



# 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 2-35 SWD

Date Sampled: February 2, 2017  
Date Analyzed: February 3, 2017

pH:	6.00	Total Dissolved Solids (mg/L):	90,510
Dissolved H <sub>2</sub> S:	20		
Dissolved CO <sub>2</sub> :	0	Total Ionic Strength:	1.688
Specific Gravity:	1.055		
Density, (lbs/gal):	8.80		

	mg/L	Meq/L
<b>Anions</b>		
Sulfide	99.2	99.2
Bicarbonate:	445	7
Chloride:	51,000	1,437
Sulfate:	4,500	94
<b>Cations</b>		
Calcium:	3,360	168
Magnesium:	366	30
Sodium:	30,812	1,340
Barium:	26	
Strontium:	0	
Total Hardness:	3,960	
Total Dissolved Iron:	0	
Ferrous Iron:	Not Determined	

**PROBABLE MINERAL COMPOSITION**

168 Ca	7 HCO <sub>3</sub>		
30 Mg	94 SO <sub>4</sub>	Meq/L	mg/L
1,340 Na	1,437 Cl		
<b>Saturation Values</b>			
In Distilled Water @ 20°C			
CaCO <sub>3</sub>	13 mg/L	Calcium Bicarbonate:	7 592
CaSO <sub>4</sub> * 2H <sub>2</sub> O	2,090 mg/L	Calcium Sulfate:	94 6,382
MgCO <sub>3</sub>	103 mg/L	Calcium Chloride:	67 3,716
		Magnesium Bicarbonate:	0 0
		Magnesium Sulfate:	0 0
		Magnesium Chloride:	30 1,429
		Sodium Bicarbonate:	0 0
		Sodium Sulfate:	0 0
		Sodium Chloride:	1,340 78,317

**COMMENTS:**

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## Scale Deposition Potential Analysis

Company: Shakespeare  
Source: Cog 2-35 SWD

Date Sampled: February 2, 2017  
Date Analyzed: February 3, 2017

### Brine Composition

pH:	6.00	Ca, mg/L:	3,360	Total Hardness, mg/L:	3,960
Specific Gravity:	1.055	Mg, mg/L:	366	Total Dissolved Solids, mg/L:	90,510
HCO <sub>3</sub> , mg/L:	445	Na, mg/L:	30,812	Total Ionic Strength:	1.688
Cl, mg/L:	51,000	Ba, mg/L:	26	Total Dissolved Iron, mg/L:	0.0
SO <sub>4</sub> , mg/L:	4,500	Sr, mg/L:	0		

### Calcium Carbonate Scale Indices


					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Stiff-Davis Index:	-0.66	-0.37	0.00	0.48	-0.23	0.09
Deposition, lbs/1,000 Bbls:	-713.2	-298.0	-4.6	163.1	-167.7	41.5

### Calcium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	1.33	1.33	1.34	1.36	1.33	1.35
Deposition, lbs/1,000 Bbls:	547.5	550.7	571.6	595.6	557.2	576.4

### Barium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	650.67	539.28	374.94	255.93	461.88	343.22
Deposition, lbs/1,000 Bbls:	15.4	15.4	15.4	15.4	15.4	15.4

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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