



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	_____	_____	_____	_____	_____



Central Area Laboratory
801 N. Morgan,
Oklahoma City, Oklahoma 73127

REPORT DATE: 2/22/2016

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: GREAT PLAINS
DISTRICT: KANSAS
AREA/LEASE: SWEDE HOLLOW UNIT
SAMPLE POINT NAME: SUAVAGE #2 SWD
SITE TYPE: FACILITY
SAMPLE POINT DESCRIPTION: WATER TANK

ACCOUNT REP: GREG POLLNOW
SAMPLE ID: 201610002209
SAMPLE DATE: 2/8/2016
ANALYSIS DATE: 2/19/2016
ANALYST: BS

GREAT PLAINS, SWEDE HOLLOW UNIT, SUAVAGE #2 SWD

FIELD DATA			ANALYSIS OF SAMPLE											
			ANIONS:		mg/L		meq/L		CATIONS:		mg/L		meq/L	
Initial Temperature (°F):	125		Chloride (Cl ⁻):	69100.0	1949.2	Sodium (Na ⁺):	38360.7	1669.3						
Final Temperature (°F):	45		Sulfate (SO ₄ ²⁻):	2520.0	52.5	Potassium (K ⁺):	177.4	4.5						
Initial Pressure (psi):	250		Borate (H ₃ BO ₃):	80.0		Magnesium (Mg ²⁺):	767.2	63.1						
Final Pressure (psi):	15		Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	2516.9	125.6						
			Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	89.0	2.0						
pH:			Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.0	0.0						
pH at time of sampling:	6.1		Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	2.6	0.1						
			Phosphate (PO ₄ ³⁻):	0.0	0.0	Manganese (Mn ²⁺):	0.3	0.0						
			Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND							
						Zinc (Zn ²⁺):	1.8	0.1						
ALKALINITY BY TITRATION:			mg/L		meq/L									
Bicarbonate (HCO ₃ ⁻):	214.0	3.5												
Carbonate (CO ₃ ²⁻):	ND													
Hydroxide (OH ⁻):	ND													
			ORGANIC ACIDS:		mg/L		meq/L							
aqueous CO ₂ (ppm):	66.0		Formic Acid:	ND										
aqueous H ₂ S (ppm):	50.0		Acetic Acid:	ND										
aqueous O ₂ (ppb):	ND		Propionic Acid:	ND										
			Butyric Acid:	ND										
			Valeric Acid:	ND										
Calculated TDS (mg/L):	113830													
Density/Specific Gravity (g/cm ³):	1.0718													
Measured Specific Gravity	1.0750													
Conductivity (mmhos):	ND													
Resistivity:	ND													
MCF/D:	No Data													
BOPD:	No Data													
BWPD:	No Data													
			Anion/Cation Ratio:		1.08		ND = Not Determined							

SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
45°F	15 psi		0.000	-0.36	0.000	-0.22	0.000	-0.53	0.000
54°F	41 psi		0.000	-0.40	0.000	-0.20	0.000	-0.48	0.000
63°F	67 psi		0.000	-0.35	0.000	-0.18	0.000	-0.44	0.000
72°F	93 psi		0.000	-0.29	0.000	-0.18	0.000	-0.40	0.000
81°F	119 psi		0.000	-0.24	0.000	-0.17	0.000	-0.36	0.000
89°F	146 psi		0.000	-0.19	0.000	-0.17	0.000	-0.32	0.000
98°F	172 psi		0.000	-0.15	0.000	-0.16	0.000	-0.28	0.000
107°F	198 psi		0.000	-0.11	0.000	-0.16	0.000	-0.24	0.000
116°F	224 psi		0.000	-0.07	0.000	-0.16	0.000	-0.19	0.000
125°F	250 psi		0.000	-0.03	0.000	-0.16	0.000	-0.15	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)	Index	Amt (ptb)
45°F	15 psi	0.08	10.416	-1.35	0.000	1.18	1.331	-1.81	0.000
54°F	41 psi	0.08	11.042	-1.36	0.000	1.00	1.277	-1.83	0.000
63°F	67 psi	0.09	11.481	-1.37	0.000	0.99	1.275	-1.74	0.000
72°F	93 psi	0.09	11.783	-1.38	0.000	1.00	1.277	-1.66	0.000
81°F	119 psi	0.09	11.990	-1.38	0.000	1.00	1.280	-1.58	0.000
89°F	146 psi	0.09	12.140	-1.39	0.000	1.01	1.283	-1.51	0.000
98°F	172 psi	0.09	12.268	-1.40	0.000	1.02	1.287	-1.44	0.000
107°F	198 psi	0.09	12.403	-1.40	0.000	1.03	1.291	-1.38	0.000
116°F	224 psi	0.10	12.571	-1.41	0.000	1.05	1.295	-1.32	0.000
125°F	250 psi	0.10	12.795	-1.41	0.000	1.06	1.299	-1.27	0.000

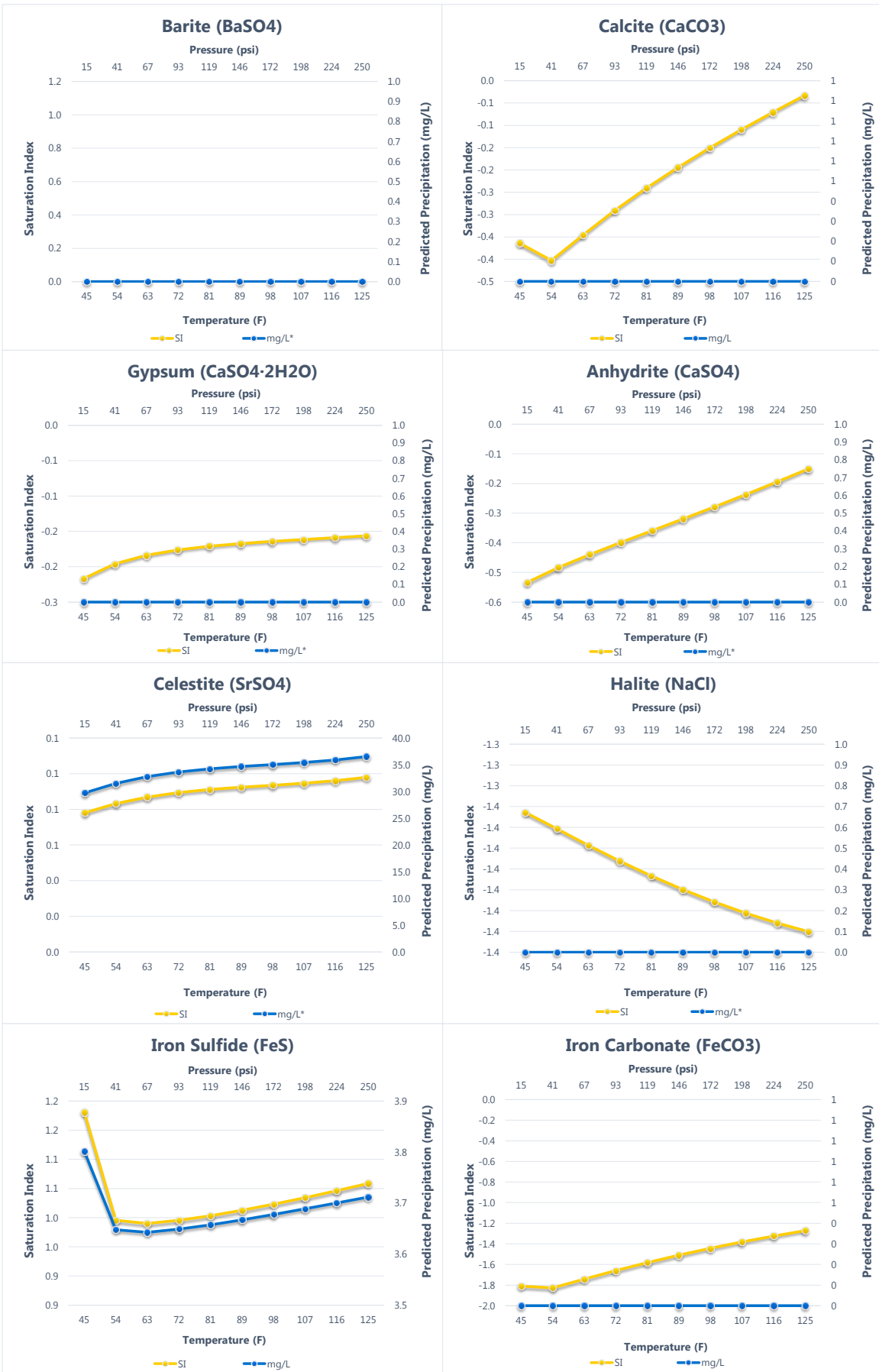
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.

Note 3: Saturation Index predictions on this sheet use pH and alkalinity; %CO₂ is not included in the calculations.



Comments:



SCALE PREDICTIONS BASED ON FIELD PROVIDED DATA; FUTHER MODELING MAY BE REQUIRED FOR VALIDATION OF SCALE PREDICTION RESULTS.