

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form U3C
June 2015
Form must be Typed
Form must be completed
on a per well basis

**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
12701 N. Santa Fe Ave, Suite 151
Oklahoma City, Oklahoma 73114

REPORT DATE: 3/11/2021

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER:	ETERNITY EXPLORATION	ACCOUNT REP:	DAN J PFANNENSTIEL
DISTRICT:	KANSAS	SAMPLE ID:	202110001765
AREA/LEASE:	BETTY WERTH	SAMPLE DATE:	2/1/2021
SAMPLE POINT NAME:	BETTY WERTH 1	ANALYSIS DATE:	3/11/2021
SITE TYPE:	WELL SITES	ANALYST:	BS
SAMPLE POINT DESCRIPTION:	NOT PROVIDED		

ETERNITY EXPLORATION, BETTY WERTH, BETTY WERTH 1

FIELD DATA		ANALYSIS OF SAMPLE					
		ANIONS:		CATIONS:			
		mg/L	meq/L	mg/L	meq/L		
Initial Temperature (°F):	140	Chloride (Cl ⁻):	64847.0	1829.3	Sodium (Na ⁺):	41126.0	1789.6
Final Temperature (°F):	70	Sulfate (SO ₄ ²⁻):	2328.0	48.5	Potassium (K ⁺):	364.3	9.3
Initial Pressure (psi):	15	Borate (H ₃ BO ₃):	85.9	1.4	Magnesium (Mg ²⁺):	622.3	51.2
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	2663.6	132.9
		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	87.2	2.0
pH:		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.0	0.0
pH at time of sampling:	7.4	Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	2.8	0.1
SI Residual:	mg/L	Phosphate (PO ₄ ³⁻):	0.8	0.0	Manganese (Mn ²⁺):	0.3	0.0
Compound:	Total PO4	Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND	
Residual (ppm):	0.8				Zinc (Zn ²⁺):	ND	
ALKALINITY BY TITRATION:	mg/L meq/L						
Bicarbonate (HCO ₃ ⁻):	305.0 5.0	ORGANIC ACIDS:	mg/L meq/L		Aluminum (Al ³⁺):	ND	
Carbonate (CO ₃ ²⁻):	ND	Formic Acid:	ND		Chromium (Cr ³⁺):	ND	
Hydroxide (OH ⁻):	ND	Acetic Acid:	ND		Cobalt (Co ²⁺):	ND	
		Propionic Acid:	ND		Copper (Cu ²⁺):	ND	
aqueous CO ₂ (ppm):	ND	Butyric Acid:	ND		Molybdenum (Mo ²⁺):	ND	
aqueous H ₂ S (ppm):	ND	Valeric Acid:	ND		Nickel (Ni ²⁺):	ND	
aqueous O ₂ (ppb):	ND				Tin (Sn ²⁺):	ND	
Calculated TDS (mg/L):	112346				Titanium (Ti ²⁺):	ND	
Density/Specific Gravity (g/cm ³):	1.0726				Vanadium (V ²⁺):	ND	
Measured Specific Gravity	ND				Zirconium (Zr ²⁺):	ND	
Conductivity (mmhos):	ND				Lithium (Li):	ND	
Resistivity:	ND				Total Hardness:	9322	N/A
MCF/D:	No Data						
BOPD:	No Data						
BWPD:	No Data	Anion/Cation Ratio:		0.95		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)
70°F	15 psi		0.000	1.30	52.054	-0.22	0.000	-0.45	0.000
78°F	15 psi		0.000	1.35	54.355	-0.21	0.000	-0.41	0.000
86°F	15 psi		0.000	1.40	56.477	-0.21	0.000	-0.37	0.000
93°F	15 psi		0.000	1.45	58.441	-0.20	0.000	-0.34	0.000
101°F	15 psi		0.000	1.50	60.261	-0.20	0.000	-0.30	0.000
109°F	15 psi		0.000	1.55	61.950	-0.20	0.000	-0.26	0.000
117°F	15 psi		0.000	1.59	63.519	-0.19	0.000	-0.22	0.000
124°F	15 psi		0.000	1.64	64.977	-0.19	0.000	-0.18	0.000
132°F	15 psi		0.000	1.68	66.333	-0.19	0.000	-0.14	0.000
140°F	15 psi		0.000	1.72	67.596	-0.18	0.000	-0.10	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)
70°F	15 psi	0.00	0.436	-1.37	0.000	-8.73	0.000	-0.07	0.000
78°F	15 psi	0.01	1.069	-1.38	0.000	-8.76	0.000	0.01	0.048
86°F	15 psi	0.01	1.606	-1.39	0.000	-8.78	0.000	0.09	0.347
93°F	15 psi	0.01	2.078	-1.39	0.000	-8.80	0.000	0.16	0.592
101°F	15 psi	0.02	2.514	-1.40	0.000	-8.82	0.000	0.23	0.793
109°F	15 psi	0.02	2.938	-1.40	0.000	-8.83	0.000	0.29	0.959
117°F	15 psi	0.02	3.371	-1.40	0.000	-8.85	0.000	0.35	1.095
124°F	15 psi	0.03	3.832	-1.41	0.000	-8.86	0.000	0.41	1.208
132°F	15 psi	0.03	4.336	-1.41	0.000	-8.87	0.000	0.46	1.303
140°F	15 psi	0.04	4.895	-1.41	0.000	-8.88	0.000	0.51	1.381

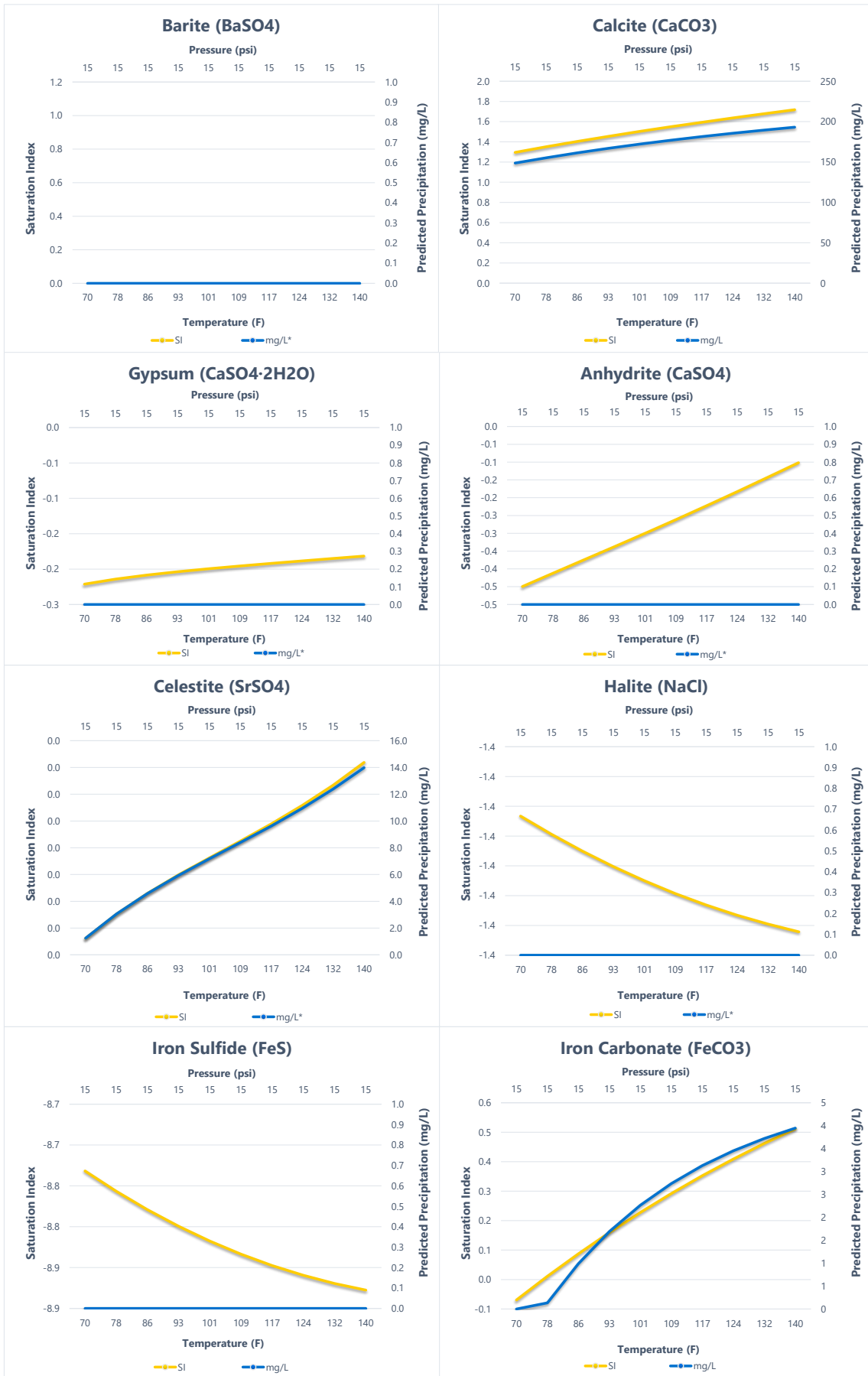
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

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.



Central Area Laboratory
12701 N. Santa Fe Ave, Suite 151
Oklahoma City, Oklahoma 73114

REPORT DATE: 3/11/2021

COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: ETERNITY EXPLORATION
DISTRICT: KANSAS
AREA/LEASE: BETTY WERTH
SAMPLE POINT NAME: BETTY WERTH 2
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: NOT PROVIDED

ACCOUNT REP: DAN J PFANNENSTIEL
SAMPLE ID: 202110001766
SAMPLE DATE: 2/1/2021
ANALYSIS DATE: 3/11/2021
ANALYST: BS

ETERNITY EXPLORATION, BETTY WERTH, BETTY WERTH 2

FIELD DATA		ANALYSIS OF SAMPLE											
		ANIONS:		mg/L		meq/L		CATIONS:		mg/L		meq/L	
Initial Temperature (°F):	140	Chloride (Cl ⁻):	61488.0	1734.5	Sodium (Na ⁺):	38370.0	1669.7						
Final Temperature (°F):	70	Sulfate (SO ₄ ²⁻):	1092.0	22.7	Potassium (K ⁺):	323.1	8.3						
Initial Pressure (psi):	15	Borate (H ₃ BO ₃):	78.7	1.3	Magnesium (Mg ²⁺):	623.8	51.3						
Final Pressure (psi):	15	Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	2029.3	101.3						
		Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	102.7	2.3						
pH:		Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	0.5	0.0						
pH at time of sampling:	6.9	Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	50.6	1.8						
SI Residual:	mg/L	Phosphate (PO ₄ ³⁻):	0.6	0.0	Manganese (Mn ²⁺):	0.6	0.0						
Compound:	Total PO4	Silica (SiO ₂):	ND		Lead (Pb ²⁺):	ND							
Residual (ppm):	0.6				Zinc (Zn ²⁺):	ND							
ALKALINITY BY TITRATION:	mg/L												
	meq/L												
Bicarbonate (HCO ₃ ⁻):	388.0	6.4			Aluminum (Al ³⁺):	ND							
Carbonate (CO ₃ ²⁻):	ND				Chromium (Cr ³⁺):	ND							
Hydroxide (OH ⁻):	ND				Cobalt (Co ²⁺):	ND							
					Copper (Cu ²⁺):	ND							
aqueous CO ₂ (ppm):	ND	ORGANIC ACIDS:	mg/L	meq/L	Molybdenum (Mo ²⁺):	ND							
aqueous H ₂ S (ppm):	ND	Formic Acid:	ND		Nickel (Ni ²⁺):	ND							
aqueous O ₂ (ppb):	ND	Acetic Acid:	ND		Tin (Sn ²⁺):	ND							
		Propionic Acid:	ND		Titanium (Ti ²⁺):	ND							
		Butyric Acid:	ND		Vanadium (V ²⁺):	ND							
Calculated TDS (mg/L):	104469	Valeric Acid:	ND		Zirconium (Zr ²⁺):	ND							
Density/Specific Gravity (g/cm ³):	1.0672				Lithium (Li):	ND							
Measured Specific Gravity	ND				Total Hardness:	7761	N/A						
Conductivity (mmhos):	ND												
Resistivity:	ND												
MCF/D:	No Data												
BOPD:	No Data												
BWPD:	No Data	Anion/Cation Ratio:		0.96									

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)
70°F	15 psi	0.40	0.172	0.78	53.247	-0.63	0.000	-0.86	0.000
78°F	15 psi	0.34	0.155	0.85	57.121	-0.63	0.000	-0.83	0.000
86°F	15 psi	0.28	0.136	0.92	60.689	-0.62	0.000	-0.79	0.000
93°F	15 psi	0.22	0.115	0.98	63.986	-0.62	0.000	-0.76	0.000
101°F	15 psi	0.17	0.093	1.05	67.036	-0.62	0.000	-0.72	0.000
109°F	15 psi	0.12	0.068	1.11	69.864	-0.61	0.000	-0.68	0.000
117°F	15 psi	0.07	0.042	1.17	72.487	-0.61	0.000	-0.64	0.000
124°F	15 psi	0.02	0.015	1.23	74.923	-0.61	0.000	-0.61	0.000
132°F	15 psi	-0.02	0.000	1.29	77.187	-0.60	0.000	-0.57	0.000
140°F	15 psi	-0.06	0.000	1.34	79.294	-0.60	0.000	-0.52	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)
70°F	15 psi	-0.22	0.000	-1.43	0.000	-8.08	0.000	0.79	25.357
78°F	15 psi	-0.22	0.000	-1.44	0.000	-8.07	0.000	0.89	27.173
86°F	15 psi	-0.21	0.000	-1.44	0.000	-8.05	0.000	0.98	28.694
93°F	15 psi	-0.21	0.000	-1.45	0.000	-8.04	0.000	1.07	29.961
101°F	15 psi	-0.21	0.000	-1.46	0.000	-8.03	0.000	1.15	31.012
109°F	15 psi	-0.21	0.000	-1.46	0.000	-8.01	0.000	1.23	31.883
117°F	15 psi	-0.21	0.000	-1.46	0.000	-8.00	0.000	1.31	32.604
124°F	15 psi	-0.20	0.000	-1.47	0.000	-7.99	0.000	1.38	33.200
132°F	15 psi	-0.20	0.000	-1.47	0.000	-7.97	0.000	1.45	33.694
140°F	15 psi	-0.20	0.000	-1.47	0.000	-7.96	0.000	1.52	34.104

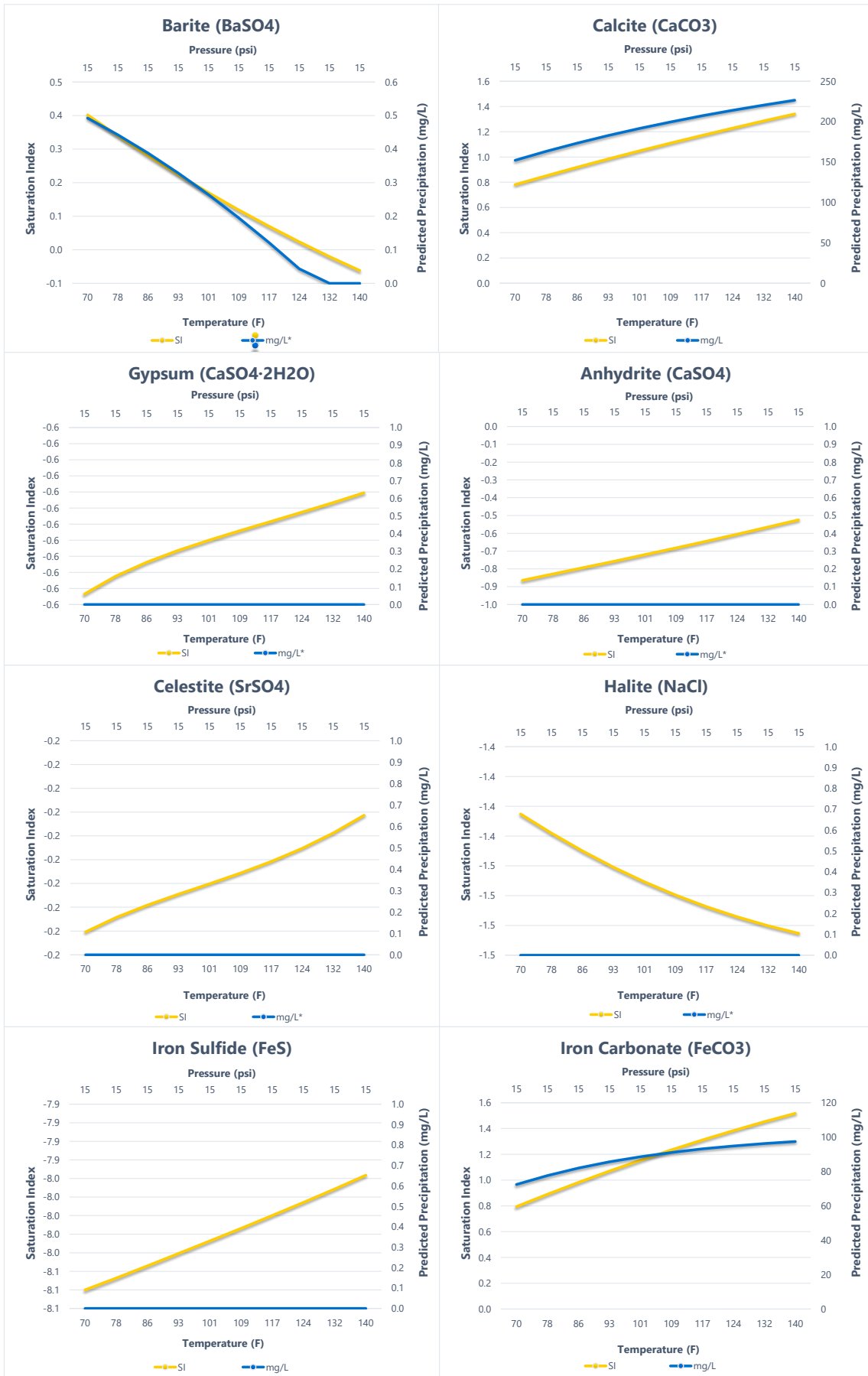
Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered

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.