



**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	_____	_____	_____	_____	_____
	<b>TOTAL</b>	_____	_____	_____	_____	_____

# STAABCO CHEMICAL, INC.

P.O. Box D  
Plainville, KS 67663

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

## WATER ANALYSIS REPORT

Company: Shakespeare  
Source: COG SWD

Date Sampled: 1-19-16  
Date Analyzed: 1-26-16

pH:	6.00	Total Dissolved Solids (mg/L):	108,649
Dissolved H <sub>2</sub> S:	0		
Dissolved CO <sub>2</sub> :	0	Total Ionic Strength:	1.970
Specific Gravity:	1.055		
Density, (lbs/gal):	8.80		

	mg/L	Meq/L
<b>Anions</b>		
Sulfide	0	0
Bicarbonate:	598	10
Chloride:	63,000	1,775
Sulfate:	3,200	67
<b>Cations</b>		
Calcium:	2,520	126
Magnesium:	415	34
Sodium:	38,896	1,691
Barium:	20	
Strontium:	0	
Total Hardness:	3,200	
Total Dissolved Iron:	0	
Ferrous Iron:	Not Determined	

### PROBABLE MINERAL COMPOSITION

126 Ca	10 HCO <sub>3</sub>		
34 Mg	67 SO <sub>4</sub>	Meq/L	mg/L
1,691 Na	1,775 Cl		
		Calcium Bicarbonate:	10 794
		Calcium Sulfate:	67 4,538
		Calcium Chloride:	50 2,749
		Magnesium Bicarbonate:	0 0
		Magnesium Sulfate:	0 0
		Magnesium Chloride:	34 1,619
		Sodium Bicarbonate:	0 0
		Sodium Sulfate:	0 0
		Sodium Chloride:	1,691 98,863

Saturation Values  
In Distilled Water @ 20°C

CaCO <sub>3</sub>	13 mg/L
CaSO <sub>4</sub> * 2H <sub>2</sub> O	2,090 mg/L
MgCO <sub>3</sub>	103 mg/L

COMMENTS:

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## Scale Deposition Potential Analysis

Company: Shakespeare  
Source: COG SWD

Date Sampled: 1-19-16  
Date Analyzed: 1-26-16

### Brine Composition

pH:	6.00	Ca, mg/L:	2,520	Total Hardness, mg/L:	3,200
Specific Gravity:	1.055	Mg, mg/L:	415	Total Dissolved Solids, mg/L:	108,649
HCO <sub>3</sub> , mg/L:	598	Na, mg/L:	38,896	Total Ionic Strength:	1.970
Cl, mg/L:	63,000	Ba, mg/L:	20		
SO <sub>4</sub> , mg/L:	3,200	Sr, mg/L:	0	Total Dissolved Iron, mg/L:	0.2

### Calcium Carbonate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Stiff-Davis Index:	-0.59	-0.30	0.05	0.53	-0.18	0.15
Deposition, lbs/1,000 Bbls:	-717.1	-307.6	24.0	225.9	-163.5	79.6

### Calcium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	0.83	0.84	0.85	0.86	0.84	0.85
Deposition, lbs/1,000 Bbls:	-316.6	-311.8	-288.9	-264.5	-303.7	-284.0

### Barium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	312.75	222.39	160.07	112.31	195.66	148.23
Deposition, lbs/1,000 Bbls:	11.9	11.8	11.8	11.8	11.8	11.8

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**COG 2-35 LIST OF LEASES**

COG 1-35

JANZEN 1-16

JANZEN 2-26

NIGHTENGALE 1-28

RADNOR 1-14

STOLL COMM 1-27