

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: **Scott County**
 System Description: **Production System**

Equipment Description: **Strickert WI 1**
 Sample Point: **SWD**
 Sample ID: **AV13092**
 Account Rep: **Michael.Walters@championx.com**

Collection Date: **02/16/2023**
 Receive Date: **02/22/2023**
 Report Date: **02/23/2023**
 Location Code: **503171**

Field Analysis		
Analysis	Result	Analysis Method
Total Alkalinity (M-Alk as HCO ₃)	278 mg/L	Titration
Dissolved CO ₂	460 mg/L	Titration
Dissolved H ₂ S	110 mg/L	Titration
Pressure Surface	25 psi	
Temperature	100 ° F	
pH of Water	7.5	Meter

Sample Analysis		
Analysis	Result	Analysis Method
Specific Gravity	1.026	Densitometer
Ionic Strength	0.560 mol/L	Calculation
Total Dissolved Solids	29200 mg/L	Calculation
Calculated pH	7.50	Calculation
Calculated CO ₂ in the gas	0.180 %	Calculation

Cations - Analyzed By ICP

Iron	<0.500 mg/L	Boron	15.0 mg/L	Silicon	10.8 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	31.7 mg/L	Nickel	<0.200 mg/L	Phosphorus	<0.500 mg/L
Calcium	1050 mg/L	Zinc	<0.400 mg/L	Measured Sodium	9910 mg/L
Magnesium	286 mg/L	Lead	<0.500 mg/L		
Sodium	9910 mg/L	Cobalt	0.689 mg/L		
Potassium	164 mg/L	Chromium	<0.100 mg/L		

Anions - Analyzed by IC

Chloride	15200 mg/L	Sulfate	2220 mg/L
Bromide	22.2 mg/L		

	PTB							
	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.00	23.29	0.00	0.00	0.00	0.00	0.00
75°	0.00	0.00	23.30	0.00	0.00	0.00	0.00	0.00
100°	0.00	0.00	23.66	0.00	0.00	0.00	0.00	0.00
125°	0.00	0.00	24.38	0.00	0.00	0.00	0.00	0.00
150°	0.00	0.00	25.40	0.05	0.00	0.00	0.00	0.00
175°	40.24	0.00	26.68	3.03	0.00	0.00	0.00	0.00
200°	210.35	0.00	28.16	5.99	0.00	0.00	0.00	0.00
225°	349.75	0.00	29.79	8.75	0.00	0.00	0.00	0.00
250°	465.62	0.00	31.56	11.22	0.00	0.00	0.00	0.00
275°	562.96	0.00	33.46	13.37	0.00	0.00	0.00	0.00
300°	645.66	0.00	35.49	15.20	0.00	0.00	0.00	0.00
325°	716.57	0.00	37.64	16.72	0.00	0.00	0.00	0.00
350°	777.81	0.00	39.94	17.98	0.00	0.00	0.00	0.00
375°	830.89	0.00	42.38	19.00	163.95	0.00	0.00	0.00
400°	876.92	0.00	44.94	19.81	505.76	0.00	0.00	0.00

	SI				
	Anhydrite	Calcite	Celestite	Gypsum	Halite
50°	-0.83	0.46	-0.07	-0.21	-2.61
75°	-0.63	0.47	-0.09	-0.24	-2.65
100°	-0.44	0.49	-0.08	-0.23	-2.68
125°	-0.28	0.53	-0.05	-0.21	-2.69
150°	-0.12	0.58	0.00	-0.20	-2.70
175°	0.03	0.65	0.06	-0.18	-2.70
200°	0.17	0.73	0.06	-0.18	-2.70
225°	0.31	0.82	0.21	-0.19	-2.69
250°	0.44	0.92	0.29	-0.20	-2.67
275°	0.57	1.03	0.37	-0.21	-2.65
300°	0.70	1.15	0.46	-0.20	-2.63
325°	0.83	1.27	0.55	-0.18	-2.60
350°	0.95	1.39	0.65	-0.06	-2.57
375°	1.08	1.52	0.74	0.10	-2.54
400°	1.21	1.64	0.83	0.36	-2.49

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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 02/24/2023

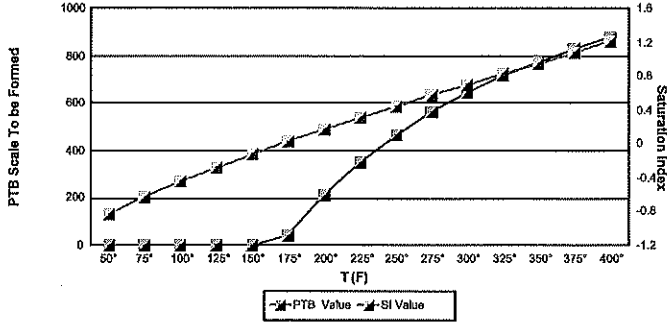
Complete Water Analysis

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 Geographic Region: **Kansas**
 Geographic Location: **Scott County**
 System Description: **Production System**

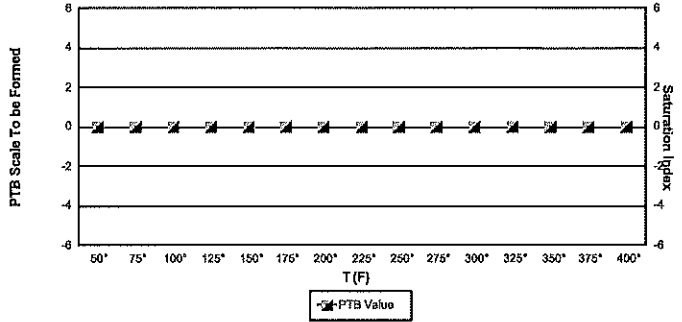
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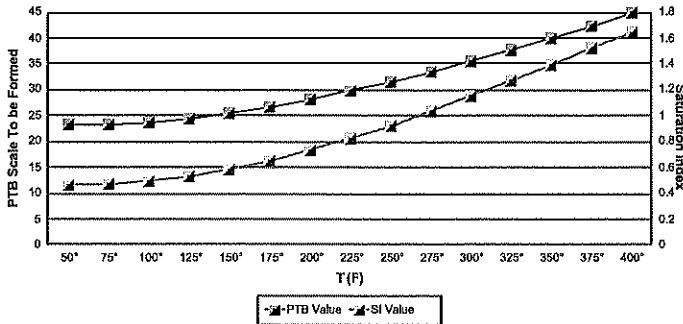
Anhydrite CaSO4



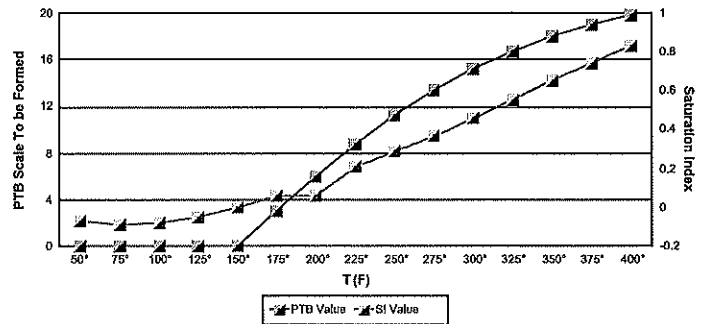
Barite BaSO4



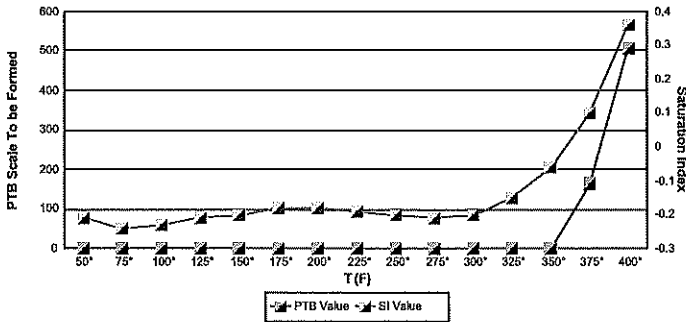
Calcite CaCO3



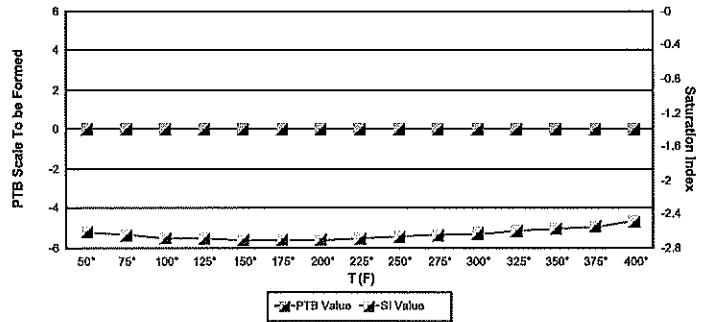
Celestite SrSO4



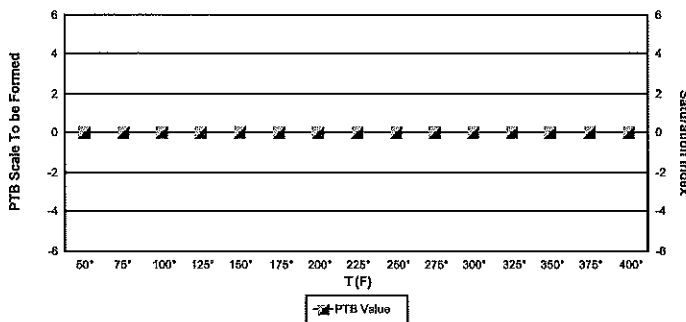
Gypsum CaSO4



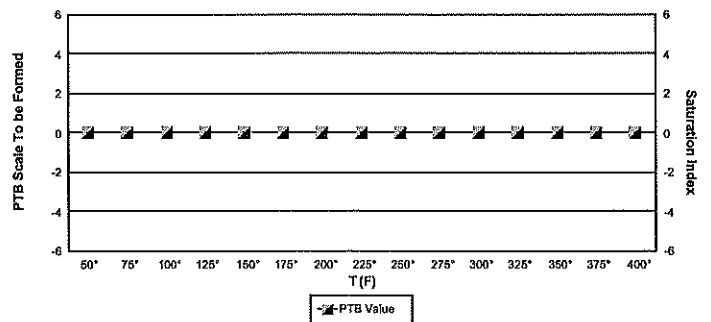
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



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