KOLAR Document ID: 1701817

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 # 7311
Name: Shakespeare Oil Co., Inc.
Address 1: 202 W MAIN ST
Address 2:
City: SALEM State: IL Zip: 62881 + 1519
Contact Person: Joseph McDanel
Phone: (618) 548-1585
Lease Name: GLASSMAN
Well Number: 6-35

API No.: 15-109-21010-00-01
Permit No: E31708.1
Reporting Year: 2022
(January 1 to December 31)

NE - NW - SE - NE (Q/Q/Q/Q) Sec. 35 Twp. 12 S. R. 32 ☐ E ☑ W
3718 feet from ☐ N / ☑ S Line of Section
988 feet from ☑ E / ☐ W Line of Section
County: Logan

I. Injection Fluid:

Type *(Pick one)*: ☐ Fresh Water ☐ Treated Brine ☐ Untreated Brine ☑ Water/Brine
Source: ☑ Produced Water ☐ Other *(Attach list)*
Quality: Total Dissolved Solids: 121183 mg/l Specific Gravity: 1.077 Additives:
(Attach water analysis, if available)

II. Well Data:

Maximum Authorized Injection Pressure: 1200 psi Injection Zone: JOHNSON
Maximum Authorized Injection Rate: 500 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	5164	0	0	0	31
February	5552	0	0	0	28
March	4602	0	0	0	31
April	4925	0	0	0	30
May	5005	0	0	0	31
June	5131	0	0	0	30
July	5489	0	0	0	31
August	4603	0	0	0	31
September	5304	0	0	0	30
October	4822	0	0	0	31
November	5112	0	0	0	30
December	5175	0	0	0	31
TOTAL	60884		0		

Submitted Electronically

BAKER HUGHES

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

CUSTOMER:	SHAKESPEARE OIL	ACCOUNT REP:	BRETT J SUTER
DISTRICT:	KANSAS	SAMPLE ID:	202310001785
AREA/LEASE:	GLASSMAN	SAMPLE DATE:	2/13/2023
SAMPLE POINT NAME	GLASSMAN 6-35	ANALYSIS DATE:	2/21/2023
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	TANK		
CUSTOMER SAMPLE POINT ID:			

SHAKESPEARE OIL, GLASSMAN, GLASSMAN 6-35

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:	mg/L	meq/L	CATIONS:	mg/L	meq/L
Initial Temperature (°F):	150	Chloride (Cl^-):	70712.0	1994.7	Sodium (Na^+):	45540.1	1981.7
Final Temperature (°F):	75	Sulfate (SO_4^{2-}):	2659.0	55.4	Potassium (K^+):	431.7	11.0
Initial Pressure (psi):	100	Borate (H_3BO_3):	177.1	2.9	Magnesium (Mg^{2+}):	460.6	37.9
Final Pressure (psi):	15	Fluoride (F^-):	ND		Calcium (Ca^{2+}):	867.1	43.3
		Bromide (Br^-):	ND		Strontium (Sr^{2+}):	50.1	1.1
pH:		Nitrite (NO_2^-):	ND		Barium (Ba^{2+}):	0.0	0.0
pH at time of sampling:	7.0	Nitrate (NO_3^-):	ND		Iron (Fe^{2+}):	1.5	0.1
		Phosphate (PO_4^{3-}):	0.4	0.0	Manganese (Mn^{2+}):	0.0	0.0
		Silica (SiO_2):	ND		Lead (Pb^{2+}):	ND	
					Zinc (Zn^{2+}):	0.6	0.0
ALKALINITY BY TITRATION:	mg/L	meq/L					
Bicarbonate (HCO_3^-):	460.0	7.5			Aluminum (Al^{3+}):	ND	
Carbonate (CO_3^{2-}):	ND				Chromium (Cr^{3+}):	ND	
Hydroxide (OH^-):	ND				Cobalt (Co^{2+}):	ND	
		ORGANIC ACIDS:	mg/L	meq/L	Copper (Cu^{2+}):	ND	
aqueous CO_2 (ppm):	210.0	Formic Acid:	ND		Molybdenum (Mo^{2+}):	ND	
aqueous H_2S (ppm):	25.0	Acetic Acid:	ND		Nickel (Ni^{2+}):	ND	
aqueous O2 (ppb):	ND	Propionic Acid:	ND		Tin (Sn^{2+}):	ND	
		Butyric Acid:	ND		Titanium (Ti^{2+}):	ND	
Calculated TDS (mg/L):	121183	Valeric Acid:	ND		Vanadium (V^{2+}):	ND	
Density/Specific Gravity (g/cm³):	1.0767				Zirconium (Zr^{2+}):	ND	
Measured Specific Gravity	ND				Lithium (Li):	ND	
Conductivity (mmhos):	ND						
Resistivity:	ND				Total Hardness:	4122	N/A
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:		0.99	ND = Not Determined		

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

Conditions		Barite ($BaSO_4$)		Calcite ($CaCO_3$)		Gypsum ($CaSO_4 \cdot 2H_2O$)		Anhydrite ($CaSO_4$)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
75°F	15 psi		0.000	0.62	49.295	-0.63	0.000	-0.83	0.000
83°F	24 psi		0.000	0.60	47.953	-0.62	0.000	-0.79	0.000
92°F	34 psi		0.000	0.62	48.885	-0.62	0.000	-0.75	0.000
100°F	43 psi		0.000	0.64	50.655	-0.61	0.000	-0.71	0.000
108°F	53 psi		0.000	0.67	52.781	-0.61	0.000	-0.67	0.000
117°F	62 psi		0.000	0.71	55.341	-0.61	0.000	-0.63	0.000
125°F	72 psi		0.000	0.75	58.327	-0.61	0.000	-0.59	0.000
133°F	81 psi		0.000	0.79	61.172	-0.61	0.000	-0.55	0.000
142°F	91 psi		0.000	0.84	63.889	-0.60	0.000	-0.51	0.000
150°F	100 psi		0.000	0.88	66.487	-0.60	0.000	-0.47	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)
75°F	15 psi	-0.16	0.000	-1.29	0.000	1.93	0.792	-0.53	0.000
83°F	24 psi	-0.15	0.000	-1.29	0.000	1.82	0.789	-0.52	0.000
92°F	34 psi	-0.15	0.000	-1.30	0.000	1.76	0.787	-0.49	0.000
100°F	43 psi	-0.15	0.000	-1.30	0.000	1.72	0.786	-0.44	0.000
108°F	53 psi	-0.15	0.000	-1.31	0.000	1.69	0.784	-0.39	0.000
117°F	62 psi	-0.15	0.000	-1.31	0.000	1.67	0.784	-0.34	0.000
125°F	72 psi	-0.15	0.000	-1.32	0.000	1.66	0.783	-0.28	0.000
133°F	81 psi	-0.15	0.000	-1.32	0.000	1.66	0.783	-0.23	0.000
142°F	91 psi	-0.14	0.000	-1.32	0.000	1.65	0.783	-0.18	0.000
150°F	100 psi	-0.14	0.000	-1.32	0.000	1.65	0.783	-0.13	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.

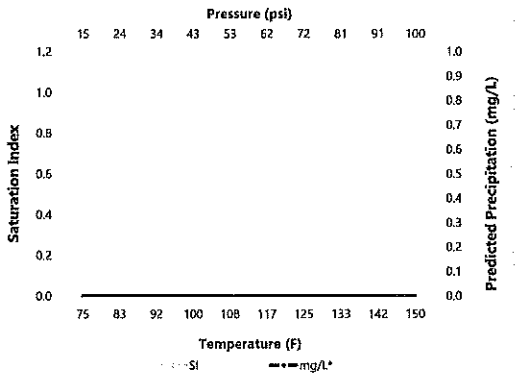
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

EESI
ScaleSoftPitzer™
SSP2010

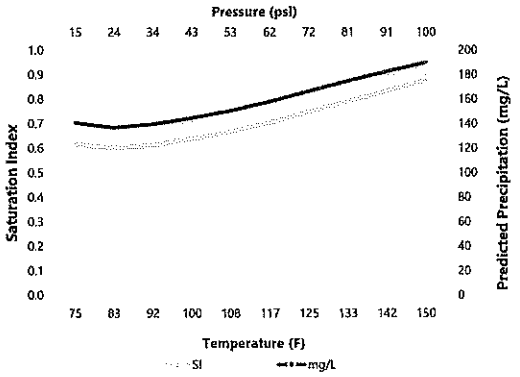
Comments:

SAMPLE ID: 202310001785 SHAKESPEARE OIL, GLASSMAN, GLASSMAN 6-35

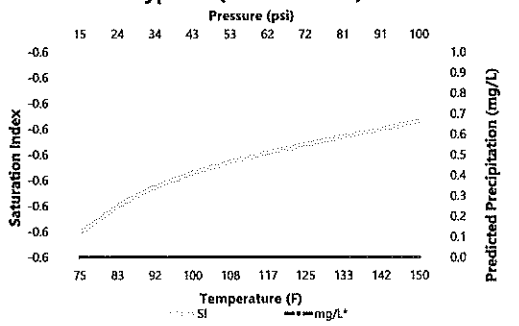
Barite (BaSO4)



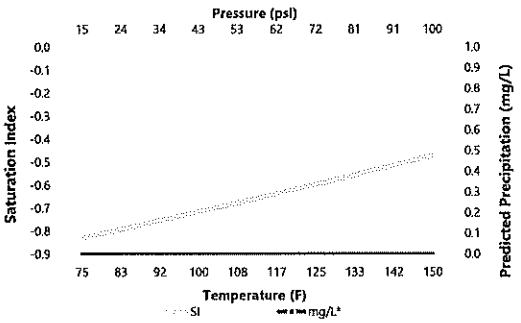
Calcite (CaCO3)



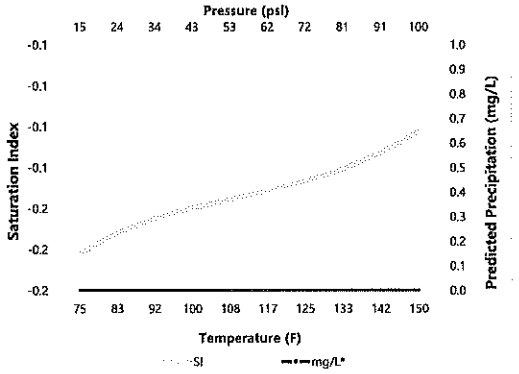
Gypsum (CaSO4·2H2O)



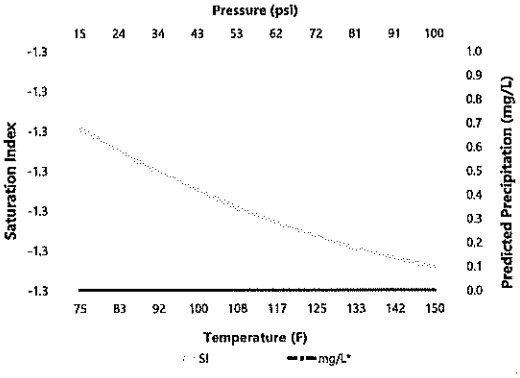
Anhydrite (CaSO4)



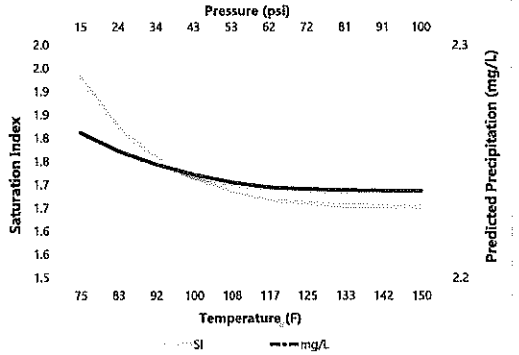
Celestite (SrSO4)



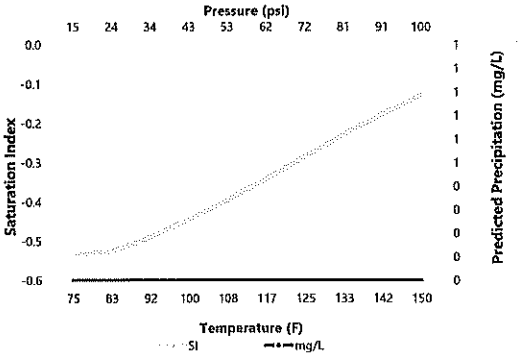
Halite (NaCl)



Iron Sulfide (FeS)



Iron Carbonate (FeCO3)



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