KOLAR Document ID: 1765215

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: OTTLEY
Well Number: 9-15

API No.: 15-109-21306-00-00
Permit No: E32078.1
Reporting Year: 2023
(January 1 to December 31)

NE - NW - NE - SW Sec. 15 Twp. 14 S. R. 32 ☐ E ☑ W
(Q/Q/Q/Q)
2576 feet from ☐ N / ☑ S Line of Section
3411 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: 83370 mg/l Specific Gravity: 1.052 Additives:
(Attach water analysis, if available)

II. Well Data:

Maximum Authorized Injection Pressure: 1070 psi Injection Zone: LANSING I
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	10829	220	0	0	31
February	8606	220	0	0	28
March	7700	225	0	0	30
April	0	0	0	0	0
May	9892	150	0	0	31
June	8391	110	0	0	30
July	8521	150	0	0	31
August	8638	150	0	0	31
September	8278	150	0	0	30
October	8546	175	0	0	31
November	8776	200	0	0	30
December	9008	200	0	0	31
TOTAL	97185		0		

Submitted Electronically

Baker Hughes

Central Area Laboratory
12701 N. Santa Fe Ave, Suite 151
Oklahoma City, Oklahoma 73114

Upstream Chemicals

REPORT DATE: 2/28/2024

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	SHAKESPEARE OIL	**ACCOUNT REP:**	BRETT J SUTER
DISTRICT:	KANSAS	**SAMPLE ID:**	202410001354
AREA/LEASE:	OTTLEY	**SAMPLE DATE:**	2/9/2024
SAMPLE POINT NAME	OTTLEY 9-15	**ANALYSIS DATE:**	2/23/2024
SITE TYPE:	WELL SITES	**ANALYST:**	BS
SAMPLE POINT DESCRIPTION:	TANK		
CUSTOMER SAMPLE POINT ID:			

SHAKESPEARE OIL, OTTLEY, OTTLEY 9-15

FIELD DATA

Initial Temperature (°F):	100
Final Temperature (°F):	40
Initial Pressure (psi):	100
Final Pressure (psi):	15
pH:	
pH at time of sampling:	7.0

ALKALINITY BY TITRATION:	**mg/L**	**meq/L**
Bicarbonate (HCO_3^-):	520.0	8.5
Carbonate (CO_3^{2-}):	ND	
Hydroxide (OH^-):	ND	

aqueous CO_2 (ppm):	200.0
aqueous H_2S (ppm):	15.0
aqueous O2 (ppb):	ND
Calculated TDS (mg/L):	83370
Density/Specific Gravity (g/cm³):	1.0520
Measured Specific Gravity	ND
Conductivity (mmhos):	ND
Resistivity:	ND
MCF/D:	No Data
BOPD:	No Data
BWPD:	No Data

ANALYSIS OF SAMPLE

ANIONS:	**mg/L**	**meq/L**
Chloride (Cl^-):	50335.0	1419.9
Sulfate (SO_4^{2-}):	2483.0	51.7
Borate (H_3BO_3):	185.0	3.0
Fluoride (F^-):	ND	
Bromide (Br^-):	ND	
Nitrite (NO_2^-):	ND	
Nitrate (NO_3^-):	ND	
Phosphate (PO_4^{3-}):	1.2	0.0
Silica (SiO_2):	ND	

ORGANIC ACIDS:	**mg/L**	**meq/L**
Formic Acid:	ND	
Acetic Acid:	ND	
Propionic Acid:	ND	
Butyric Acid:	ND	
Valeric Acid:	ND	

Anion/Cation Ratio:	1.12

CATIONS:	**mg/L**	**meq/L**
Sodium (Na^+):	28310.1	1231.9
Potassium (K^+):	343.7	8.8
Magnesium (Mg^{2+}):	410.2	33.8
Calcium (Ca^{2+}):	907.5	45.3
Strontium (Sr^{2+}):	54.2	1.2
Barium (Ba^{2+}):	0.6	0.0
Iron (Fe^{2+}):	5.7	0.2
Manganese (Mn^{2+}):	0.1	0.0
Lead (Pb^{2+}):	ND	
Zinc (Zn^{2+}):	0.3	0.0
Aluminum (Al^{3+}):	ND	
Chromium (Cr^{3+}):	ND	
Cobalt (Co^{2+}):	ND	
Copper (Cu^{2+}):	ND	
Molybdenum (Mo^{2+}):	ND	
Nickel (Ni^{2+}):	ND	
Tin (Sn^{2+}):	ND	
Titanium (Ti^{2+}):	ND	
Vanadium (V^{2+}):	ND	
Zirconium (Zr^{2+}):	ND	
Lithium (Li):	ND	
Total Hardness:	4021	N/A

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)**
40°F	15 psi	1.30	0.351	0.40	35.663	-0.54	0.000	-0.89	0.000
47°F	24 psi	1.23	0.347	0.40	35.792	-0.52	0.000	-0.85	0.000
53°F	34 psi	1.16	0.344	0.42	37.821	-0.52	0.000	-0.82	0.000
60°F	43 psi	1.09	0.340	0.45	40.486	-0.51	0.000	-0.80	0.000
67°F	53 psi	1.03	0.335	0.49	44.063	-0.51	0.000	-0.77	0.000
73°F	62 psi	0.97	0.330	0.54	47.937	-0.51	0.000	-0.74	0.000
80°F	72 psi	0.92	0.325	0.58	51.658	-0.51	0.000	-0.71	0.000
87°F	81 psi	0.87	0.319	0.62	55.240	-0.50	0.000	-0.68	0.000
93°F	91 psi	0.81	0.313	0.66	58.695	-0.50	0.000	-0.66	0.000
100°F	100 psi	0.77	0.306	0.70	62.028	-0.50	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)**
40°F	15 psi	-0.03	0.000	-1.64	0.000	2.37	3.111	-0.26	0.000
47°F	24 psi	-0.03	0.000	-1.65	0.000	2.26	3.106	-0.24	0.000
53°F	34 psi	-0.03	0.000	-1.66	0.000	2.20	3.103	-0.20	0.000
60°F	43 psi	-0.03	0.000	-1.66	0.000	2.16	3.100	-0.15	0.000
67°F	53 psi	-0.03	0.000	-1.67	0.000	2.14	3.099	-0.09	0.000
73°F	62 psi	-0.03	0.000	-1.68	0.000	2.13	3.099	-0.02	0.000
80°F	72 psi	-0.03	0.000	-1.69	0.000	2.13	3.098	0.05	0.381
87°F	81 psi	-0.03	0.000	-1.69	0.000	2.12	3.098	0.11	0.850
93°F	91 psi	-0.03	0.000	-1.70	0.000	2.12	3.098	0.17	1.252
100°F	100 psi	-0.03	0.000	-1.70	0.000	2.11	3.098	0.23	1.597

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

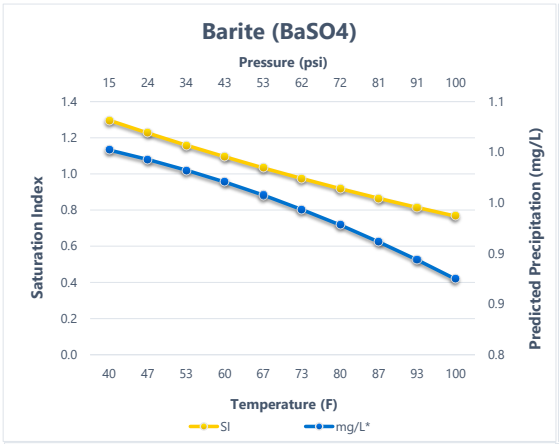
Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

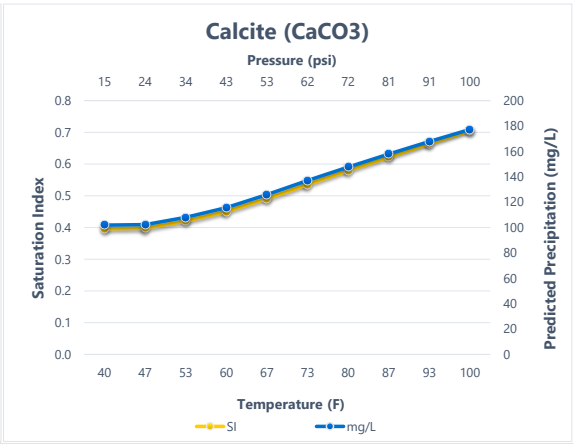
Note 3: Saturation Index predictions on this sheet use pH and alkalinity; $\%CO_2$ is not included in the calculations.

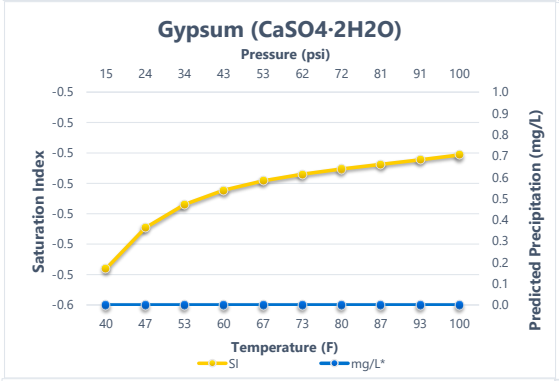
EESI ScaleSoftPitzer™ SSP2010

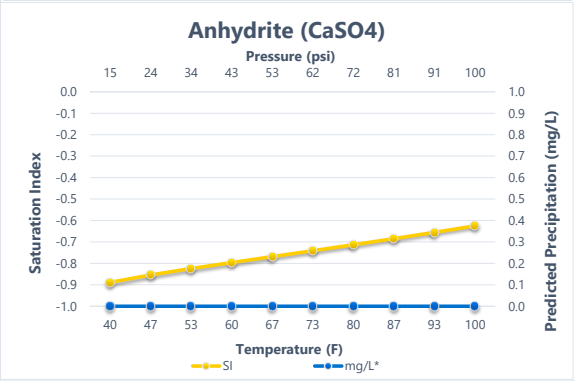
Comments:

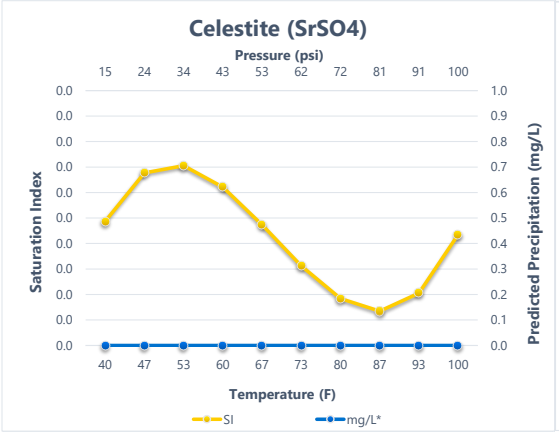
SAMPLE ID: 202410001354 SHAKESPEARE OIL, OTTLEY, OTTLEY 9-15

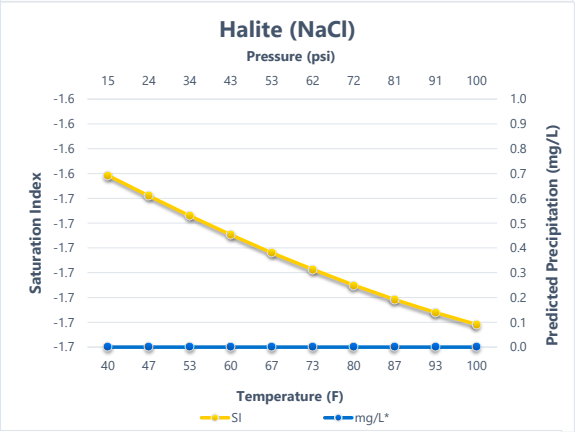


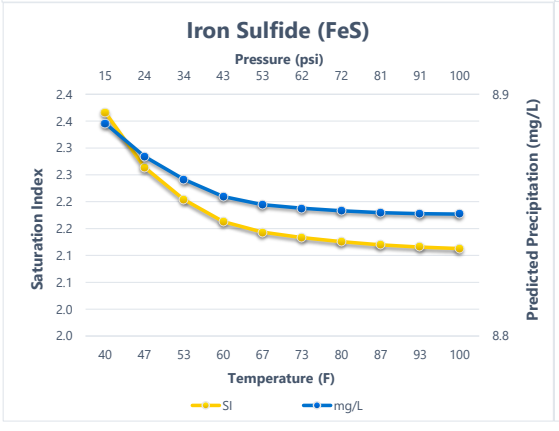


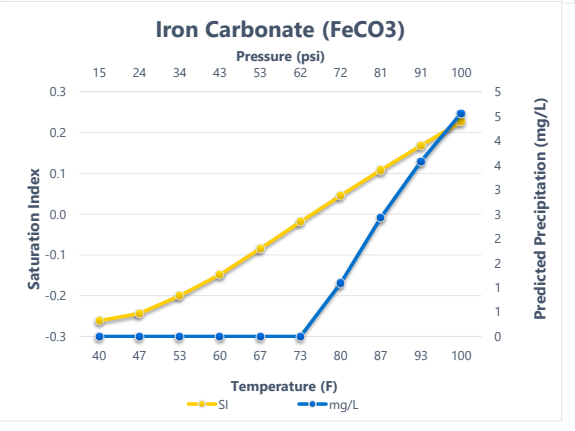












SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.