

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: **Mumma 1 OWWO**
 Sample Point: **Bleeder**
 Sample ID: **AV13073**
 Account Rep: **Michael.Walters@championx.com**

Collection Date: **02/16/2023**
 Receive Date: **02/22/2023**
 Report Date: **02/23/2023**
 Location Code: **430669**

Field Analysis		
Analysis	Result	Analysis Method
Total Alkalinity (M-Alk as HCO3)	200 mg/L	Titration
Dissolved CO2	260 mg/L	Titration
Dissolved H2S	77 mg/L	Titration
Pressure Surface	25 psi	
Temperature	100 °F	
pH of Water	7.5	Meter

Sample Analysis		
Analysis	Result	Analysis Method
Specific Gravity	1.041	Densitometer
Ionic Strength	0.950 mol/L	Calculation
Total Dissolved Solids	51900 mg/L	Calculation
Calculated pH	7.50	Calculation
Calculated CO2 in the gas	0.110 %	Calculation

Cations - Analyzed By ICP

Iron	<0.500 mg/L	Boron	21.8 mg/L	Silicon	8.75 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	28.6 mg/L	Nickel	<0.200 mg/L	Phosphorus	<0.500 mg/L
Calcium	1020 mg/L	Zinc	<0.400 mg/L	Measured Sodium	17900 mg/L
Magnesium	363 mg/L	Lead	<0.500 mg/L		
Sodium	17900 mg/L	Cobalt	0.845 mg/L		
Potassium	215 mg/L	Chromium	<0.100 mg/L		

Anions - Analyzed by IC

Chloride	28100 mg/L	Sulfate	4040 mg/L
Bromide	24.2 mg/L		

	PTB							
	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.00	10.71	0.00	0.00	0.00	0.00	0.00
75°	0.00	0.00	11.00	0.00	0.00	0.00	0.00	0.00
100°	0.00	0.00	11.50	0.00	0.00	0.00	0.00	0.00
125°	0.00	0.00	12.24	0.07	0.00	0.00	0.00	0.00
150°	0.00	0.00	13.19	2.47	0.00	0.00	0.00	0.00
175°	159.56	0.00	14.29	4.96	0.00	0.00	0.00	0.00
200°	352.86	0.00	15.51	7.33	0.00	0.00	0.00	0.00
225°	508.13	0.00	16.79	9.49	0.00	0.00	0.00	0.00
250°	634.36	0.00	18.11	11.39	0.00	0.00	0.00	0.00
275°	737.84	0.00	19.47	13.02	0.00	0.00	0.00	0.00
300°	823.39	0.00	20.85	14.40	0.00	0.00	0.00	0.00
325°	894.58	0.00	22.28	15.55	0.00	0.00	0.00	0.00
350°	954.05	0.00	23.75	16.51	0.00	0.00	0.00	0.00
375°	1,003.73	0.00	25.30	17.29	150.36	0.00	0.00	0.00
400°	1,045.04	0.00	26.91	17.92	574.09	0.00	0.00	0.00

	SI				
	Anhydrite	Calcite	Celestite	Gypsum	Halite
50°	-0.76	0.30	-0.05	-0.16	-2.12
75°	-0.55	0.31	-0.06	-0.17	-2.15
100°	-0.37	0.34	-0.04	-0.17	-2.18
125°	-0.20	0.37	0.00	-0.15	-2.19
150°	-0.05	0.42	0.05	-0.14	-2.20
175°	0.10	0.48	0.12	-0.13	-2.20
200°	0.23	0.56	0.12	-0.13	-2.20
225°	0.36	0.64	0.26	-0.15	-2.19
250°	0.49	0.73	0.34	-0.16	-2.18
275°	0.61	0.82	0.42	-0.18	-2.17
300°	0.72	0.92	0.50	-0.18	-2.15
325°	0.84	1.02	0.59	-0.15	-2.13
350°	0.95	1.11	0.67	-0.08	-2.10
375°	1.06	1.20	0.75	0.07	-2.07
400°	1.17	1.29	0.83	0.31	-2.04

Comments

Scaling predictions calculated using Scale Soft Pitzer 2019

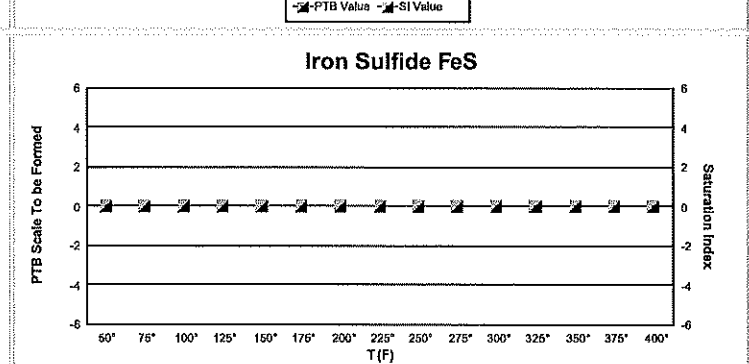
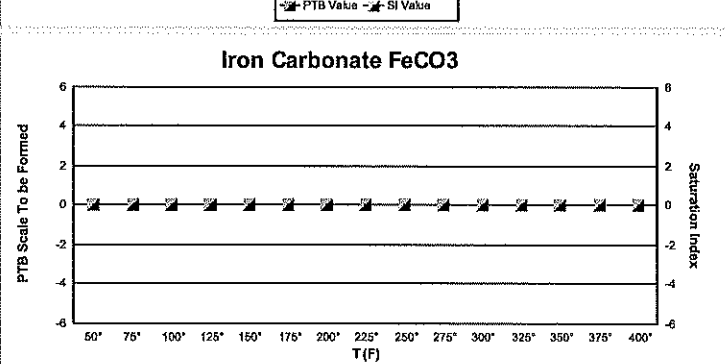
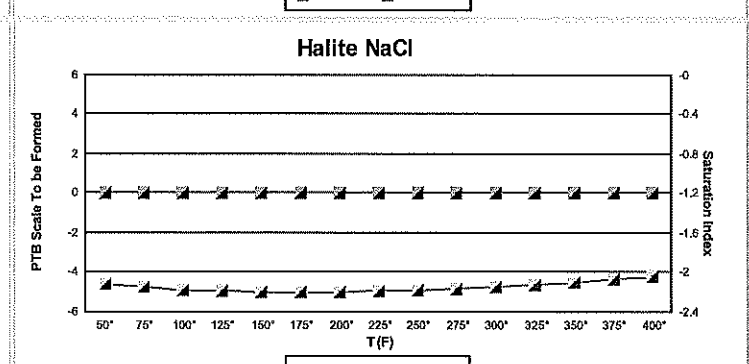
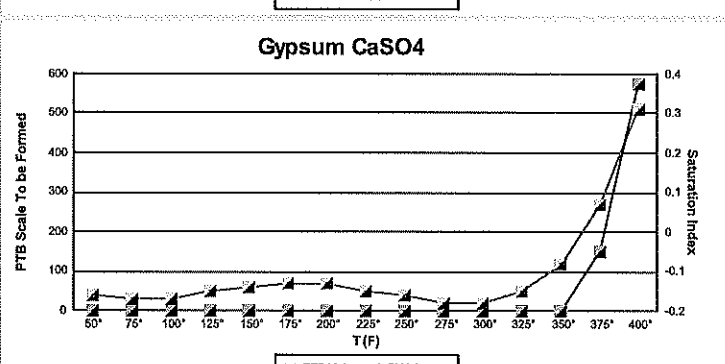
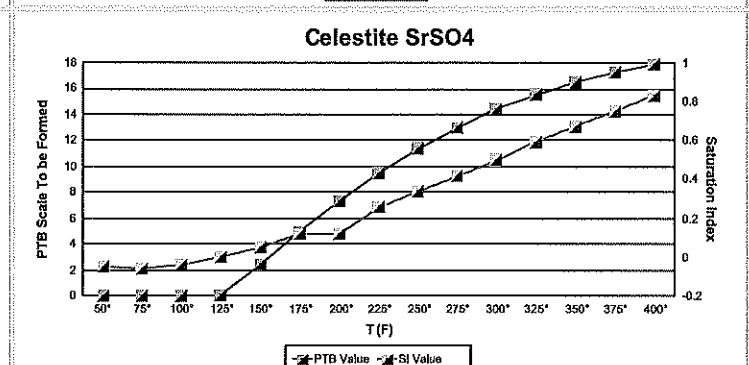
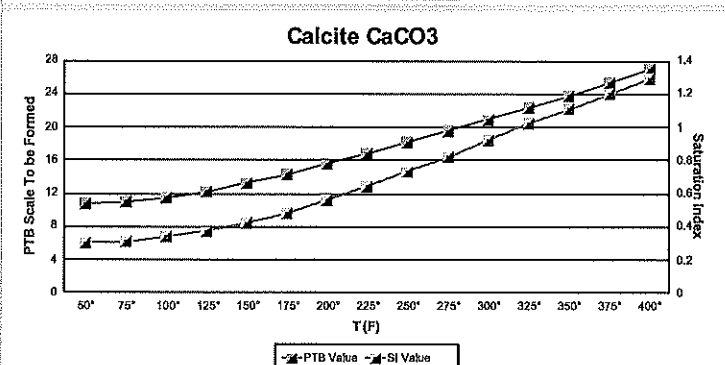
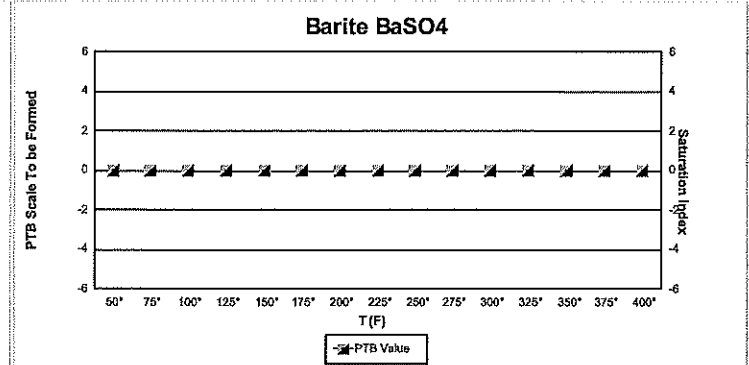
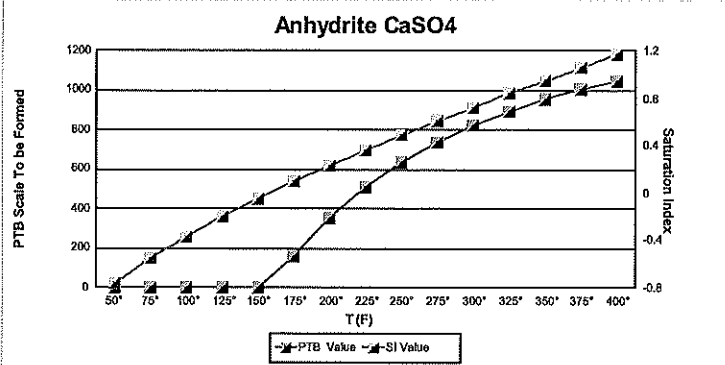
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 02/24/2023