



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: Glassman 4-35 SWD & 6-36 Inj.

Date Sampled: February 1, 2017
Date Analyzed: February 2, 2017

pH:	6.50	Total Dissolved Solids (mg/L):	124,689
Dissolved H ₂ S:	30		
Dissolved CO ₂ :	0	Total Ionic Strength:	2.267
Specific Gravity:	1.080		
Density, (lbs/gal):	9.01		

	mg/L	Meq/L
Anions		
Sulfide	67.2	67.2
Bicarbonate:	598	10
Chloride:	74,000	2,085
Sulfate:	2,200	46
Cations		
Calcium:	1,920	96
Magnesium:	1,220	100
Sodium:	44,715	1,944
Barium:	36	
Strontium:	0	
Total Hardness:	3,920	
Total Dissolved Iron:	0	
Ferrous Iron:	Not Determined	

PROBABLE MINERAL COMPOSITION

96 Ca	10 HCO ₃		
100 Mg	46 SO ₄		
1,944 Na	2,085 Cl		
		Meq/L	mg/L
		Calcium Bicarbonate:	10 794
		Calcium Sulfate:	46 3,120
		Calcium Chloride:	40 2,241
		Magnesium Bicarbonate:	0 0
		Magnesium Sulfate:	0 0
		Magnesium Chloride:	100 4,762
		Sodium Bicarbonate:	0 0
		Sodium Sulfate:	0 0
		Sodium Chloride:	1,944 113,654

Saturation Values
In Distilled Water @ 20°C

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

COMMENTS:

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Scale Deposition Potential Analysis

Company: Shakespeare
Source: Glassman 4-35 SWD & 6-35 Inj.

Date Sampled: February 1, 2017
Date Analyzed: February 2, 2017

Brine Composition

pH:	6.50	Ca, mg/L:	1,920	Total Hardness, mg/L:	3,920
Specific Gravity:	1.080	Mg, mg/L:	1,220	Total Dissolved Solids, mg/L:	124,689
HCO ₃ , mg/L:	598	Na, mg/L:	44,715	Total Ionic Strength:	2.267
Cl, mg/L:	74,000	Ba, mg/L:	36	Total Dissolved Iron, mg/L:	0.0
SO ₄ , mg/L:	2,200	Sr, mg/L:	0		

Calcium Carbonate Scale Indices


					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Stiff-Davis Index:	-0.14	0.16	0.51	0.96	0.29	0.60
Deposition, lbs/1,000 Bbls:	-118.5	75.0	214.6	296.2	136.8	237.4

Calcium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	0.53	0.53	0.54	0.54	0.53	0.54
Deposition, lbs/1,000 Bbls:	-969.2	-963.1	-940.8	-928.7	-954.5	-936.3

Barium Sulfate Scale Indices

					Specified Temperatures	
Temperature, °F:	75	100	125	150	110	130
Supersaturation Ratio:	342.10	248.29	179.36	127.70	218.16	166.66
Deposition, lbs/1,000 Bbls:	21.4	21.3	21.3	21.2	21.3	21.3

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