



**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: 6/4/2015

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

**CUSTOMER:** GREAT PLAINS  
**DISTRICT:** KANSAS  
**AREA/LEASE:** WASSON/SUAVAGE  
**SAMPLE POINT NAME:** WASSON/SUAVAGE  
**SITE TYPE:** FACILITY  
**SAMPLE POINT DESCRIPTION:** FILTER

**ACCOUNT REP:** GREG POLLNOW  
**SAMPLE ID:** 201510007806  
**SAMPLE DATE:** 5/7/2015  
**ANALYSIS DATE:** 5/20/2015  
**ANALYST:** BS

**GREAT PLAINS, WASSON/SUAVAGE, WASSON/SUAVAGE**

FIELD DATA			ANALYSIS OF SAMPLE											
			ANIONS:		mg/L		meq/L		CATIONS:		mg/L		meq/L	
Initial Temperature (°F):	250		Chloride (Cl <sup>-</sup> ):	68427.6	1930.3	Sodium (Na <sup>+</sup> ):	42164.0	1834.8						
Final Temperature (°F):	69		Sulfate (SO <sub>4</sub> <sup>2-</sup> ):	4200.0	87.4	Potassium (K <sup>+</sup> ):	252.9	6.5						
Initial Pressure (psi):	100		Borate (H <sub>3</sub> BO <sub>3</sub> ):	86.8		Magnesium (Mg <sup>2+</sup> ):	774.2	63.7						
Final Pressure (psi):	15		Fluoride (F <sup>-</sup> ):	ND		Calcium (Ca <sup>2+</sup> ):	2655.0	132.5						
			Bromide (Br <sup>-</sup> ):	ND		Strontium (Sr <sup>2+</sup> ):	101.0	2.3						
pH:			Nitrite (NO <sub>2</sub> <sup>-</sup> ):	ND		Barium (Ba <sup>2+</sup> ):	0.4	0.0						
pH at time of sampling:	6.3		Nitrate (NO <sub>3</sub> <sup>-</sup> ):	ND		Iron (Fe <sup>2+</sup> ):	2.2	0.1						
			Phosphate (PO <sub>4</sub> <sup>3-</sup> ):	0.0	0.0	Manganese (Mn <sup>2+</sup> ):	0.2	0.0						
			Silica (SiO <sub>2</sub> ):	ND		Lead (Pb <sup>2+</sup> ):	ND							
						Zinc (Zn <sup>2+</sup> ):	0.0	0.0						
<b>ALKALINITY BY TITRATION:</b>			<b>mg/L</b>	<b>meq/L</b>	<b>ORGANIC ACIDS:</b>		<b>mg/L</b>	<b>meq/L</b>						
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> ):	128.0	2.1	Formic Acid:	ND		Aluminum (Al <sup>3+</sup> ):	ND							
Carbonate (CO <sub>3</sub> <sup>2-</sup> ):	ND		Acetic Acid:	ND		Chromium (Cr <sup>3+</sup> ):	ND							
Hydroxide (OH <sup>-</sup> ):	ND		Propionic Acid:	ND		Cobalt (Co <sup>2+</sup> ):	ND							
			Butyric Acid:	ND		Copper (Cu <sup>2+</sup> ):	ND							
aqueous CO <sub>2</sub> (ppm):	70.0		Valeric Acid:	ND		Molybdenum (Mo <sup>2+</sup> ):	ND							
aqueous H <sub>2</sub> S (ppm):	10.0					Nickel (Ni <sup>2+</sup> ):	ND							
aqueous O <sub>2</sub> (ppb):	ND					Tin (Sn <sup>2+</sup> ):	ND							
Calculated TDS (mg/L):	118792					Titanium (Ti <sup>2+</sup> ):	ND							
Density/Specific Gravity (g/cm <sup>3</sup> ):	1.0761					Vanadium (V <sup>2+</sup> ):	ND							
Measured Specific Gravity	1.0950					Zirconium (Zr <sup>2+</sup> ):	ND							
Conductivity (mmhos):	ND					Total Hardness:	9943	N/A						
Resistivity:	ND													
MCF/D:	No Data													
BOPD:	No Data													
BWPD:	No Data					Anion/Cation Ratio:	0.99							

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

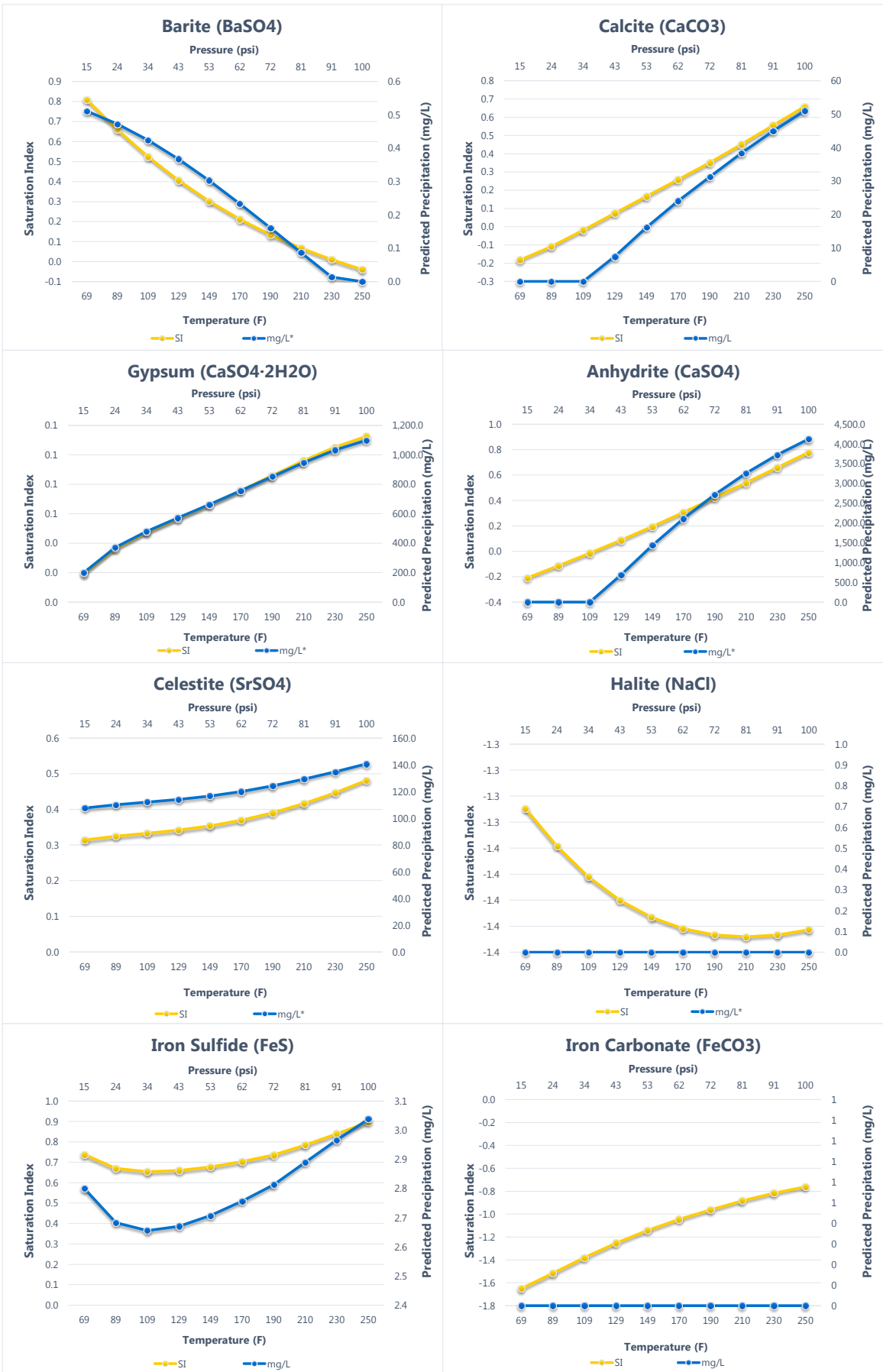
Conditions		Barite (BaSO <sub>4</sub> )		Calcite (CaCO <sub>3</sub> )		Gypsum (CaSO <sub>4</sub> ·2H <sub>2</sub> O)		Anhydrite (CaSO <sub>4</sub> )	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
69°F	15 psi	0.81	0.179	-0.18	0.000	0.02	69.836	-0.21	0.000
89°F	24 psi	0.66	0.165	-0.11	0.000	0.04	129.525	-0.11	0.000
109°F	34 psi	0.52	0.148	-0.02	0.000	0.05	167.900	-0.01	0.000
129°F	43 psi	0.41	0.129	0.07	2.610	0.06	200.101	0.09	240.783
149°F	53 psi	0.30	0.106	0.17	5.653	0.07	231.784	0.19	501.827
170°F	62 psi	0.21	0.082	0.26	8.419	0.08	264.692	0.31	739.749
190°F	72 psi	0.13	0.056	0.35	10.938	0.09	298.477	0.42	953.227
210°F	81 psi	0.07	0.031	0.45	13.437	0.10	331.508	0.54	1141.524
230°F	91 psi	0.01	0.005	0.55	15.740	0.11	361.297	0.66	1304.712
250°F	100 psi	-0.04	0.000	0.66	17.845	0.11	384.730	0.78	1443.652

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)
69°F	15 psi	0.31	37.693	-1.33	0.000	0.74	0.980	-1.65	0.000
89°F	24 psi	0.32	38.563	-1.35	0.000	0.67	0.939	-1.52	0.000
109°F	34 psi	0.33	39.224	-1.36	0.000	0.65	0.929	-1.38	0.000
129°F	43 psi	0.34	39.922	-1.37	0.000	0.66	0.935	-1.25	0.000
149°F	53 psi	0.35	40.819	-1.38	0.000	0.68	0.948	-1.14	0.000
170°F	62 psi	0.37	42.000	-1.38	0.000	0.70	0.965	-1.05	0.000
190°F	72 psi	0.39	43.486	-1.38	0.000	0.74	0.985	-0.96	0.000
210°F	81 psi	0.42	45.243	-1.38	0.000	0.78	1.011	-0.88	0.000
230°F	91 psi	0.45	47.197	-1.38	0.000	0.84	1.038	-0.82	0.000
250°F	100 psi	0.48	49.256	-1.38	0.000	0.90	1.063	-0.76	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.