

Rocky Mountain Region
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30-045-24407

Water Analysis Report by Baker Petrolite

Company:	CONOCO - PHILLIPS PETROLEUM CO	Sales RDT:	44211
Region:	ROCKY MOUNTAINS	Account Manager:	CRAIG SMITH (505) 330-3224
Area:	FARMINGTON, NM	Sample #:	226497
Lease/Platform:	PHILLIPS LEASE	Analysis ID #:	37351
Entity (or well #):	2 E	Analysis Cost:	\$40.00
Formation:	UNKNOWN		
Sample Point:	BRADEN HEAD		

Summary		Analysis of Sample 226497 @ 75 °F					
Sampling Date:	8/22/03	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	8/28/03	Chloride:	512.0	14.44	Sodium:	1991.1	86.61
Analyst:	ANNA McELANEY	Bicarbonate:	883.0	14.47	Magnesium:	0.2	0.02
TDS (mg/l or g/m3):	5904.7	Carbonate:	626.0	20.86	Calcium:	28.0	1.4
Density (g/cm3, tonne/m3):	1.004	Sulfate:	1852.0	38.56	Strontium:	2.0	0.05
Anion/Cation Ratio:	1.0000002	Phosphate:			Barium:	0.1	0.
Carbon Dioxide:		Borate:			Iron:	0.3	0.01
Oxygen:		Silicate:			Potassium:	10.0	0.26
Comments:		Hydrogen Sulfide:			Aluminum:		
		pH at time of sampling:		8.2	Chromium:		
		pH at time of analysis:			Copper:		
		pH used in Calculation:		8.2	Lead:		
					Manganese:		
					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	0.78	17.07	-1.38	0.00	-1.45	0.00	-0.85	0.00	1.01	0.00	0.12
100	0	0.81	18.12	-1.40	0.00	-1.40	0.00	-0.85	0.00	0.86	0.00	0.2
120	0	0.84	18.82	-1.40	0.00	-1.32	0.00	-0.83	0.00	0.73	0.00	0.32
140	0	0.88	19.51	-1.39	0.00	-1.23	0.00	-0.80	0.00	0.63	0.00	0.48

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.