

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: **Stanley 4-28**
 Sample Point: **Bleeder**
 Sample ID: **AV13109**
 Account Rep: **Michael.Walters@championx.com**

Collection Date: **02/16/2023**
 Receive Date: **02/22/2023**
 Report Date: **02/23/2023**
 Location Code: **430671**

Field Analysis		
Analysis	Result	Analysis Method
Total Alkalinity (M-Alk as HCO ₃)	190 mg/L	Titration
Dissolved CO ₂	230 mg/L	Titration
Dissolved H ₂ S	82 mg/L	Titration
Pressure Surface	25 psi	
Temperature	100 °F	
pH of Water	7.5	Meter

Sample Analysis		
Analysis	Result	Analysis Method
Specific Gravity	1.051	Densitometer
Ionic Strength	1.06 mol/L	Calculation
Total Dissolved Solids	60400 mg/L	Calculation
Calculated pH	7.50	Calculation
Calculated CO ₂ in the gas	0.0800 %	Calculation

Cations - Analyzed By ICP

Iron	<0.500 mg/L	Boron	21.5 mg/L	Silicon	8.03 mg/L
Manganese	0.399 mg/L	Lithium	<1.000 mg/L	Aluminum	<0.400 mg/L
Barium	0.106 mg/L	Copper	<0.200 mg/L	Molybdenum	<0.200 mg/L
Strontium	37.9 mg/L	Nickel	<0.200 mg/L	Phosphorus	3.72 mg/L
Calcium	679 mg/L	Zinc	<0.400 mg/L	Measured Sodium	18300 mg/L
Magnesium	308 mg/L	Lead	<0.500 mg/L		
Sodium	18300 mg/L	Cobalt	0.698 mg/L		
Potassium	197 mg/L	Chromium	<0.100 mg/L		

Anions - Analyzed by IC

Chloride	37000 mg/L	Sulfate	3630 mg/L
Bromide	32.0 mg/L		

	PTB							
	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite	Iron Carbonate	Iron Sulfide
50°	0.00	0.05	3.61	2.05	0.00	0.00	0.00	0.00
75°	0.00	0.04	3.86	1.73	0.00	0.00	0.00	0.00
100°	0.00	0.03	4.30	2.98	0.00	0.00	0.00	0.00
125°	0.00	0.02	4.97	5.15	0.00	0.00	0.00	0.00
150°	0.00	0.00	5.85	7.76	0.00	0.00	0.00	0.00
175°	0.00	0.00	6.91	10.45	0.00	0.00	0.00	0.00
200°	48.56	0.00	8.07	13.01	0.00	0.00	0.00	0.00
225°	193.69	0.00	9.29	15.34	0.00	0.00	0.00	0.00
250°	310.25	0.00	10.56	17.38	0.00	0.00	0.00	0.00
275°	404.49	0.00	11.84	19.13	0.00	0.00	0.00	0.00
300°	481.20	0.00	13.14	20.62	0.00	0.00	0.00	0.00
325°	543.97	0.00	14.46	21.86	0.00	0.00	0.00	0.00
350°	595.47	0.00	15.82	22.89	0.00	0.00	0.00	0.00
375°	637.71	0.00	17.23	23.74	0.00	0.00	0.00	0.00
400°	672.16	0.00	18.70	24.42	168.88	0.00	0.00	0.00

	SI					
	Anhydrite	Barite	Calcite	Celestite	Gypsum	Halite
50°	-0.96	0.78	0.11	0.03	-0.36	-1.99
75°	-0.75	0.54	0.12	0.03	-0.38	-2.02
100°	-0.57	0.33	0.14	0.05	-0.37	-2.04
125°	-0.40	0.16	0.17	0.08	-0.35	-2.06
150°	-0.24	0.03	0.21	0.14	-0.34	-2.06
175°	-0.10	-0.07	0.26	0.21	-0.33	-2.07
200°	0.04	-0.15	0.32	0.21	-0.33	-2.06
225°	0.17	-0.21	0.39	0.35	-0.34	-2.06
250°	0.29	-0.26	0.47	0.43	-0.36	-2.05
275°	0.41	-0.30	0.55	0.51	-0.36	-2.04
300°	0.53	-0.33	0.64	0.59	-0.36	-2.02
325°	0.64	-0.36	0.73	0.67	-0.35	-2.00
350°	0.75	-0.39	0.81	0.75	-0.28	-1.98
375°	0.86	-0.42	0.90	0.84	-0.13	-1.95
400°	0.98	-0.46	0.98	0.91	0.11	-1.92

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.

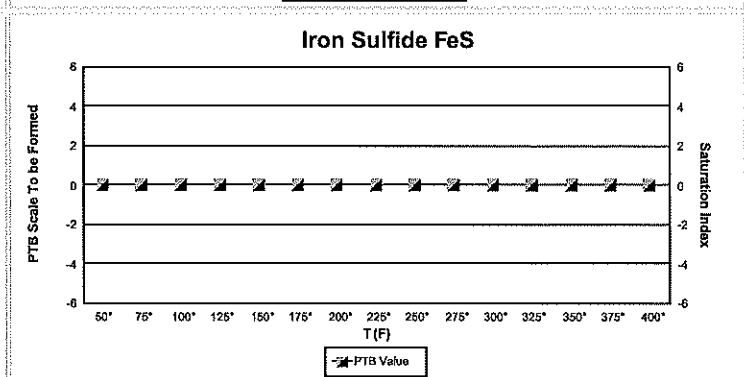
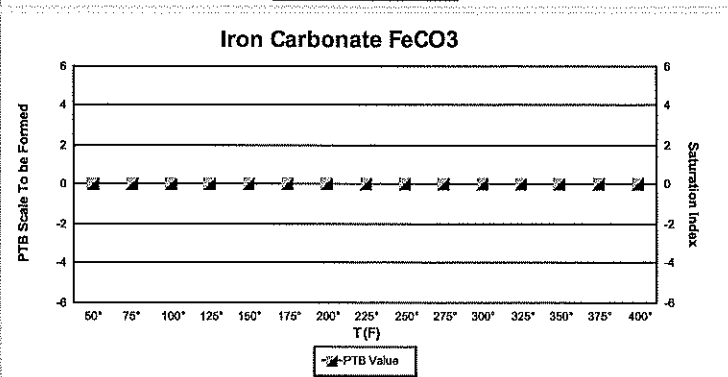
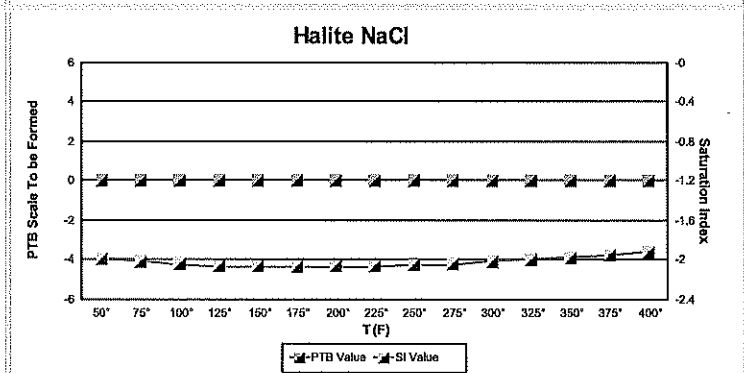
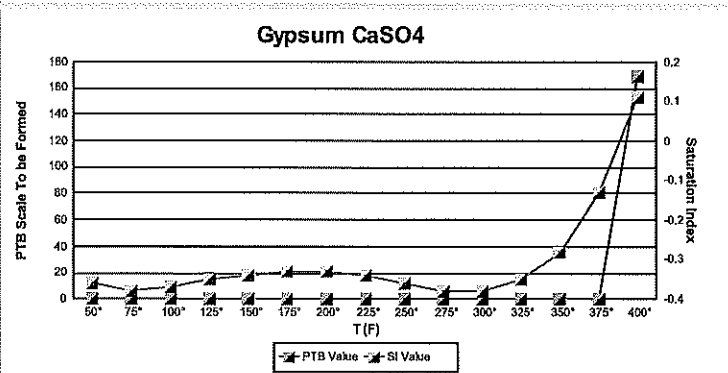
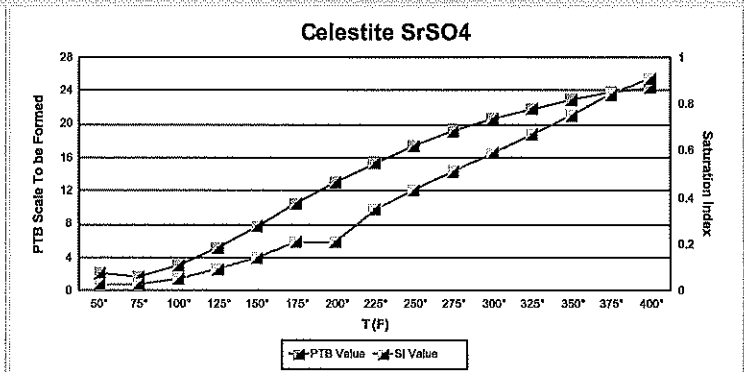
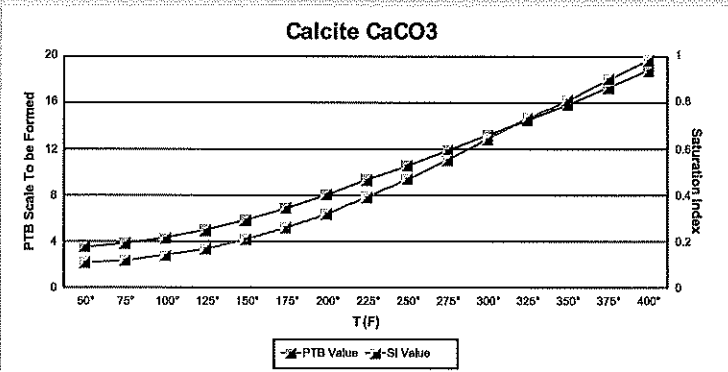
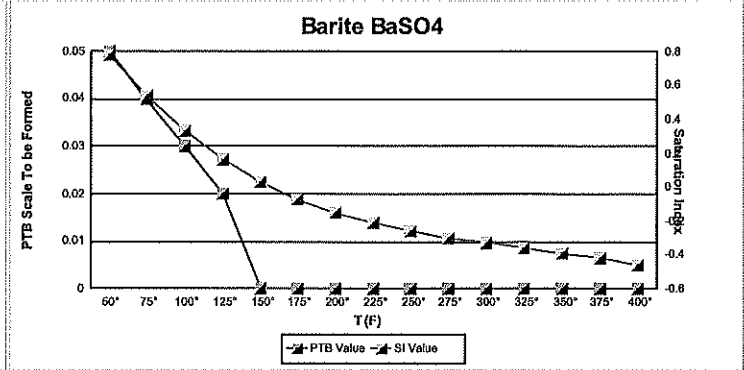
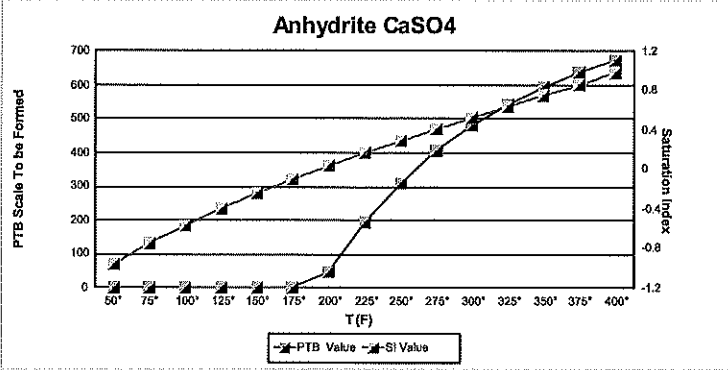
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 02/24/2023