

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	_____	_____	_____	_____	_____
	TOTAL	_____	_____	_____	_____	_____

Complete Water Analysis

Customer: **SHAKESPEARE OIL COMPANY**
 Geographic Region: **Kansas**
 Geographic Location: **Lane County**
 System Description: **Production System**

Equipment Description: **WR Albin 1**
 Sample Point: **Bleeder**
 Sample ID: **AV13081**
 Account Rep: **Michael.Walters@championx.com**

Collection Date: **02/16/2023**
 Receive Date: **02/22/2023**
 Report Date: **02/23/2023**
 Location Code: **430652**

Field Analysis

Analysis	Result	Analysis Method
Total Alkalinity (M-Alk as HCO ₃)	244 mg/L	Titration
Dissolved CO ₂	290 mg/L	Titration
Dissolved H ₂ S	92 mg/L	Titration
Pressure Surface	25 psi	
Temperature	100 °F	
pH of Water	7.5	Meter

Sample Analysis

Analysis	Result	Analysis Method
Specific Gravity	1.085	Densitometer
Ionic Strength	2.06 mol/L	Calculation
Total Dissolved Solids	115000 mg/L	Calculation
Calculated pH	7.50	Calculation
Calculated CO ₂ in the gas	0.110 %	Calculation

Cations - Analyzed By ICP

Iron	1.84 mg/L	Boron	19.6 mg/L	Silicon	6.67 mg/L
Manganese	<0.200 mg/L	Lithium	<1.000 mg/L	Aluminum	<0.400 mg/L
Barium	0.146 mg/L	Copper	<0.200 mg/L	Molybdenum	<0.200 mg/L
Strontium	54.0 mg/L	Nickel	<0.200 mg/L	Phosphorus	<0.500 mg/L
Calcium	1910 mg/L	Zinc	<0.400 mg/L	Measured Sodium	40600 mg/L
Magnesium	589 mg/L	Lead	<0.500 mg/L		
Sodium	40600 mg/L	Cobalt	1.30 mg/L		
Potassium	404 mg/L	Chromium	<0.100 mg/L		

Anions - Analyzed by IC

Chloride	68200 mg/L	Sulfate	3360 mg/L
Bromide	52.1 mg/L		

PTB

	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.06	27.78	0.00	0.00	0.00	0.00	1.01
75°	0.00	0.05	27.89	0.00	0.00	0.00	0.00	1.01
100°	0.00	0.03	27.91	0.00	0.00	0.00	0.00	1.01
125°	0.00	0.01	27.97	3.56	0.00	0.00	0.00	1.01
150°	0.00	0.00	28.11	8.29	0.00	0.00	0.00	1.00
175°	238.56	0.00	28.35	12.75	0.00	0.00	0.00	1.00
200°	468.00	0.00	28.70	16.73	0.00	0.00	0.00	1.00
225°	651.07	0.00	29.16	20.19	0.00	0.00	0.00	1.00
250°	799.54	0.00	29.73	23.13	0.00	0.00	0.00	1.00
275°	921.51	0.00	30.40	25.61	0.00	0.00	0.00	1.01
300°	1,023.17	0.00	31.18	27.68	0.00	0.00	0.00	1.01
325°	1,109.12	0.00	32.06	29.42	0.00	0.00	0.00	1.01
350°	1,182.74	0.00	33.04	30.88	0.00	0.00	0.00	1.01
375°	1,246.40	0.00	34.13	32.10	0.00	0.00	0.00	1.01
400°	1,301.63	0.00	35.32	33.10	346.73	0.00	0.00	1.01

SI

	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	-0.76	0.60	0.75	-0.07	-0.19	-1.35	-0.95	2.66
75°	-0.54	0.37	0.78	-0.05	-0.20	-1.37	-0.81	2.37
100°	-0.35	0.18	0.81	-0.01	-0.18	-1.38	-0.69	2.17
125°	-0.18	0.03	0.85	0.04	-0.16	-1.40	-0.58	2.04
150°	-0.02	-0.10	0.91	0.10	-0.15	-1.40	-0.48	1.96
175°	0.12	-0.21	0.97	0.17	-0.15	-1.41	-0.39	1.92
200°	0.24	-0.29	1.04	0.17	-0.16	-1.41	-0.31	1.92
225°	0.36	-0.36	1.11	0.31	-0.18	-1.41	-0.24	1.94
250°	0.47	-0.42	1.19	0.38	-0.22	-1.40	-0.18	1.98
275°	0.57	-0.47	1.27	0.46	-0.25	-1.40	-0.14	2.04
300°	0.67	-0.52	1.35	0.52	-0.27	-1.39	-0.12	2.10
325°	0.76	-0.57	1.42	0.59	-0.26	-1.38	-0.11	2.16
350°	0.85	-0.62	1.48	0.66	-0.21	-1.37	-0.13	2.23
375°	0.94	-0.67	1.54	0.72	-0.08	-1.36	-0.17	2.29
400°	1.03	-0.74	1.59	0.78	0.13	-1.34	-0.24	2.36

Comments

Scaling predictions calculated using Scale Soft Pitzer 2010

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

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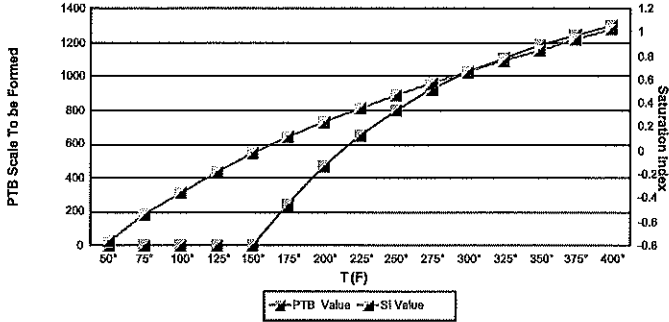
Complete Water Analysis

Customer: SHAKESPEARE OIL COMPANY
 Geographic Region: Kansas
 Geographic Location: Lane County
 System Description: Production System

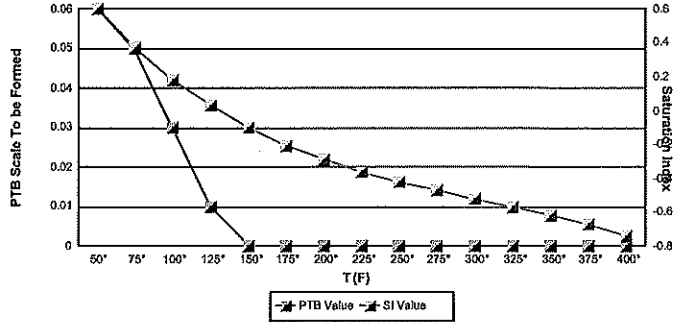
Equipment Description: WR Albin 1
 Sample Point: Bleeder
 Sample ID: AV13081
 Account Rep: Michael.Walters@championx.com

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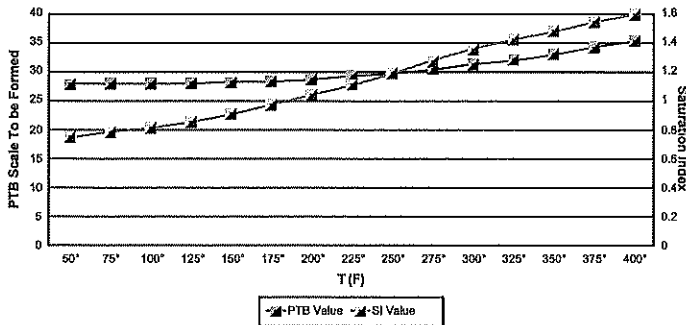
Anhydrite CaSO4



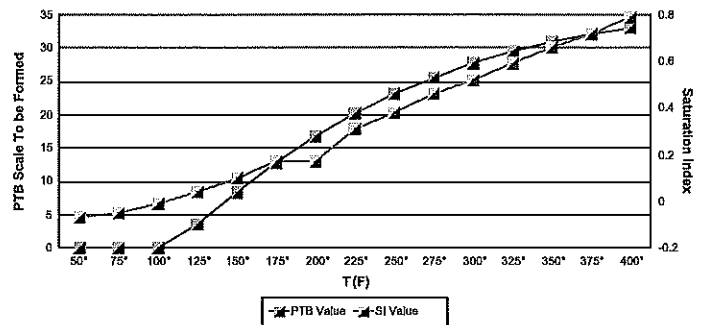
Barite BaSO4



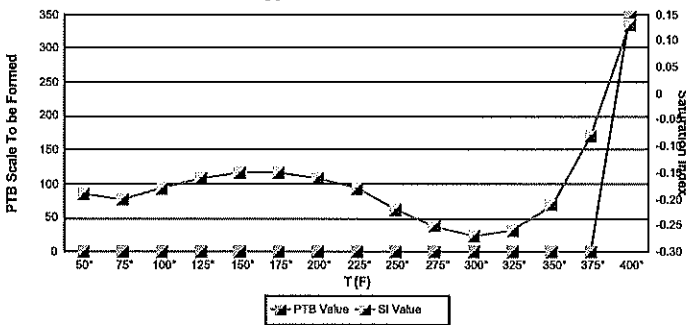
Calcite CaCO3



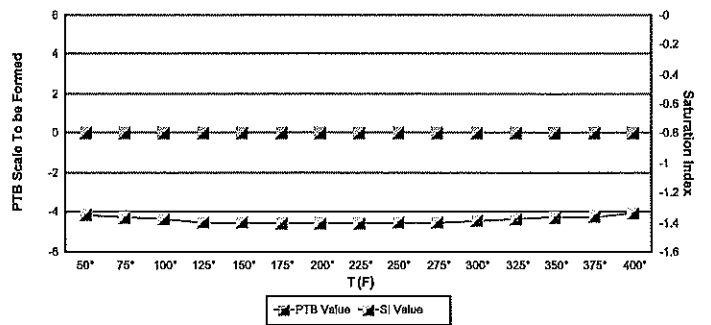
Celestite SrSO4



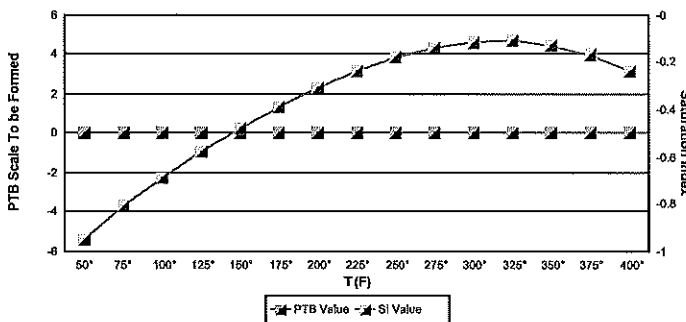
Gypsum CaSO4



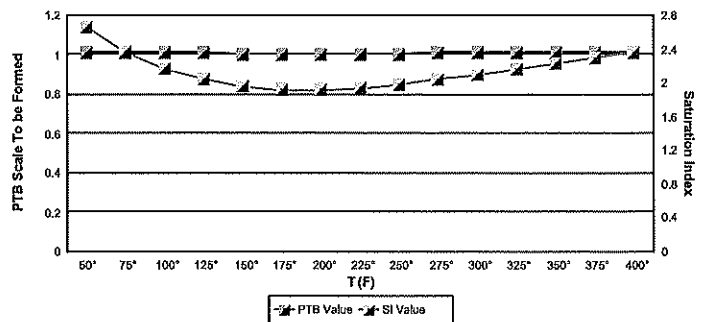
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



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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