



Rocky Mountain Area Laboratory
350 Cole Creek Road,
Evansville, WY 82636

Upstream Chemicals

REPORT DATE: 5/23/2018

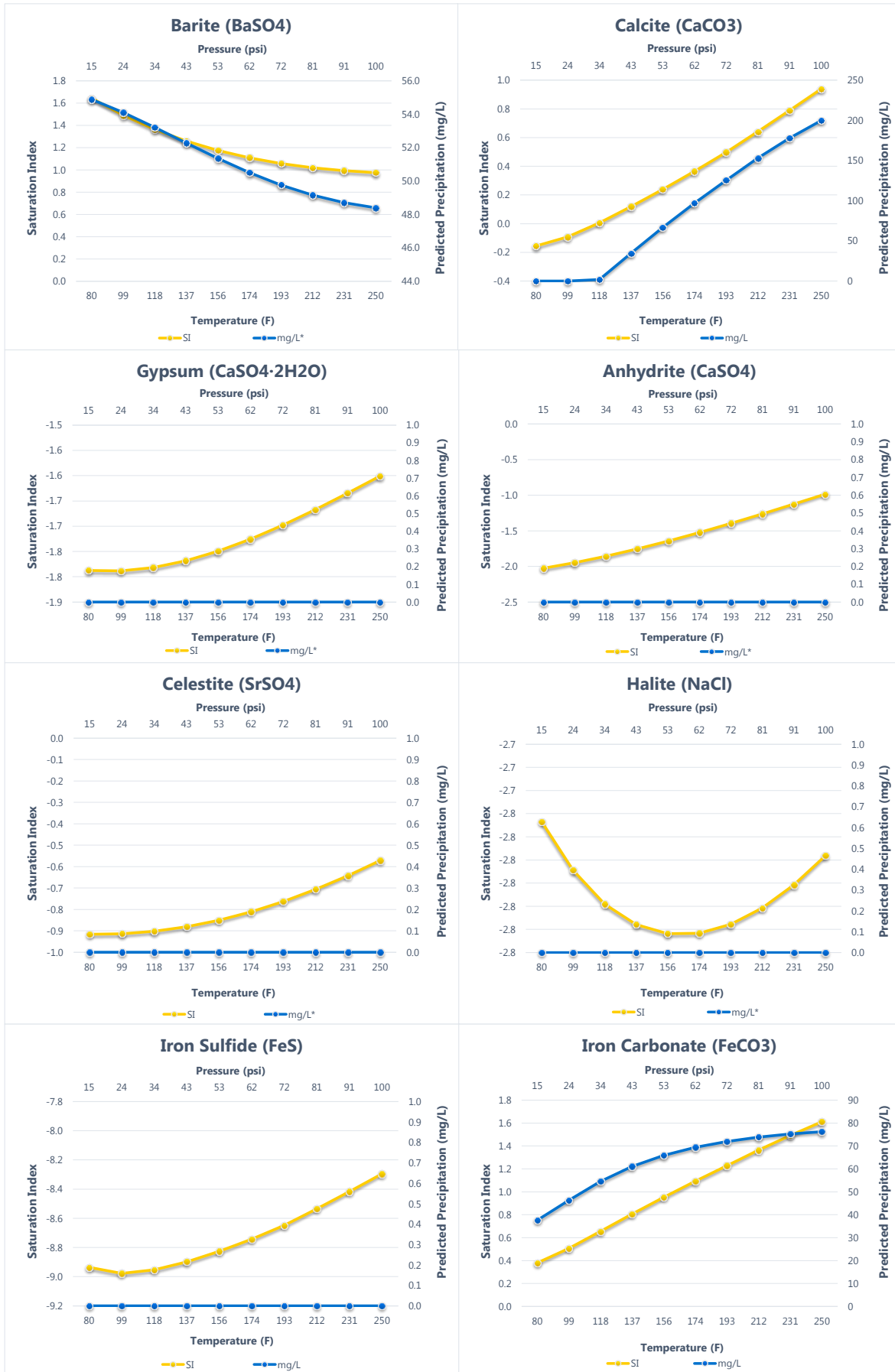
COMPLETE WATER ANALYSIS REPORT SSP v.2010

CUSTOMER: AUGUSTUS ENERGY
DISTRICT: FOUR CORNERS
AREA/LEASE: BHR FED
SAMPLE POINT NAME: DRIP LINE
SITE TYPE: WELL SITES
SAMPLE POINT DESCRIPTION: NOT PROVIDED

ACCOUNT REP: JAMES DANNAR
SAMPLE ID: 201812008663
SAMPLE DATE: 4/20/2018
ANALYSIS DATE: 5/18/2018
ANALYST: BAS

AUGUSTUS ENERGY, BHR FED, DRIP LINE

FIELD DATA			ANALYSIS OF SAMPLE							
			ANIONS:		mg/L	meq/L	CATIONS:		mg/L	meq/L
Initial Temperature (°F):	250		Chloride (Cl ⁻):	13202.0	372.4	Sodium (Na ⁺):	8632.5	375.7		
Final Temperature (°F):	80		Sulfate (SO ₄ ²⁻):	70.0	1.5	Potassium (K ⁺):	83.0	2.1		
Initial Pressure (psi):	100		Borate (H ₃ BO ₃):	355.2	5.7	Magnesium (Mg ²⁺):	59.5	4.9		
Final Pressure (psi):	15		Fluoride (F ⁻):	ND		Calcium (Ca ²⁺):	605.1	30.2		
pH:			Bromide (Br ⁻):	ND		Strontium (Sr ²⁺):	93.0	2.1		
pH at time of sampling:			Nitrite (NO ₂ ⁻):	ND		Barium (Ba ²⁺):	33.4	0.5		
			Nitrate (NO ₃ ⁻):	ND		Iron (Fe ²⁺):	38.3	1.4		
			Phosphate (PO ₄ ³⁻):	4.1	0.1	Manganese (Mn ²⁺):	0.7	0.0		
			Silica (SiO ₂):	91.7		Lead (Pb ²⁺):	ND			
						Zinc (Zn ²⁺):	0.0	0.0		
ALKALINITY BY TITRATION:										
	mg/L	meq/L								
Bicarbonate (HCO ₃ ⁻):	400.2	6.6					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):	22.0		Formic Acid:	ND			Molybdenum (Mo ²⁺):	ND		
aqueous H ₂ S (ppm):	0.0		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):	23309		Valeric Acid:	ND			Vanadium (V ²⁺):	ND		
Density/Specific Gravity (g/cm ³):	1.0140						Zirconium (Zr ²⁺):	ND		
Measured Specific Gravity	ND						Lithium (Li):	ND		
Conductivity (mmhos):	ND									
Resistivity:	ND						Total Hardness:	1888		N/A
MCF/D:	No Data									
BOPD:	No Data									
BWPD:	No Data		Anion/Cation Ratio:		0.93	ND = Not Determined				



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