



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	_____	_____	_____	_____	_____

ROCKWATER ENERGY SOLUTIONS

876 Old Highway 99
Pawhuska, OK 74056

Phone: 918-287-3850
Fax: 918-287-1632

WATER ANALYSIS REPORT

Company:	PETROLEUM RESOURCES MANAGEMENT	Lab ID Number:	44497
Water Source:	HAMMON TB	Date Sampled:	3-21-2017
Sample Point:	INCOMING SWT	Date Analyzed:	3-22-2017

Production Data: **BOPD:** 0 **BWPD:** 0 **MMCFD:** 0

pH:	7.18	Total Dissolved Solids (mg/L):	59,348
Dissolved H ₂ S:	2.0	Total Ionic Strength:	1.064
Dissolved CO ₂ :	50.0	Specific Gravity:	1.044
Resistivity @ 75°F (Ohm-Meters):	0.12450	Density, (lbs/gal):	8.71

Cations	mg/L	Meq/L	Anions	mg/L	Meq/L
Calcium:	1,320	66	Carbonate:	0	0
Magnesium:	287	24	Bicarbonate:	189	3
Sodium:	21,337	928	Chloride:	36,000	1,014
Barium:	215		Sulfate:	0	0
Strontium:	0		Total Hardness:	4,480	
Ferrous Iron:	0.0				
Total Dissolved Iron:	61.8				

PROBABLE MINERAL COMPOSITION

	mg/L	Meq/L
Calcium Bicarbonate:	251	3
Calcium Sulfate:	0	0
Calcium Chloride:	3,491	63
Magnesium Bicarbonate:	0	0
Magnesium Sulfate:	0	0
Magnesium Chloride:	1,119	24
Sodium Bicarbonate:	0	0
Sodium Sulfate:	0	0
Sodium Chloride:	54,232	928

Remarks

Hydro Pax

Analyst: _____

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SCALE DEPOSITION POTENTIAL ANALYSIS

Company:	PETROLEUM RESOURCES MANAGMENT	Lab ID Number:	44497
Water Source:	HAMMON TB	Date Sampled:	3-21-2017
Sample Point:	INCOMING SWT	Date Analyzed:	3-22-2017

Brine Composition

pH:	7.18	Ca, mg/L:	1,320	Total Hardness, mg/L:	4,480
Specific Gravity:	1.044	Mg, mg/L:	287	Total Dissolved Solids, mg/L:	59,348
HCO ₃ , mg/L:	189	Na, mg/L:	21,337	Total Ionic Strength:	1.064
Cl, mg/L:	36,000	Ba, mg/L:	215		
SO ₄ , mg/L:	0	Sr, mg/L:	0	Total Dissoved Iron, mg/L:	61.8

Calcium Carbonate Scale Indices

Specified Temperatures

Temperature, °F:	75	100	125	150	59	180
Stiff-Davis Index:	-0.27	0.02	0.40	0.87	-0.42	1.45
Deposition, lbs/1,000 Bbls:	-83.7	8.8	62.5	92.2	-136.1	104.2

Calcium Sulfate Scale Indices

Specified Temperatures

Temperature, °F:	75	100	125	150	180
Supersaturation Ratio:	0.000	0.000	0.000	0.000	0.000
Deposition, lbs/1,000 Bbls:	-1,456.6	-1,455.8	-1,442.2	-1,412.6	-1,365.7

Barium Sulfate Scale Indices

Specified Temperatures

Temperature, °F:	75	100	125	150	59	180
Supersaturation Ratio:	0.000	0.000	0.000	0.000	0.000	0.000
Deposition, lbs/1,000 Bbls:	-0.5	-0.7	-0.9	-1.4	-0.4	-1.9



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SCALE DEPOSITION POTENTIAL TRENDS

Company: PETROLEUM RESOURCES MANAGEMENT
Water Source: HAMMON TB
Sample Point: INCOMING SWT

Lab ID Number: 44497
Date Sampled: 3-21-2017
Date Analyzed: 3-22-2017

