

KANSAS CORPORATION COMMISSION  
OIL & GAS CONSERVATION DIVISION

Form U3C  
June 2015  
Form must be Typed  
Form must be completed  
on a per well basis

**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  
12701 N. Santa Fe Ave, Suite 151  
Oklahoma City, Oklahoma 73114

Upstream Chemicals

REPORT DATE: 2/22/2023

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

<b>CUSTOMER:</b>	SHAKESPEARE OIL	<b>ACCOUNT REP:</b>	BRETT J SUTER
<b>DISTRICT:</b>	KANSAS	<b>SAMPLE ID:</b>	202310001782
<b>AREA/LEASE:</b>	OTTLEY	<b>SAMPLE DATE:</b>	2/13/2023
<b>SAMPLE POINT NAME:</b>	OTTLEY 1-10 SWD	<b>ANALYSIS DATE:</b>	2/21/2023
<b>SITE TYPE:</b>	WELL SITES	<b>ANALYST:</b>	BS
<b>SAMPLE POINT DESCRIPTION:</b>	TANK		
<b>CUSTOMER SAMPLE POINT ID:</b>			

**SHAKESPEARE OIL, OTTLEY, OTTLEY 1-10 SWD**

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:		CATIONS:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):	150	Chloride (Cl <sup>-</sup> ):	47823.0	1349.0	Sodium (Na <sup>+</sup> ):	30197.0	1314.1
Final Temperature (°F):	75	Sulfate (SO <sub>4</sub> <sup>2-</sup> ):	2990.0	62.3	Potassium (K <sup>+</sup> ):	305.8	7.8
Initial Pressure (psi):	100	Borate (H <sub>3</sub> BO <sub>3</sub> ):	180.3	2.9	Magnesium (Mg <sup>2+</sup> ):	421.7	34.7
Final Pressure (psi):	15	Fluoride (F <sup>-</sup> ):	ND		Calcium (Ca <sup>2+</sup> ):	1037.3	51.8
		Bromide (Br <sup>-</sup> ):	ND		Strontium (Sr <sup>2+</sup> ):	49.9	1.1
pH:		Nitrite (NO <sub>2</sub> <sup>-</sup> ):	ND		Barium (Ba <sup>2+</sup> ):	0.7	0.0
pH at time of sampling:	7.0	Nitrate (NO <sub>3</sub> <sup>-</sup> ):	ND		Iron (Fe <sup>2+</sup> ):	0.8	0.0
		Phosphate (PO <sub>4</sub> <sup>3-</sup> ):	0.4	0.0	Manganese (Mn <sup>2+</sup> ):	0.8	0.0
		Silica (SiO <sub>2</sub> ):	ND		Lead (Pb <sup>2+</sup> ):	ND	ND
					Zinc (Zn <sup>2+</sup> ):	0.7	0.0
ALKALINITY BY TITRATION:		mg/L	meq/L				
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> ):	400.0		6.6				
Carbonate (CO <sub>3</sub> <sup>2-</sup> ):	ND						
Hydroxide (OH <sup>-</sup> ):	ND						
		ORGANIC ACIDS:					
aqueous CO <sub>2</sub> (ppm):	120.0	Formic Acid:	ND				
aqueous H <sub>2</sub> S (ppm):	15.0	Acetic Acid:	ND				
aqueous O <sub>2</sub> (ppb):	ND	Propionic Acid:	ND				
		Butyric Acid:	ND				
Calculated TDS (mg/L):	83228	Valeric Acid:	ND				
Density/Specific Gravity (g/cm <sup>3</sup> ):	1.0531						
Measured Specific Gravity:	ND						
Conductivity (mmhos):	ND						
Resistivity:	ND						
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data						
		Anion/Cation Ratio:		1.01	ND = Not Determined		

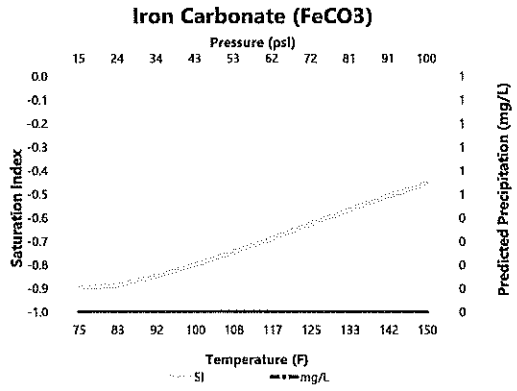
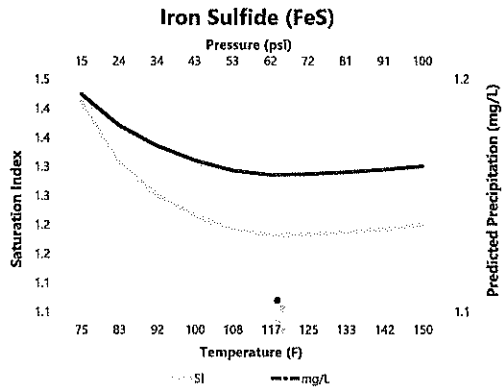
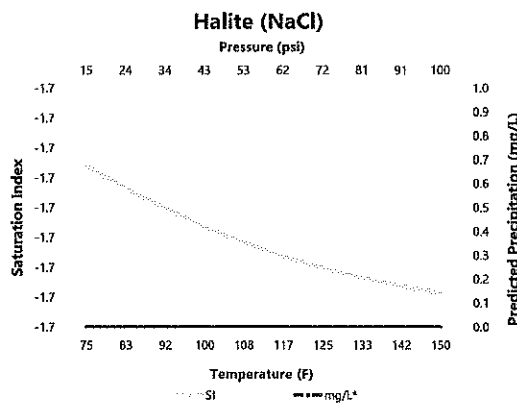
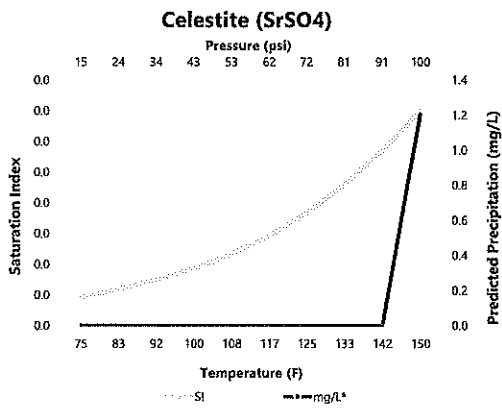
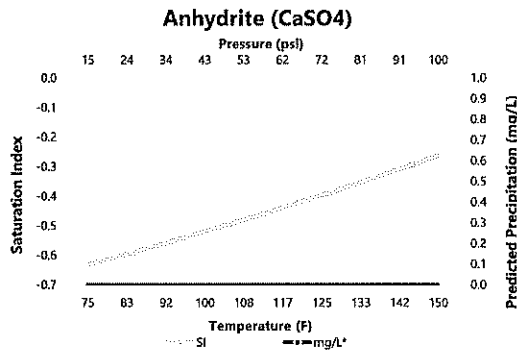
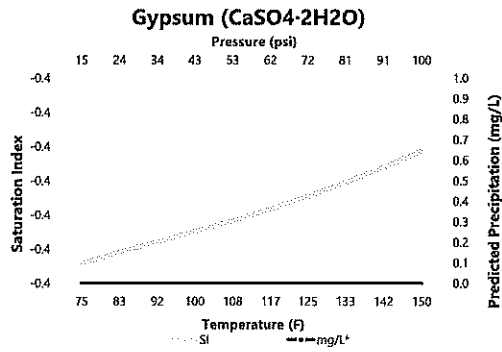
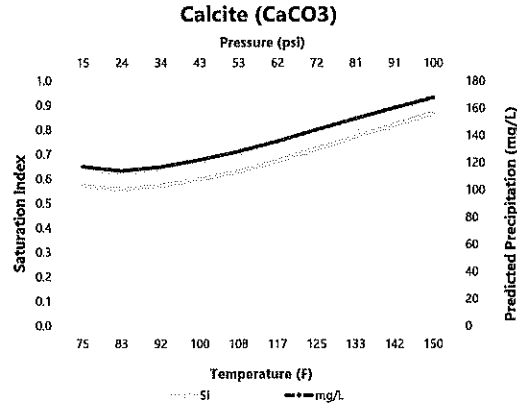
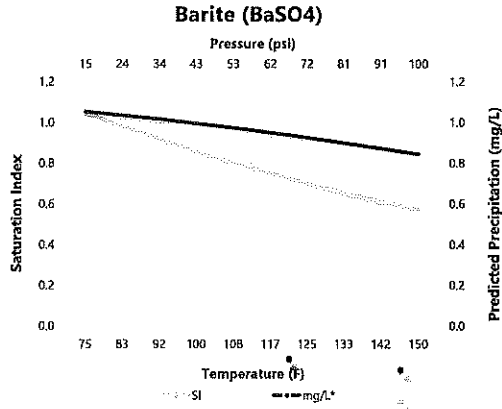
SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

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)
75°F	15 psi	1.05	0.369	0.57	40.996	-0.40	0.000	-0.63	0.000
83°F	24 psi	0.98	0.363	0.56	39.870	-0.40	0.000	-0.59	0.000
92°F	34 psi	0.92	0.356	0.57	40.880	-0.40	0.000	-0.56	0.000
100°F	43 psi	0.86	0.349	0.60	42.696	-0.39	0.000	-0.52	0.000
108°F	53 psi	0.80	0.341	0.64	44.868	-0.39	0.000	-0.48	0.000
117°F	62 psi	0.75	0.333	0.68	47.484	-0.39	0.000	-0.44	0.000
125°F	72 psi	0.70	0.324	0.73	50.470	-0.38	0.000	-0.40	0.000
133°F	81 psi	0.66	0.315	0.77	53.334	-0.38	0.000	-0.35	0.000
142°F	91 psi	0.61	0.306	0.82	56.080	-0.38	0.000	-0.31	0.000
150°F	100 psi	0.57	0.296	0.87	58.714	-0.37	0.000	-0.26	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)
75°F	15 psi	-0.03	0.000	-1.68	0.000	1.41	0.418	-0.89	0.000
83°F	24 psi	-0.02	0.000	-1.68	0.000	1.31	0.413	-0.89	0.000
92°F	34 psi	-0.02	0.000	-1.69	0.000	1.25	0.410	-0.85	0.000
100°F	43 psi	-0.02	0.000	-1.70	0.000	1.22	0.408	-0.80	0.000
108°F	53 psi	-0.02	0.000	-1.70	0.000	1.19	0.406	-0.74	0.000
117°F	62 psi	-0.02	0.000	-1.71	0.000	1.18	0.405	-0.69	0.000
125°F	72 psi	-0.01	0.000	-1.71	0.000	1.18	0.405	-0.62	0.000
133°F	81 psi	-0.01	0.000	-1.71	0.000	1.19	0.406	-0.56	0.000
142°F	91 psi	0.00	0.000	-1.72	0.000	1.19	0.406	-0.50	0.000
150°F	100 psi	0.01	0.421	-1.72	0.000	1.20	0.407	-0.45	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.