

Rocky Mountain Region
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30-045-G7261

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 #:	301011
Lease/Platform:	PHILLIPS LEASE	Analysis ID #:	37350
Entity (or well #):	2	Analysis Cost:	\$40.00
Formation:	UNKNOWN		
Sample Point:	BRADEN HEAD		

Summary		Analysis of Sample 301011 @ 75 °F					
Sampling Date:	8/22/03	Anions	mg/l	meq/l	Cations	mg/l	meq/l
Analysis Date:	8/28/03	Chloride:	112.0	3.16	Sodium:	418.6	18.21
Analyst:	ANNA McELANEY	Bicarbonate:	229.0	3.75	Magnesium:	5.5	0.45
TDS (mg/l or g/m3):	3158.2	Carbonate:	0.0	0.	Calcium:	452.0	22.55
Density (g/cm3, tonne/m3):	1.003	Sulfate:	1829.0	38.08	Strontium:	11.0	0.25
Anion/Cation Ratio:	0.9999997	Phosphate:			Barium:	0.1	0.
Carbon Dioxide:		Borate:			Iron:	89.0	3.22
Oxygen:		Silicate:			Potassium:	12.0	0.31
Comments:		Hydrogen Sulfide:			Aluminum:		
		pH at time of sampling:			Chromium:		
		pH at time of analysis:		7.52	Copper:		
		pH used in Calculation:		7.52	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	0.61	12.93	-0.12	0.00	-0.19	0.00	-0.08	0.00	1.04	0.00	0.09
100	0	0.71	16.07	-0.12	0.00	-0.13	0.00	-0.07	0.00	0.89	0.00	0.12
120	0	0.82	19.92	-0.12	0.00	-0.04	0.00	-0.06	0.00	0.77	0.00	0.16
140	0	0.93	24.11	-0.10	0.00	0.07	69.88	-0.03	0.00	0.67	0.00	0.21

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.