

Complete Water Analysis Report SSP v.8

Customer:	CAERUS OIL & GAS	Sample Point Name	11D-7D Separator
District:	Four Corners	Sample ID:	201201036491
Sales Rep:	Sean Higgins	Sample Date:	10/30/2012
Lease:	Puckett	Log Out Date:	12/17/2012
Site Type:		Analyst:	NJC
Sample Point Description:			

CAERUS OIL & GAS, Puckett, 11D-7D Separator

Field Data		Analysis of Sample					
		Anions:		Cations:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):	220	Chloride (Cl ⁻):	19900.0	561.4	Sodium (Na ⁺):	12571.0	547.0
Final Temperature (°F):	80	Sulfate (SO ₄ ²⁻):	900.0	18.7	Potassium (K ⁺):	48.0	1.2
Initial Pressure (psi):	100	Borate (H ₃ BO ₃):	ND		Magnesium (Mg ²⁺):	29.5	2.4
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	236.4	11.8
pH:		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	19.1	0.4
pH at time of sampling:	6.5	Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	8.0	0.1
Alkalinity by Titration:		Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	39.7	1.4
Bicarbonate (HCO ₃ ⁻):	793.0	Phosphate (PO ₄ ³⁻):	ND		Manganese (Mn ²⁺):	0.5	0.0
Carbonate (CO ₃ ²⁻):	ND	Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND	
Hydroxide (OH ⁻):	ND	Organic Acids:		mg/L	meq/L	Zinc (Zn ²⁺):	ND
aqueous CO ₂ (ppm):	600.0	Formic Acid:	ND		Aluminum (Al ³⁺):	ND	
aqueous H ₂ S (ppm):	ND	Acetic Acid:	ND		Chromium (Cr ³⁺):	ND	
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND		Cobalt (Co ²⁺):	ND	
Calculated TDS (mg/L):	34545	Butyric Acid:	ND		Copper (Cu ²⁺):	ND	
Density/Specific Gravity (g/cm ³):	1.0208	Valeric Acid:	ND		Molybdenum (Mo ²⁺):	ND	
Measured Density/Specific Gravity	ND	Anion/Cation Ratio:		1.05	Nickel (Ni ²⁺):	ND	
Conductivity (mmhos):	ND				Tin (Sn ²⁺):	ND	
MCF/D:	No Data				Titanium (Ti ²⁺):	ND	
BOPD:	No Data				Vanadium (V ²⁺):	ND	
BWPD:	No Data				Zirconium (Zr ²⁺):	ND	
					Total Hardness:	740	N/A
					ND = Not Determined		

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	1.98	4.715	-0.18	0.000	-1.20	0.000	-1.43	0.000
96°F	24 psi	1.85	4.698	-0.15	0.000	-1.20	0.000	-1.37	0.000
111°F	34 psi	1.74	4.678	-0.07	0.000	-1.20	0.000	-1.30	0.000
127°F	43 psi	1.65	4.657	0.01	1.805	-1.19	0.000	-1.22	0.000
142°F	53 psi	1.57	4.635	0.11	15.497	-1.18	0.000	-1.13	0.000
158°F	62 psi	1.50	4.613	0.20	29.036	-1.17	0.000	-1.04	0.000
173°F	72 psi	1.44	4.591	0.32	43.323	-1.15	0.000	-0.95	0.000
189°F	81 psi	1.39	4.572	0.43	57.098	-1.13	0.000	-0.85	0.000
204°F	91 psi	1.36	4.554	0.55	70.041	-1.11	0.000	-0.74	0.000
220°F	100 psi	1.33	4.539	0.67	82.192	-1.09	0.000	-0.63	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
80°F	15 psi	-0.62	0.000	-2.43	0.000	-8.72	0.000	0.78	22.880
96°F	24 psi	-0.62	0.000	-2.45	0.000	-8.79	0.000	0.86	23.888
111°F	34 psi	-0.61	0.000	-2.46	0.000	-8.79	0.000	0.98	24.978
127°F	43 psi	-0.60	0.000	-2.47	0.000	-8.77	0.000	1.10	25.875
142°F	53 psi	-0.59	0.000	-2.48	0.000	-8.73	0.000	1.22	26.561
158°F	62 psi	-0.56	0.000	-2.48	0.000	-8.67	0.000	1.33	27.075
173°F	72 psi	-0.54	0.000	-2.48	0.000	-8.60	0.000	1.45	27.487
189°F	81 psi	-0.50	0.000	-2.48	0.000	-8.52	0.000	1.57	27.792
204°F	91 psi	-0.46	0.000	-2.48	0.000	-8.44	0.000	1.68	28.015
220°F	100 psi	-0.42	0.000	-2.47	0.000	-8.35	0.000	1.78	28.181

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 eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.



Comments: _____

