

Water Analysis Report

Production Company:	Ursa	Sales Rep:	Lance Erdmann
Well Name:	Tompkins 41 AWI 080795	Lab Tech:	Michele Pike
Sample Point:	WELL HEAD		
Sample Date:	7/24/2018		
Sample ID:	WA-372421		
			Scaling potential predicted using ScaleSoftPitzer from Brine Chemistry Consortium (Rice University)

Sample Specifics		Analysis @ Properties in Sample Specifics			
		Cations	mg/L	Anions	mg/L
Test Date:	7/26/2018	Sodium (Na):	4592.93	Chloride (Cl):	7850.00
System Temperature 1 (°F):	220	Potassium (K):	122.53	Sulfate (SO4):	0.00
System Pressure 1 (psig):	2000	Magnesium (Mg):	22.24	Bicarbonate (HCO3):	780.80
System Temperature 2 (°F):	80	Calcium (Ca):	310.36	Carbonate (CO3):	
System Pressure 2 (psig):	47	Strontium (Sr):	21.07	Hydroxide(HO):	
Calculated Density (g/ml):	1.0072	Barium (Ba):	1.23	Acetic Acid (CH3COO)	
pH:	6.40	Iron (Fe):	328.91	Propionic Acid (C2H5COO)	
Calculated TDS (mg/L):	14085.02	Zinc (Zn):	49.15	Butanoic Acid (C3H7COO)	
CO2 in Gas (%):		Lead (Pb):	0.35	Isobutyric Acid ((CH3)2CHCOO)	
Dissolved CO2 (mg/L):	217.80	Ammonia NH3:		Fluoride (F):	
H2S in Gas (%):		Manganese (Mn):	5.45	Bromine (Br):	
H2S in Water (mg/L):	1.00	Aluminum (Al):	0.20	Silica (SiO2):	
Tot. SuspendedSolids(mg/L):		Lithium (Li):	4.81	Calcium Carbonate (CaCO3):	
Corrosivity(LanglierSat.Indx)	0.00	Boron (B):		Phosphates (PO4):	1.04
Alkalinity:		Silicon (Si):		Oxygen (O2):	

Notes:

(PTB = Pounds per Thousand Barrels)

		Calcium Carbonate		Barium Sulfate		Iron Sulfide		Iron Carbonate		Gypsum CaSO4·2H2O		Celestite SrSO4		Halite NaCl		Zinc Sulfide	
Temp (°F)	PSI	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	47.00	0.00	0.00	0.00	0.00	1.97	0.94	1.67	171.75	0.00	0.00	0.00	0.00	0.00	0.00	9.32	1.06
96.00	264.00	0.00	0.00	0.00	0.00	1.91	0.94	1.76	177.03	0.00	0.00	0.00	0.00	0.00	0.00	9.08	1.06
111.00	481.00	0.00	0.00	0.00	0.00	1.89	0.94	1.87	182.80	0.00	0.00	0.00	0.00	0.00	0.00	8.89	1.06
127.00	698.00	0.02	3.08	0.00	0.00	1.90	0.94	1.98	188.09	0.00	0.00	0.00	0.00	0.00	0.00	8.72	1.06
142.00	915.00	0.10	14.88	0.00	0.00	1.92	0.94	2.09	192.94	0.00	0.00	0.00	0.00	0.00	0.00	8.57	1.06
158.00	1132.00	0.20	27.30	0.00	0.00	1.95	0.94	2.20	197.36	0.00	0.00	0.00	0.00	0.00	0.00	8.44	1.06
173.00	1349.00	0.29	40.14	0.00	0.00	2.00	0.94	2.31	201.38	0.00	0.00	0.00	0.00	0.00	0.00	8.32	1.06
189.00	1566.00	0.40	53.20	0.00	0.00	2.06	0.94	2.41	205.02	0.00	0.00	0.00	0.00	0.00	0.00	8.22	1.06
204.00	1783.00	0.51	66.29	0.00	0.00	2.12	0.95	2.51	208.32	0.00	0.00	0.00	0.00	0.00	0.00	8.14	1.06
220.00	2000.00	0.63	79.23	0.00	0.00	2.20	0.95	2.61	211.29	0.00	0.00	0.00	0.00	0.00	0.00	8.07	1.06

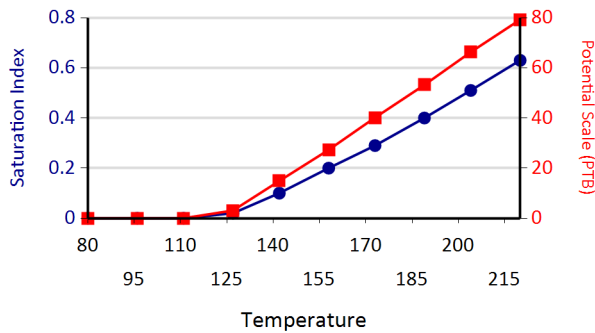
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Temp (°F)	PSI	Hemihydrate CaSO ₄ ~0.5H ₂ O		Anhydrate CaSO ₄		Calcium Fluoride		Zinc Carbonate		Lead Sulfide		Mg Silicate		Ca Mg Silicate		Fe Silicate	
		SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB	SI	PTB
80.00	47.00	0.00	0.00	0.00	0.00	0.00	0.00	0.18	9.00	9.44	0.14	0.00	0.00	0.00	0.00	0.00	0.00
96.00	264.00	0.00	0.00	0.00	0.00	0.00	0.00	0.41	17.64	9.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00
111.00	481.00	0.00	0.00	0.00	0.00	0.00	0.00	0.64	23.47	8.64	0.14	0.00	0.00	0.00	0.00	0.00	0.00
127.00	698.00	0.00	0.00	0.00	0.00	0.00	0.00	0.86	27.06	8.31	0.14	0.00	0.00	0.00	0.00	0.00	0.00
142.00	915.00	0.00	0.00	0.00	0.00	0.00	0.00	1.07	29.25	8.01	0.14	0.00	0.00	0.00	0.00	0.00	0.00
158.00	1132.00	0.00	0.00	0.00	0.00	0.00	0.00	1.26	30.59	7.75	0.14	0.00	0.00	0.00	0.00	0.00	0.00
173.00	1349.00	0.00	0.00	0.00	0.00	0.00	0.00	1.45	31.43	7.51	0.14	0.00	0.00	0.00	0.00	0.00	0.00
189.00	1566.00	0.00	0.00	0.00	0.00	0.00	0.00	1.62	31.95	7.29	0.14	0.00	0.00	0.00	0.00	0.00	0.00
204.00	1783.00	0.00	0.00	0.00	0.00	0.00	0.00	1.78	32.29	7.10	0.14	0.00	0.00	0.00	0.00	0.00	0.00
220.00	2000.00	0.00	0.00	0.00	0.00	0.00	0.00	1.93	32.51	6.92	0.14	0.00	0.00	0.00	0.00	0.00	0.00

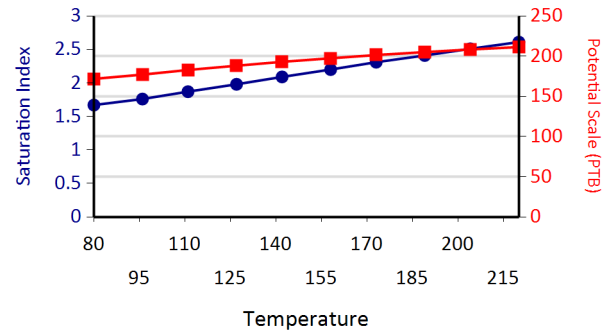
These scales have positive scaling potential under initial temperature and pressure: Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide

These scales have positive scaling potential under final temperature and pressure: Calcium Carbonate Iron Sulfide Iron Carbonate Zinc Sulfide Zinc Carbonate Lead Sulfide

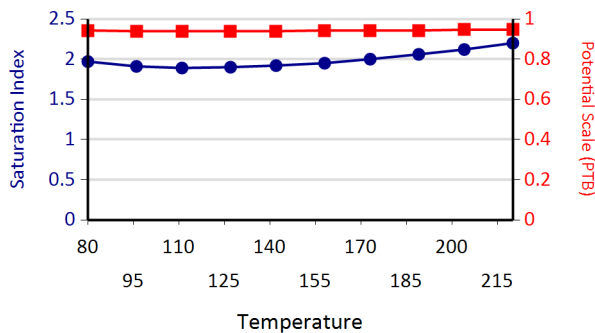
Calcium Carbonate



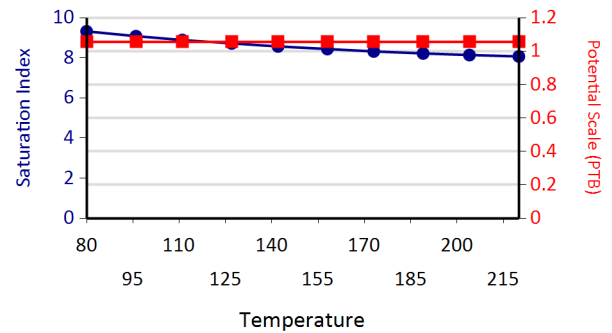
Iron Carbonate



Iron Sulfide

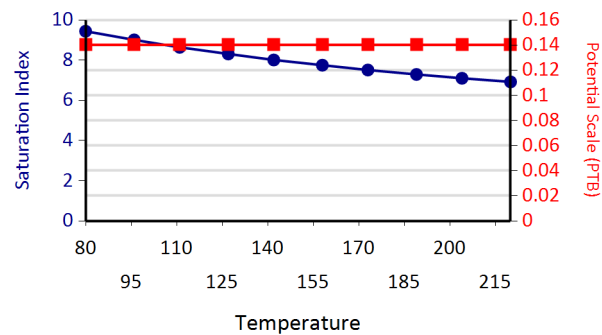


Zinc Sulfide



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Lead Sulfide



Zinc Carbonate

