

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 | _____ | _____ | _____ | _____ | _____ |

STAABCO CHEMICAL, INC.

P.O. Box D
Plainville, KS 67663

Phone: (785) 737-6141
Fax: (785) 434-2529

WATER ANALYSIS REPORT

Company: Shakespeare
Source: Strickert #1 SWD

Date Sampled: February, 2019
Date Analyzed: February, 2019

| | | | |
|-----------------------------|-------|--------------------------------|--------|
| pH: | 5.70 | Total Dissolved Solids (mg/L): | 33,994 |
| Dissolved H ₂ S: | 15 | | |
| Dissolved CO ₂ : | 0 | Total Ionic Strength: | 0.663 |
| Specific Gravity: | 1.020 | | |
| Density, (lbs/gal): | 8.51 | | |

| | mg/L | Meq/L |
|-----------------------|----------------|-------|
| Anions | | |
| Sulfide | 12.8 | 12.8 |
| Bicarbonate: | 311 | 5 |
| Chloride: | 19,000 | 535 |
| Sulfate: | 2,000 | 42 |
| Cations | | |
| Calcium: | 1,440 | 72 |
| Magnesium: | 561 | 46 |
| Sodium: | 10,672 | 464 |
| Barium: | 10 | |
| Strontium: | 0 | |
| Total Hardness: | 2,360 | |
| Total Dissolved Iron: | 0 | |
| Ferrous Iron: | Not Determined | |

PROBABLE MINERAL COMPOSITION

| | | | |
|---------------------------------------|--------------------|------------------------|------------|
| 72 Ca | 5 HCO ₃ | | |
| 46 Mg | 42 SO ₄ | Meq/L | mg/L |
| 464 Na | 535 Cl | | |
| Saturation Values | | | |
| In Distilled Water @ 20°C | | | |
| CaCO ₃ | 13 mg/L | Calcium Bicarbonate: | 5 413 |
| CaSO ₄ * 2H ₂ O | 2,090 mg/L | Calcium Sulfate: | 42 2,836 |
| MgCO ₃ | 103 mg/L | Calcium Chloride: | 25 1,400 |
| | | Magnesium Bicarbonate: | 0 0 |
| | | Magnesium Sulfate: | 0 0 |
| | | Magnesium Chloride: | 46 2,191 |
| | | Sodium Bicarbonate: | 0 0 |
| | | Sodium Sulfate: | 0 0 |
| | | Sodium Chloride: | 464 27,124 |

COMMENTS:

STAABCO CHEMICAL, INC.

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Scale Deposition Potential Analysis

Company: Shakespeare
Source: Strickert #1 SWD

Date Sampled: February, 2019
Date Analyzed: February, 2019

Brine Composition

| | | | | | |
|--------------------------|--------|-----------|--------|-------------------------------|--------|
| pH: | 5.70 | Ca, mg/L: | 1,440 | Total Hardness, mg/L: | 2,360 |
| Specific Gravity: | 1.020 | Mg, mg/L: | 561 | Total Dissolved Solids, mg/L: | 33,994 |
| HCO ₃ , mg/L: | 311 | Na, mg/L: | 10,672 | Total Ionic Strength: | 0.663 |
| Cl, mg/L: | 19,000 | Ba, mg/L: | 10 | | |
| SO ₄ , mg/L: | 2,000 | Sr, mg/L: | 0 | Total Dissolved Iron, mg/L: | 0.0 |

Calcium Carbonate Scale Indices

| | | | | | Specified Temperatures | |
|-----------------------------|---------|--------|--------|--------|------------------------|--------|
| Temperature, °F: | 75 | 100 | 125 | 150 | 110 | 130 |
| Stiff-Davis Index: | -1.39 | -1.07 | -0.70 | -0.27 | -0.93 | -0.61 |
| Deposition, lbs/1,000 Bbls: | -1541.7 | -891.3 | -466.9 | -147.2 | -689.9 | -428.9 |

Calcium Sulfate Scale Indices

| | | | | | Specified Temperatures | |
|-----------------------------|--------|--------|--------|--------|------------------------|--------|
| Temperature, °F: | 75 | 100 | 125 | 150 | 110 | 130 |
| Supersaturation Ratio: | 0.69 | 0.68 | 0.69 | 0.71 | 0.68 | 0.69 |
| Deposition, lbs/1,000 Bbls: | -452.5 | -457.6 | -449.9 | -415.3 | -457.9 | -447.2 |

Barium Sulfate Scale Indices

| | | | | | Specified Temperatures | |
|-----------------------------|--------|--------|--------|-------|------------------------|--------|
| Temperature, °F: | 75 | 100 | 125 | 150 | 110 | 130 |
| Supersaturation Ratio: | 233.14 | 162.73 | 115.30 | 80.96 | 142.07 | 106.67 |
| Deposition, lbs/1,000 Bbls: | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 | 5.9 |

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Scale Deposition Potential Trends

Company: Shakespeare
Source: Strickert #1 SWD

Date Sampled: February, 2019
Date Analyzed: February, 2019

