



**ANNUAL REPORT OF PRESSURE MONITORING,  
 FLUID INJECTION AND ENHANCED RECOVERY**

Complete all blanks - add pages if needed. Copy to be retained for five (5) years after filing date.

OPERATOR: License # \_\_\_\_\_  
 Name: \_\_\_\_\_  
 Address 1: \_\_\_\_\_  
 Address 2: \_\_\_\_\_  
 City: \_\_\_\_\_ State: \_\_\_\_\_ Zip: \_\_\_\_\_ + \_\_\_\_\_  
 Contact Person: \_\_\_\_\_  
 Phone: ( \_\_\_\_\_ ) \_\_\_\_\_  
 Lease Name: \_\_\_\_\_  
 Well Number: \_\_\_\_\_

API No.: \_\_\_\_\_  
 Permit No.: \_\_\_\_\_  
 Reporting Year: \_\_\_\_\_  
 (January 1 to December 31)  
 \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ - \_\_\_\_\_ Sec. \_\_\_\_\_ Twp. \_\_\_\_\_ S. R. \_\_\_\_\_  E  W  
 (a/a/a/a)  
 \_\_\_\_\_ feet from  N /  S Line of Section  
 \_\_\_\_\_ feet from  E /  W Line of Section  
 County: \_\_\_\_\_

**I. Injection Fluid:**

Type (Pick one):  Fresh Water  Treated Brine  Untreated Brine  Water/Brine  
 Source:  Produced Water  Other (Attach list)  
 Quality: Total Dissolved Solids: \_\_\_\_\_ mg/l Specific Gravity: \_\_\_\_\_ Additives: \_\_\_\_\_  
 (Attach water analysis, if available)

**II. Well Data:**

Maximum Authorized Injection Pressure: \_\_\_\_\_ psi Injection Zone: \_\_\_\_\_  
 Maximum Authorized Injection Rate: \_\_\_\_\_ barrels per day  
 Total Number of Enhanced Recovery Injection Wells Covered by this Permit: \_\_\_\_\_ (Include TA's)

III.	Month:	Total Fluid Injected BBL	Maximum Fluid Pressure	Total Gas Injected MCF	Maximum Gas Pressure	# Days of Injection
	January	_____	_____	_____	_____	_____
	February	_____	_____	_____	_____	_____
	March	_____	_____	_____	_____	_____
	April	_____	_____	_____	_____	_____
	May	_____	_____	_____	_____	_____
	June	_____	_____	_____	_____	_____
	July	_____	_____	_____	_____	_____
	August	_____	_____	_____	_____	_____
	September	_____	_____	_____	_____	_____
	October	_____	_____	_____	_____	_____
	November	_____	_____	_____	_____	_____
	December	_____	_____	_____	_____	_____
	<b>TOTAL</b>	_____	_____	_____	_____	_____



Central Area Laboratory  
801 N. Morgan,  
Oklahoma City, Oklahoma 73127

REPORT DATE: 2/22/2016

**COMPLETE WATER ANALYSIS REPORT** SSP v.2010

**CUSTOMER:** GREAT PLAINS  
**DISTRICT:** KANSAS  
**AREA/LEASE:** SHULTE  
**SAMPLE POINT NAME:** SHULTE #2 SWD  
**SITE TYPE:** FACILITY  
**SAMPLE POINT DESCRIPTION:** WATER TANK

**ACCOUNT REP:** GREG POLLNOW  
**SAMPLE ID:** 201610002210  
**SAMPLE DATE:** 2/8/2016  
**ANALYSIS DATE:** 2/19/2016  
**ANALYST:** BS

**GREAT PLAINS, SHULTE, SHULTE #2 SWD**

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:		CATIONS:			
		mg/L	meq/L	mg/L	meq/L	mg/L	meq/L
Initial Temperature (°F):	125	Chloride (Cl <sup>-</sup> ):	90000.0	2538.8	Sodium (Na <sup>+</sup> ):	50853.9	2213.0
Final Temperature (°F):	45	Sulfate (SO <sub>4</sub> <sup>2-</sup> ):	2130.0	44.3	Potassium (K <sup>+</sup> ):	144.0	3.7
Initial Pressure (psi):	250	Borate (H <sub>3</sub> BO <sub>3</sub> ):	51.4	0.8	Magnesium (Mg <sup>2+</sup> ):	1110.7	91.4
Final Pressure (psi):	15	Fluoride (F <sup>-</sup> ):	ND		Calcium (Ca <sup>2+</sup> ):	2876.0	143.5
		Bromide (Br <sup>-</sup> ):	ND		Strontium (Sr <sup>2+</sup> ):	121.0	2.8
		Nitrite (NO <sub>2</sub> <sup>-</sup> ):	ND		Barium (Ba <sup>2+</sup> ):	0.0	0.0
pH:		Nitrate (NO <sub>3</sub> <sup>-</sup> ):	ND		Iron (Fe <sup>2+</sup> ):	10.3	0.4
pH at time of sampling:	6.0	Phosphate (PO <sub>4</sub> <sup>3-</sup> ):	1.8	0.1	Manganese (Mn <sup>2+</sup> ):	0.5	0.0
		Silica (SiO <sub>2</sub> ):	ND		Lead (Pb <sup>2+</sup> ):	ND	
					Zinc (Zn <sup>2+</sup> ):	2.2	0.1
					Aluminum (Al <sup>3+</sup> ):	ND	
					Chromium (Cr <sup>3+</sup> ):	ND	
					Cobalt (Co <sup>2+</sup> ):	ND	
					Copper (Cu <sup>2+</sup> ):	ND	
					Molybdenum (Mo <sup>2+</sup> ):	ND	
					Nickel (Ni <sup>2+</sup> ):	ND	
					Tin (Sn <sup>2+</sup> ):	ND	
					Titanium (Ti <sup>2+</sup> ):	ND	
					Vanadium (V <sup>2+</sup> ):	ND	
					Zirconium (Zr <sup>2+</sup> ):	ND	
					Total Hardness:	11904	N/A
ALKALINITY BY TITRATION:							
	mg/L	meq/L					
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> ):	262.0	4.3					
Carbonate (CO <sub>3</sub> <sup>2-</sup> ):	ND						
Hydroxide (OH <sup>-</sup> ):	ND						
aqueous CO <sub>2</sub> (ppm):	57.0	Formic Acid:	ND				
aqueous H <sub>2</sub> S (ppm):	5.0	Acetic Acid:	ND				
aqueous O <sub>2</sub> (ppb):	ND	Propionic Acid:	ND				
		Butyric Acid:	ND				
		Valeric Acid:	ND				
Calculated TDS (mg/L):	147564						
Density/Specific Gravity (g/cm <sup>3</sup> ):	1.0926						
Measured Specific Gravity	1.1000						
Conductivity (mmhos):	ND						
Resistivity:	ND						
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:		1.05		ND = Not Determined	

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO <sub>4</sub> )		Calcite (CaCO <sub>3</sub> )		Gypsum (CaSO <sub>4</sub> ·2H <sub>2</sub> O)		Anhydrite (CaSO <sub>4</sub> )	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
45°F	15 psi		0.000	-0.24	0.000	-0.29	0.000	-0.59	0.000
54°F	41 psi		0.000	-0.27	0.000	-0.26	0.000	-0.53	0.000
63°F	67 psi		0.000	-0.20	0.000	-0.25	0.000	-0.48	0.000
72°F	93 psi		0.000	-0.12	0.000	-0.24	0.000	-0.43	0.000
81°F	119 psi		0.000	-0.05	0.000	-0.23	0.000	-0.39	0.000
89°F	146 psi		0.000	0.01	1.110	-0.22	0.000	-0.35	0.000
98°F	172 psi		0.000	0.08	5.802	-0.22	0.000	-0.31	0.000
107°F	198 psi		0.000	0.14	10.046	-0.22	0.000	-0.27	0.000
116°F	224 psi		0.000	0.19	13.906	-0.22	0.000	-0.23	0.000
125°F	250 psi		0.000	0.25	17.434	-0.22	0.000	-0.19	0.000

Conditions		Celestite (SrSO <sub>4</sub> )		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO <sub>3</sub> )	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
45°F	15 psi	0.10	17.140	-1.07	0.000	0.64	3.564	-1.16	0.000
54°F	41 psi	0.11	18.563	-1.08	0.000	0.45	2.781	-1.17	0.000
63°F	67 psi	0.11	19.564	-1.08	0.000	0.47	2.863	-1.07	0.000
72°F	93 psi	0.12	20.235	-1.09	0.000	0.49	2.991	-0.97	0.000
81°F	119 psi	0.12	20.651	-1.09	0.000	0.52	3.125	-0.87	0.000
89°F	146 psi	0.12	20.881	-1.10	0.000	0.56	3.260	-0.78	0.000
98°F	172 psi	0.12	20.980	-1.10	0.000	0.59	3.392	-0.69	0.000
107°F	198 psi	0.12	21.000	-1.11	0.000	0.62	3.520	-0.61	0.000
116°F	224 psi	0.12	20.986	-1.11	0.000	0.65	3.642	-0.54	0.000
125°F	250 psi	0.12	20.976	-1.12	0.000	0.68	3.757	-0.47	0.000

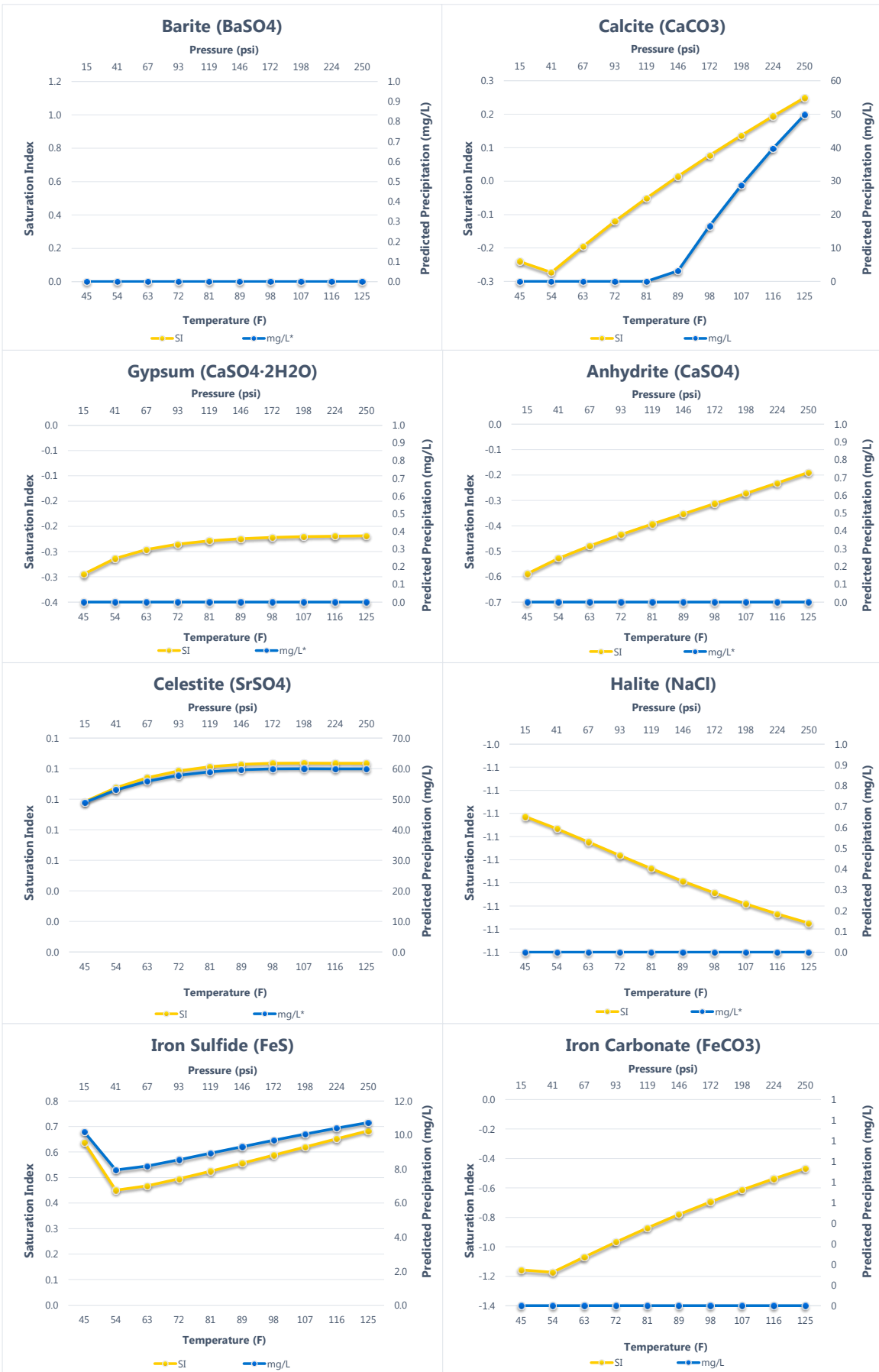
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

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; %CO<sub>2</sub> is not included in the calculations.



Comments:



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.