

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 | _____ | _____ | _____ | _____ | _____ |



Central Area Laboratory
12701 N. Santa Fe Ave, Suite 151
Oklahoma City, Oklahoma 73114

Upstream Chemicals

REPORT DATE: 2/22/2023

COMPLETE WATER ANALYSIS REPORT SPP v.2010

| | | | |
|---------------------------|-----------------|----------------|---------------|
| CUSTOMER: | SHAKESPEARE OIL | ACCOUNT REP: | BRETT J SUTER |
| DISTRICT: | KANSAS | SAMPLE ID: | 202310001787 |
| AREA/LEASE: | CALE | SAMPLE DATE: | 2/13/2023 |
| SAMPLE POINT NAME: | CALE 3 | ANALYSIS DATE: | 2/21/2023 |
| SITE TYPE: | WELL SITES | ANALYST: | BS |
| SAMPLE POINT DESCRIPTION: | TANK | | |
| CUSTOMER SAMPLE POINT ID: | | | |

SHAKESPEARE OIL, CALE, CALE 3

| FIELD DATA | | ANALYSIS OF SAMPLE | | | | | | | | | | | |
|--|---------|---|---------|--------|---------------------------------|---------|---------------------|----------|--|------|--|-------|--|
| | | ANIONS: | | mg/L | | meq/L | | CATIONS: | | mg/L | | meq/L | |
| Initial Temperature (°F): | 150 | Chloride (Cl ⁻): | 71006.0 | 2003.0 | Sodium (Na ⁺): | 43184.8 | 1879.2 | | | | | | |
| Final Temperature (°F): | 75 | Sulfate (SO ₄ ²⁻): | 5141.0 | 107.0 | Potassium (K ⁺): | 357.4 | 9.1 | | | | | | |
| Initial Pressure (psi): | 100 | Borate (H ₃ BO ₃): | 145.5 | 2.4 | Magnesium (Mg ²⁺): | 400.2 | 32.9 | | | | | | |
| Final Pressure (psi): | 15 | Fluoride (F ⁻): | ND | | Calcium (Ca ²⁺): | 1376.6 | 68.7 | | | | | | |
| pH: | | Bromide (Br ⁻): | ND | | Strontium (Sr ²⁺): | 49.6 | 1.1 | | | | | | |
| pH at time of sampling: | 6.9 | Nitrite (NO ₂ ⁻): | ND | | Barium (Ba ²⁺): | 0.0 | 0.0 | | | | | | |
| | | Nitrate (NO ₃ ⁻): | ND | | Iron (Fe ²⁺): | 1.3 | 0.0 | | | | | | |
| | | Phosphate (PO ₄ ³⁻): | 0.8 | 0.0 | Manganese (Mn ²⁺): | 0.1 | 0.0 | | | | | | |
| | | Silica (SiO ₂): | ND | | Lead (Pb ²⁺): | ND | ND | | | | | | |
| | | | | | Zinc (Zn ²⁺): | 0.5 | 0.0 | | | | | | |
| ALKALINITY BY TITRATION: | mg/L | meq/L | | | Aluminum (Al ³⁺): | ND | ND | | | | | | |
| Bicarbonate (HCO ₃ ⁻): | 450.0 | 7.4 | | | Chromium (Cr ³⁺): | ND | ND | | | | | | |
| Carbonate (CO ₃ ²⁻): | ND | | | | Cobalt (Co ²⁺): | ND | ND | | | | | | |
| Hydroxide (OH ⁻): | ND | | | | Copper (Cu ²⁺): | ND | ND | | | | | | |
| aqueous CO ₂ (ppm): | 120.0 | | | | Molybdenum (Mo ²⁺): | ND | ND | | | | | | |
| aqueous H ₂ S (ppm): | 20.0 | | | | Nickel (Ni ²⁺): | ND | ND | | | | | | |
| aqueous O ₂ (ppb): | ND | | | | Tin (Sn ²⁺): | ND | ND | | | | | | |
| Calculated TDS (mg/L): | 121968 | | | | Titanium (Ti ²⁺): | ND | ND | | | | | | |
| Density/Specific Gravity (g/cm ³): | 1.0766 | | | | Vanadium (V ²⁺): | ND | ND | | | | | | |
| Measured Specific Gravity: | ND | | | | Zirconium (Zr ²⁺): | ND | ND | | | | | | |
| Conductivity (mmhos): | ND | | | | Lithium (Li): | ND | ND | | | | | | |
| Resistivity: | ND | | | | Total Hardness: | 5147 | N/A | | | | | | |
| MCF/D: | No Data | | | | | | | | | | | | |
| BOPD: | No Data | | | | | | | | | | | | |
| BWPD: | No Data | | | | Anion/Cation Ratio: | 1.06 | ND = Not Determined | | | | | | |

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FURTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

| Conditions | | Barite (BaSO ₄) | | Calcite (CaCO ₃) | | Gypsum (CaSO ₄ ·2H ₂ O) | | Anhydrite (CaSO ₄) | |
|------------|---------|-----------------------------|-----------|------------------------------|-----------|---|-----------|--------------------------------|-----------|
| Temp | Press. | Index | Amt (ptb) | Index | Amt (ptb) | Index | Amt (ptb) | Index | Amt (ptb) |
| 75°F | 15 psi | | 0.000 | 0.80 | 61.591 | -0.13 | 0.000 | -0.34 | 0.000 |
| 83°F | 24 psi | | 0.000 | 0.78 | 60.446 | -0.13 | 0.000 | -0.30 | 0.000 |
| 92°F | 34 psi | | 0.000 | 0.80 | 61.410 | -0.12 | 0.000 | -0.26 | 0.000 |
| 100°F | 43 psi | | 0.000 | 0.82 | 63.139 | -0.12 | 0.000 | -0.22 | 0.000 |
| 108°F | 53 psi | | 0.000 | 0.86 | 65.179 | -0.12 | 0.000 | -0.18 | 0.000 |
| 117°F | 62 psi | | 0.000 | 0.90 | 67.588 | -0.11 | 0.000 | -0.14 | 0.000 |
| 125°F | 72 psi | | 0.000 | 0.94 | 70.354 | -0.11 | 0.000 | -0.10 | 0.000 |
| 133°F | 81 psi | | 0.000 | 0.99 | 72.962 | -0.11 | 0.000 | -0.06 | 0.000 |
| 142°F | 91 psi | | 0.000 | 1.03 | 75.428 | -0.10 | 0.000 | -0.01 | 0.000 |
| 150°F | 100 psi | | 0.000 | 1.08 | 77.764 | -0.10 | 0.000 | 0.03 | 69.406 |

| Conditions | | Celestite (SrSO ₄) | | Halite (NaCl) | | Iron Sulfide (FeS) | | Iron Carbonate (FeCO ₃) | |
|------------|---------|--------------------------------|-----------|---------------|-----------|--------------------|-----------|-------------------------------------|-----------|
| Temp | Press. | Index | Amt (ptb) | Index | Amt (ptb) | Index | Amt (ptb) | Index | Amt (ptb) |
| 75°F | 15 psi | 0.13 | 9.629 | -1.32 | 0.000 | 1.74 | 0.698 | -0.60 | 0.000 |
| 83°F | 24 psi | 0.14 | 9.810 | -1.32 | 0.000 | 1.64 | 0.695 | -0.59 | 0.000 |
| 92°F | 34 psi | 0.14 | 9.954 | -1.33 | 0.000 | 1.58 | 0.692 | -0.56 | 0.000 |
| 100°F | 43 psi | 0.14 | 10.076 | -1.33 | 0.000 | 1.54 | 0.690 | -0.51 | 0.000 |
| 108°F | 53 psi | 0.14 | 10.190 | -1.34 | 0.000 | 1.51 | 0.689 | -0.46 | 0.000 |
| 117°F | 62 psi | 0.15 | 10.308 | -1.34 | 0.000 | 1.49 | 0.688 | -0.41 | 0.000 |
| 125°F | 72 psi | 0.15 | 10.441 | -1.34 | 0.000 | 1.49 | 0.688 | -0.35 | 0.000 |
| 133°F | 81 psi | 0.15 | 10.598 | -1.35 | 0.000 | 1.49 | 0.688 | -0.29 | 0.000 |
| 142°F | 91 psi | 0.15 | 10.785 | -1.35 | 0.000 | 1.49 | 0.688 | -0.24 | 0.000 |
| 150°F | 100 psi | 0.16 | 11.009 | -1.35 | 0.000 | 1.49 | 0.688 | -0.19 | 0.000 |

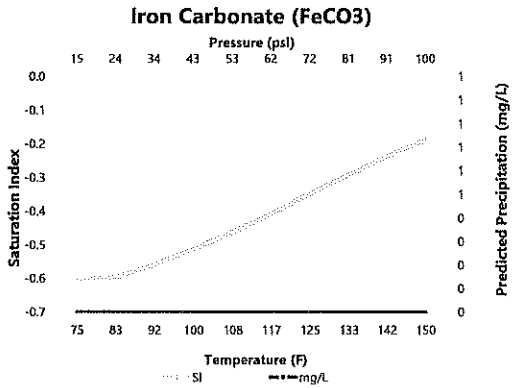
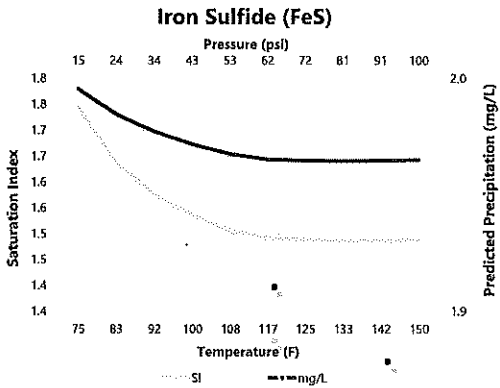
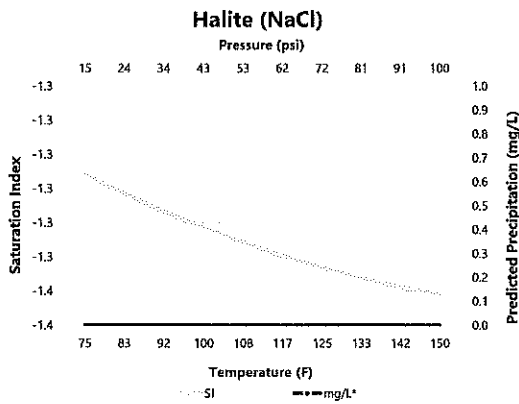
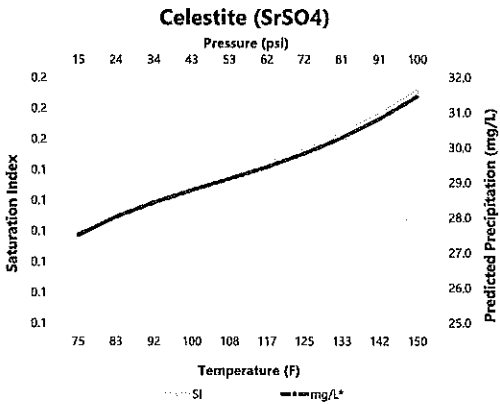
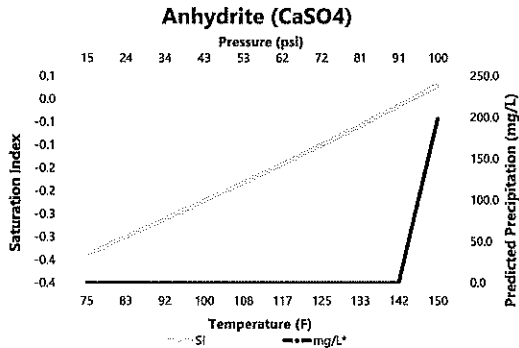
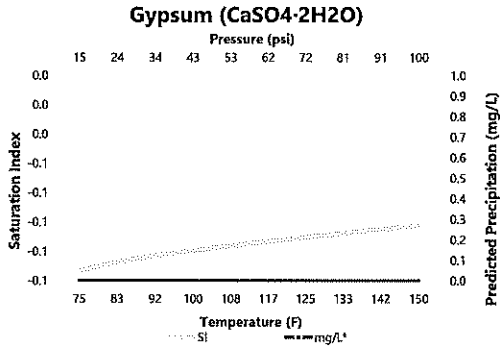
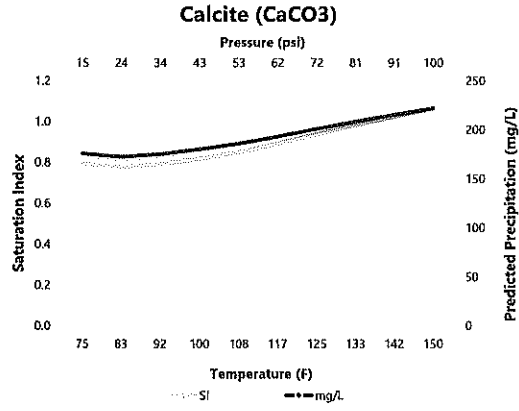
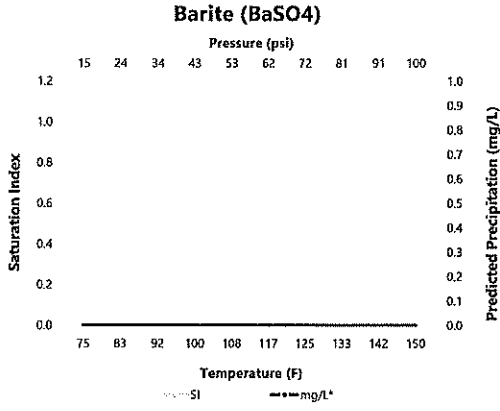
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.

ScaleSoftPitrez™
SSP2810

Comments:



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.