KOLAR Document ID: 1701838

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: ROBBINS
Well Number: 1-27

API No.: 15-101-21940-00-01
Permit No: D32850.0
Reporting Year: 2022
(January 1 to December 31)

____ - SE - SE - SE Sec. 27 Twp. 18 S. R. 29 ☐ E ☑ W
(Q/Q/Q/Q)
424 feet from ☐ N / ☑ S Line of Section
310 feet from ☑ E / ☐ W Line of Section
County: Lane

I. Injection Fluid:

Type *(Pick one)*: ☐ Fresh Water ☐ Treated Brine ☐ Untreated Brine ☑ Water/Brine
Source: ☑ Produced Water ☐ Other *(Attach list)*
Quality: Total Dissolved Solids: 55400 mg/l Specific Gravity: 1.043 Additives:
(Attach water analysis, if available)

II. Well Data:

Maximum Authorized Injection Pressure: 0 psi Injection Zone: CEDAR HILLS
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	4212	0	0	0	31
February	4222	0	0	0	28
March	3887	0	0	0	31
April	3622	0	0	0	30
May	3954	0	0	0	31
June	3625	0	0	0	30
July	4310	0	0	0	31
August	3454	0	0	0	31
September	3658	0	0	0	30
October	4363	0	0	0	31
November	3923	0	0	0	30
December	3694	0	0	0	31
TOTAL	46924		0		

Submitted Electronically

CHAMPIONX

Complete Water Analysis

Customer:	**SHAKESPEARE OIL COMPANY**	Equipment Description:	**Robbins 1-27**	Collection Date:	**02/16/2023**
Geographic Region:	**Kansas**	Sample Point:	**Bleeder**	Receive Date:	**02/22/2023**
Geographic Location:	**Lane County**	Sample ID:	**AV13084**	Report Date:	**02/23/2023**
System Description:	**Production System**	Account Rep:	**Michael.Walters@championx.com**	Location Code:	**430663**

Field Analysis

Analysis	Result		Analysis Method
Total Alkalinity (M-Alk as HCO3)	**273**	mg/L	Titration
Dissolved CO2	**330**	mg/L	Titration
Dissolved H2S	**100**	mg/L	Titration
Pressure Surface	**25**	psi	
Temperature	**100**	° F	
pH of Water	**7.5**		Meter

Sample Analysis

Analysis	Result		Analysis Method
Specific Gravity	**1.043**		Densitometer
Ionic Strength	**1.00**	mol/L	Calculation
Total Dissolved Solids	**55400**	mg/L	Calculation
Calculated pH	**7.50**		Calculation
Calculated CO2 in the gas	**0.160**	%	Calculation

Cations - Analyzed By ICP

Iron	**<0.500**	mg/L	Boron	**24.0**	mg/L	Silicon	**8.32**	mg/L
Manganese	**<0.200**	mg/L	Lithium	**<1.000**	mg/L	Aluminum	**<0.400**	mg/L
Barium	**<0.100**	mg/L	Copper	**<0.200**	mg/L	Molybdenum	**<0.200**	mg/L
Strontium	**32.7**	mg/L	Nickel	**<0.200**	mg/L	Phosphorus	**1.28**	mg/L
Calcium	**941**	mg/L	Zinc	**<0.400**	mg/L	Measured Sodium	**19200**	mg/L
Magnesium	**325**	mg/L	Lead	**<0.500**	mg/L			
Sodium	**19200**	mg/L	Cobalt	**0.797**	mg/L			
Potassium	**221**	mg/L	Chromium	**<0.100**	mg/L			

Anions - Analyzed by IC

Chloride	**30500**	mg/L	Sulfate	**3630**	mg/L
Bromide	**25.5**	mg/L			

PTB

	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.00	20.71	0.00	0.00	0.00	0.00	0.00
75°	0.00	0.00	21.18	0.00	0.00	0.00	0.00	0.00
100°	0.00	0.00	21.86	0.00	0.00	0.00	0.00	0.00
125°	0.00	0.00	22.81	1.47	0.00	0.00	0.00	0.00
150°	0.00	0.00	24.00	4.13	0.00	0.00	0.00	0.00
175°	49.04	0.00	25.36	6.86	0.00	0.00	0.00	0.00
200°	245.40	0.00	26.85	9.44	0.00	0.00	0.00	0.00
225°	402.97	0.00	28.42	11.77	0.00	0.00	0.00	0.00
250°	530.97	0.00	30.07	13.81	0.00	0.00	0.00	0.00
275°	635.83	0.00	31.78	15.56	0.00	0.00	0.00	0.00
300°	722.49	0.00	33.54	17.03	0.00	0.00	0.00	0.00
325°	794.61	0.00	35.38	18.26	0.00	0.00	0.00	0.00
350°	854.86	0.00	37.31	19.27	0.00	0.00	0.00	0.00
375°	905.23	0.00	39.34	20.10	9.70	0.00	0.00	0.00
400°	947.13	0.00	41.47	20.76	437.94	0.00	0.00	0.00

SI

	Anhydrite	Calcite	Celestite	Gypsum	Halite
50°	-0.83	0.43	-0.04	-0.23	-2.05
75°	-0.62	0.45	-0.04	-0.25	-2.09
100°	-0.44	0.48	-0.01	-0.24	-2.11
125°	-0.27	0.52	0.03	-0.22	-2.12
150°	-0.11	0.58	0.08	-0.20	-2.13
175°	0.03	0.65	0.15	-0.20	-2.13
200°	0.17	0.73	0.15	-0.20	-2.13
225°	0.30	0.82	0.29	-0.21	-2.12
250°	0.42	0.91	0.37	-0.23	-2.11
275°	0.54	1.02	0.46	-0.25	-2.10
300°	0.66	1.12	0.54	-0.25	-2.08
325°	0.77	1.23	0.62	-0.22	-2.06
350°	0.88	1.33	0.71	-0.14	-2.04
375°	1.00	1.43	0.79	0.00	-2.01
400°	1.11	1.53	0.87	0.25	-1.98

Comments

Scaling predictions calculated using Scale Soft Pitzer 2019

Scaling predictions dependent on provided field data. Incomplete/partial field data may impact results generated by scaling software.

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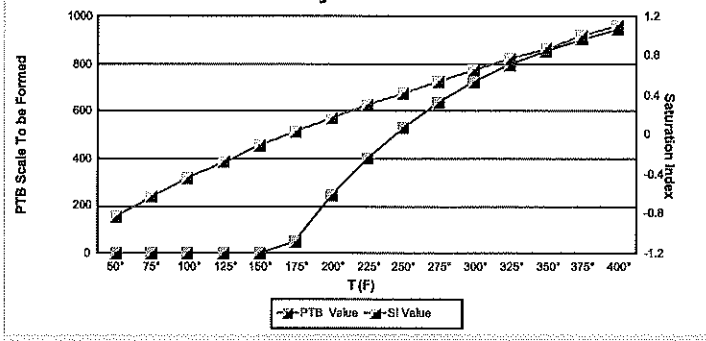
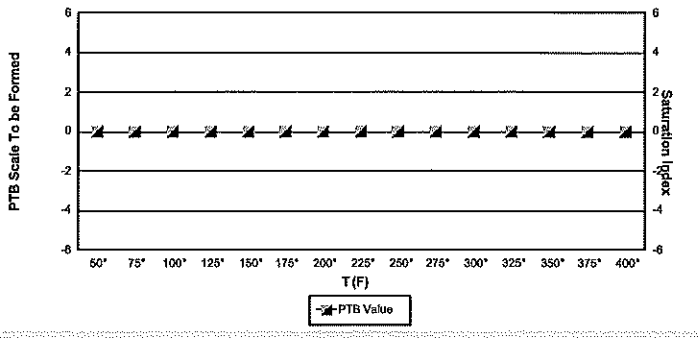
System Description:	Production System	Account Rep:	Michael.Walters@championx.com	Location Code:	430663

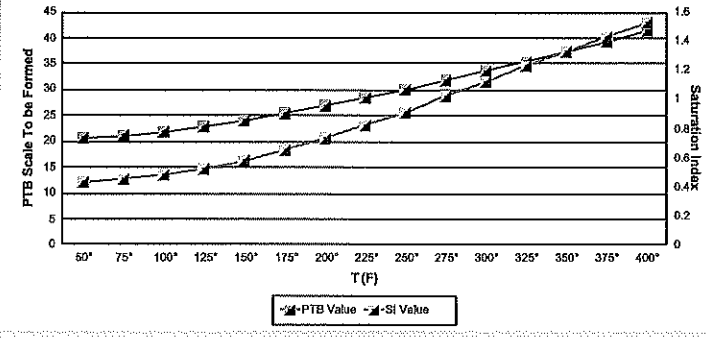
Anhydrite CaSO4



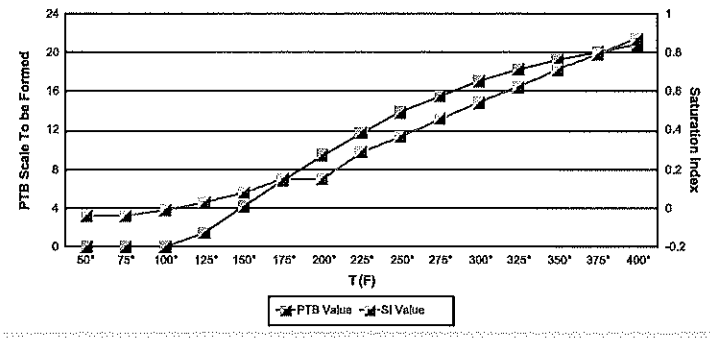
Barite BaSO4



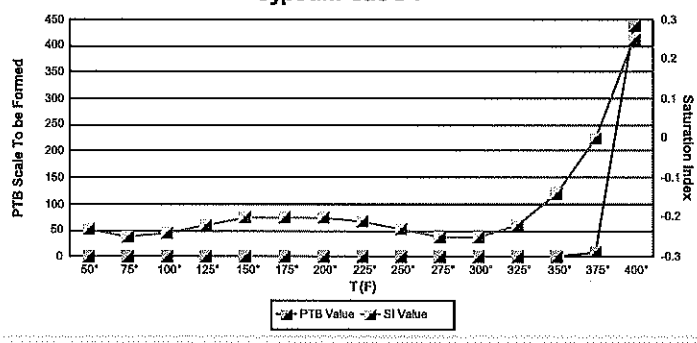
Calcite CaCO3



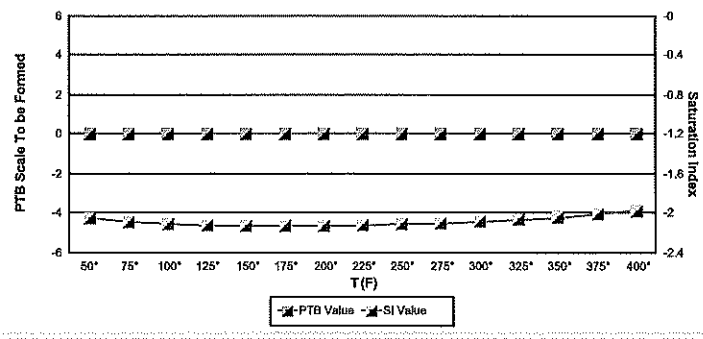
Celestite SrSO4



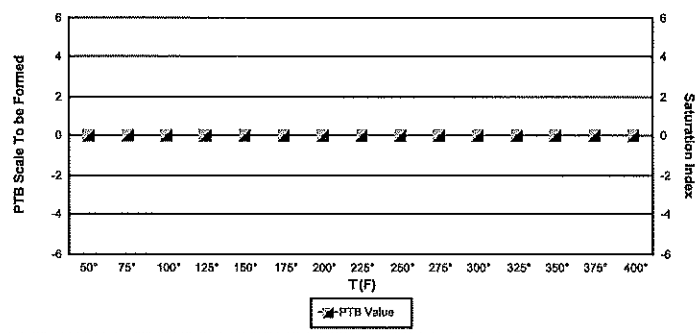
Gypsum CaSO4



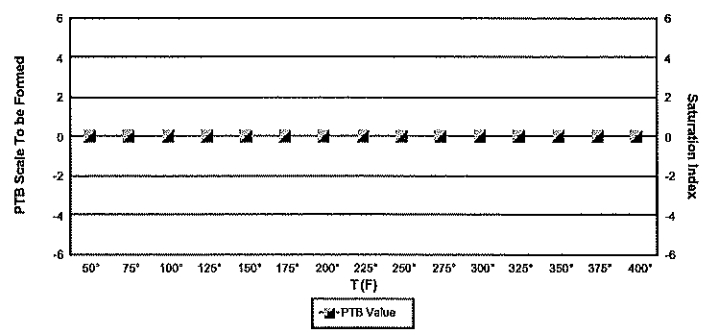
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



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