



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	_____	_____	_____	_____	_____

Submitted Electronically



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

Upstream Chemicals

REPORT DATE: 6/4/2015

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: GREAT PLAINS
DISTRICT: KANSAS
AREA/LEASE: WASSON/SUAVAGE
SAMPLE POINT NAME: WASSON/SUAVAGE
SITE TYPE: FACILITY
SAMPLE POINT DESCRIPTION: FILTER

ACCOUNT REP: GREG POLLNOW
SAMPLE ID: 201510007806
SAMPLE DATE: 5/7/2015
ANALYSIS DATE: 5/20/2015
ANALYST: BS

GREAT PLAINS, WASSON/SUAVAGE, WASSON/SUAVAGE

FIELD DATA			ANALYSIS OF SAMPLE						
		ANIONS:		mg/L	meq/L	CATIONS:		mg/L	meq/L
Initial Temperature (°F):	250	Chloride (Cl ⁻):	68427.6		1930.3	Sodium (Na ⁺):	42164.0	1834.8	
Final Temperature (°F):	69	Sulfate (SO ₄ ²⁻):	4200.0		87.4	Potassium (K ⁺):	252.9	6.5	
Initial Pressure (psi):	100	Borate (H ₃ BO ₃):	86.8		1.4	Magnesium (Mg ²⁺):	774.2	63.7	
Final Pressure (psi):	15	Fluoride (F ⁻):	ND			Calcium (Ca ²⁺):	2655.0	132.5	
pH:		Bromide (Br ⁻):	ND			Strontium (Sr ²⁺):	101.0	2.3	
pH at time of sampling:		Nitrite (NO ₂ ⁻):	ND			Barium (Ba ²⁺):	0.4	0.0	
		Nitrate (NO ₃ ⁻):	ND			Iron (Fe ²⁺):	2.2	0.1	
		Phosphate (PO ₄ ³⁻):	0.0	0.0	Manganese (Mn ²⁺):	0.2	0.0		
		Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND			
ALKALINITY BY TITRATION:		mg/L	meq/L			Zinc (Zn ²⁺):	0.0	0.0	
Bicarbonate (HCO ₃ ⁻):	128.0	2.1				Aluminum (Al ³⁺):	ND		
Carbonate (CO ₃ ²⁻):	ND					Chromium (Cr ³⁺):	ND		
Hydroxide (OH ⁻):	ND					Cobalt (Co ²⁺):	ND		
		ORGANIC ACIDS:		mg/L	meq/L	Copper (Cu ²⁺):	ND		
aqueous CO ₂ (ppm):	70.0	Formic Acid:	ND			Molybdenum (Mo ²⁺):	ND		
aqueous H ₂ S (ppm):	10.0	Acetic Acid:	ND			Nickel (Ni ²⁺):	ND		
aqueous O ₂ (ppb):	ND	Propionic Acid:	ND			Tin (Sn ²⁺):	ND		
		Butyric Acid:	ND			Titanium (Ti ²⁺):	ND		
Calculated TDS (mg/L):	118792	Valeric Acid:	ND			Vanadium (V ²⁺):	ND		
Density/Specific Gravity (g/cm ³):	1.0761					Zirconium (Zr ²⁺):	ND		
Measured Specific Gravity	1.0950					Total Hardness:	9943	N/A	
Conductivity (mmhos):	ND								
Resistivity:	ND								
MCF/D:	No Data								
BOPD:	No Data								
BWPD:	No Data	Anion/Cation Ratio:		0.99		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)
69°F	15 psi	0.81	0.179	-0.18	0.000	0.02	69.836	-0.21	0.000
89°F	24 psi	0.66	0.165	-0.11	0.000	0.04	129.525	-0.11	0.000
109°F	34 psi	0.52	0.148	-0.02	0.000	0.05	167.900	-0.01	0.000
129°F	43 psi	0.41	0.129	0.07	2.610	0.06	200.101	0.09	240.783
149°F	53 psi	0.30	0.106	0.17	5.653	0.07	231.784	0.19	501.827
170°F	62 psi	0.21	0.082	0.26	8.419	0.08	264.692	0.31	739.749
190°F	72 psi	0.13	0.056	0.35	10.938	0.09	298.477	0.42	953.227
210°F	81 psi	0.07	0.031	0.45	13.437	0.10	331.508	0.54	1141.524
230°F	91 psi	0.01	0.005	0.55	15.740	0.11	361.297	0.66	1304.712
250°F	100 psi	-0.04	0.000	0.66	17.845	0.11	384.730	0.78	1443.652

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)
69°F	15 psi	0.31	37.693	-1.33	0.000	0.74	0.980	-1.65	0.000
89°F	24 psi	0.32	38.563	-1.35	0.000	0.67	0.939	-1.52	0.000
109°F	34 psi	0.33	39.224	-1.36	0.000	0.65	0.929	-1.38	0.000
129°F	43 psi	0.34	39.922	-1.37	0.000	0.66	0.935	-1.25	0.000
149°F	53 psi	0.35	40.819	-1.38	0.000	0.68	0.948	-1.14	0.000
170°F	62 psi	0.37	42.000	-1.38	0.000	0.70	0.965	-1.05	0.000
190°F	72 psi	0.39	43.486	-1.38	0.000	0.74	0.985	-0.96	0.000
210°F	81 psi	0.42	45.243	-1.38	0.000	0.78	1.011	-0.88	0.000
230°F	91 psi	0.45	47.197	-1.38	0.000	0.84	1.038	-0.82	0.000
250°F	100 psi	0.48	49.256	-1.38	0.000	0.90	1.063	-0.76	0.000

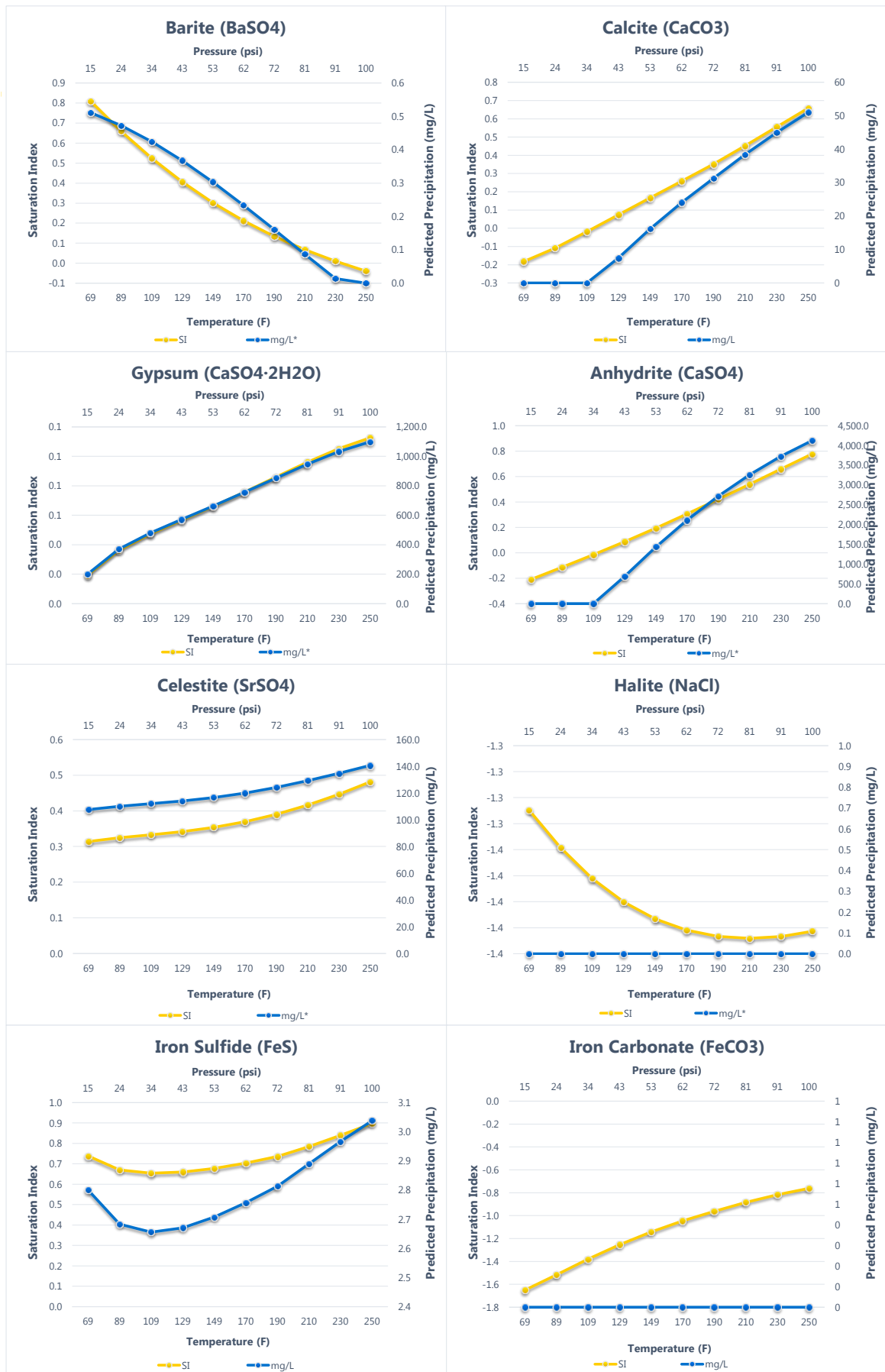
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

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.

ScaleSoftPitzer™
SSP2010

Comments:



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