

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: **Lucille 2-34**
 Sample Point: **Bleeder**
 Sample ID: **AV13075**
 Account Rep: **Michael.Walters@championx.com**

Collection Date: **02/16/2023**
 Receive Date: **02/22/2023**
 Report Date: **02/23/2023**
 Location Code: **430662**

Field Analysis		
Analysis	Result	Analysis Method
Total Alkalinity (M-Alk as HCO ₃)	137 mg/L	Titration
Dissolved CO ₂	160 mg/L	Titration
Dissolved H ₂ S	95 mg/L	Titration
Pressure Surface	25 psi	
Temperature	100 ° F	
pH of Water	7.5	Meter

Sample Analysis		
Analysis	Result	Analysis Method
Specific Gravity	1.042	Densitometer
Ionic Strength	0.970 mol/L	Calculation
Total Dissolved Solids	53400 mg/L	Calculation
Calculated pH	7.50	Calculation
Calculated CO ₂ in the gas	0.00 %	Calculation

Cations - Analyzed By ICP

Iron	<0.500 mg/L	Boron	22.9 mg/L	Silicon	8.31 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	36.1 mg/L	Nickel	<0.200 mg/L	Phosphorus	4.20 mg/L
Calcium	983 mg/L	Zinc	<0.400 mg/L	Measured Sodium	18400 mg/L
Magnesium	333 mg/L	Lead	<0.500 mg/L		
Sodium	18400 mg/L	Cobalt	0.844 mg/L		
Potassium	219 mg/L	Chromium	<0.100 mg/L		

Anions - Analyzed by IC

Chloride	29500 mg/L	Sulfate	3730 mg/L
Bromide	25.5 mg/L		

	PTB							
	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.00	0.00	0.47	0.00	0.00	0.00	0.00
75°	0.00	0.00	0.00	0.23	0.00	0.00	0.00	0.00
100°	0.00	0.00	0.00	1.57	0.00	0.00	0.00	0.00
125°	0.00	0.00	0.00	3.81	0.00	0.00	0.00	0.00
150°	0.00	0.00	0.00	6.46	0.00	0.00	0.00	0.00
175°	77.91	0.00	0.00	9.19	0.00	0.00	0.00	0.00
200°	273.96	0.00	0.00	11.78	0.00	0.00	0.00	0.00
225°	431.83	0.00	0.00	14.13	0.00	0.00	0.00	0.00
250°	580.58	0.00	0.00	16.19	0.00	0.00	0.00	0.00
275°	666.53	0.00	0.00	17.95	0.00	0.00	0.00	0.00
300°	754.55	0.00	0.00	19.44	0.00	0.00	0.00	0.00
325°	828.20	0.00	0.00	20.69	0.00	0.00	0.00	0.00
350°	890.12	0.00	0.00	21.71	0.00	0.00	0.00	0.00
375°	942.21	0.00	0.00	22.55	55.65	0.00	0.00	0.00
400°	985.85	0.00	0.00	23.23	481.76	0.00	0.00	0.00

	SI			
	Anhydrite	Celestite	Gypsum	Halite
50°	-0.81	0.01	-0.21	-2.08
75°	-0.61	0.00	-0.23	-2.12
100°	-0.42	0.03	-0.22	-2.14
125°	-0.25	0.07	-0.20	-2.16
150°	-0.10	0.12	-0.19	-2.16
175°	0.05	0.19	-0.18	-2.17
200°	0.19	0.19	-0.18	-2.16
225°	0.32	0.33	-0.19	-2.16
250°	0.44	0.41	-0.21	-2.15
275°	0.56	0.49	-0.23	-2.13
300°	0.68	0.58	-0.23	-2.12
325°	0.79	0.66	-0.20	-2.10
350°	0.91	0.75	-0.12	-2.07
375°	1.02	0.83	0.03	-2.04
400°	1.13	0.91	0.27	-2.01

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

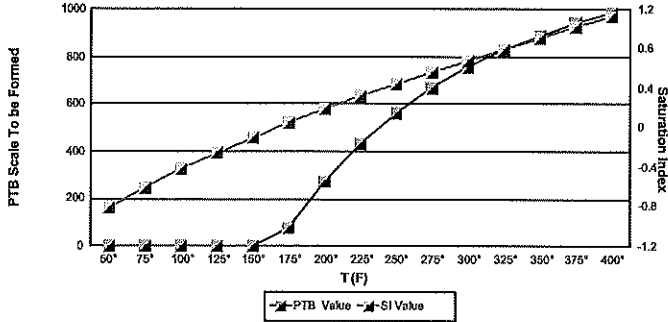
Complete Water Analysis

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

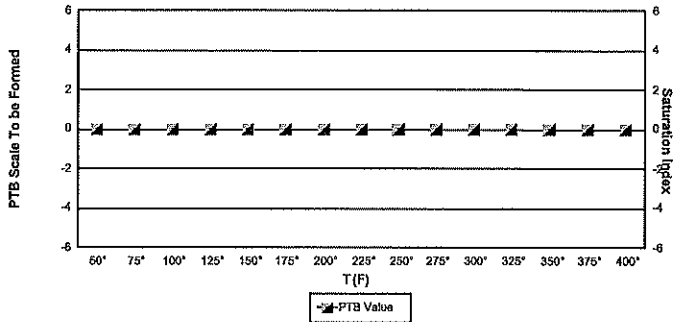
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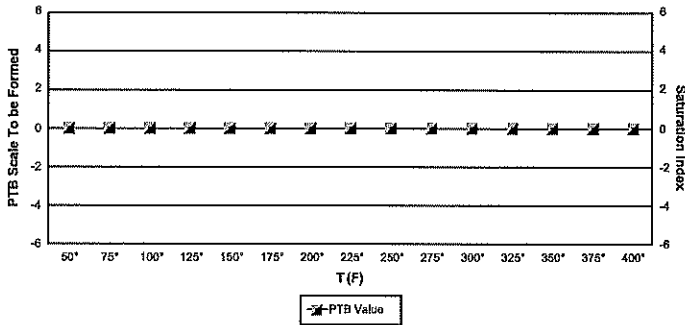
Anhydrite CaSO4



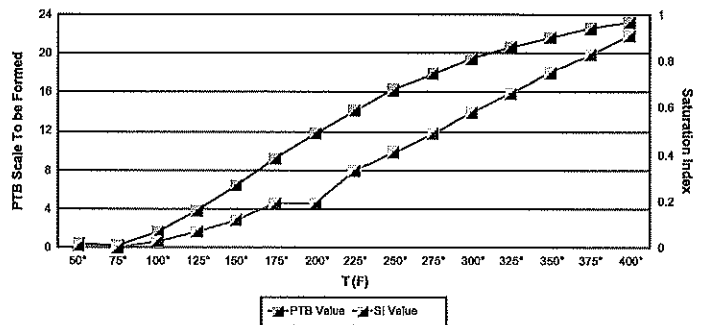
Barite BaSO4



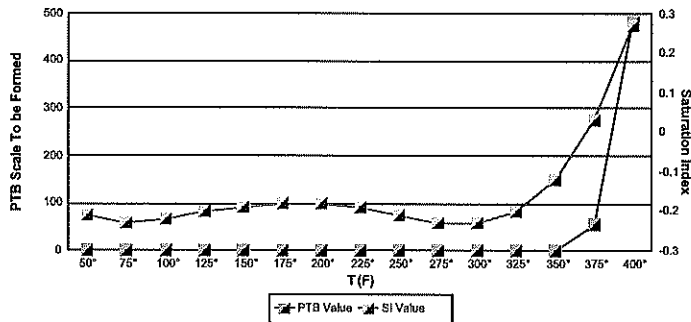
Calcite CaCO3



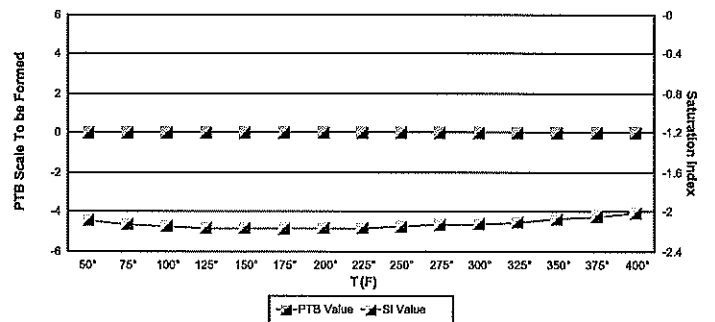
Celestite SrSO4



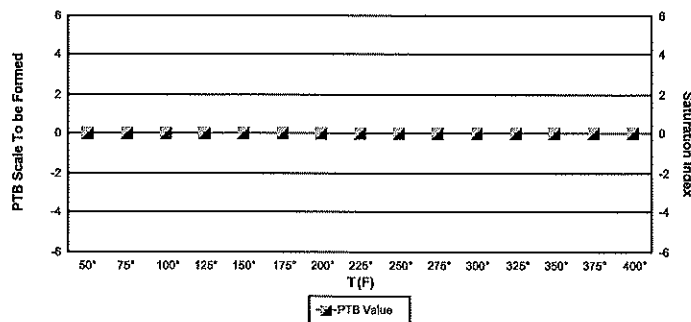
Gypsum CaSO4



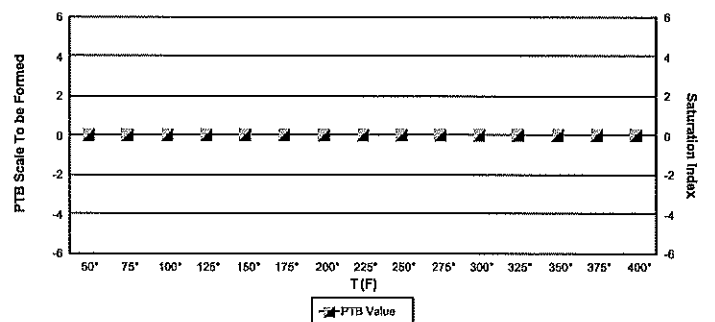
Halite NaCl



Iron Carbonate FeCO3



Iron Sulfide FeS



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