at time of analysis:		8.2	Copper:		
		pH used in Calculation:		7.1	Lead:		
					Manganese:	0.100	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	0.23	15.65	-3.40	0.00	-3.47	0.00	-2.50	0.00	0.49	1.39	0.68
100	0	0.35	24.35	-3.41	0.00	-3.41	0.00	-2.49	0.00	0.34	1.04	0.89
120	0	0.49	33.74	-3.41	0.00	-3.34	0.00	-2.46	0.00	0.22	0.70	1.13
140	0	0.62	43.83	-3.41	0.00	-3.24	0.00	-2.43	0.00	0.12	0.35	1.38

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.