

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	_____	_____	_____	_____	_____
	<b>TOTAL</b>	_____	_____	_____	_____	_____

# DownHole SAT™ Water Analysis Report



## SYSTEM IDENTIFICATION

K3 OIL & GAS OPERATING  
 J LEWIS FRANKLIN 13-6  
 ED WEBB  
 BLEEDER  
 SUMNER KS

Sample ID#: 5027  
 Sample ID: 254810  
 Sample Date: 03-16-2020 at 0000  
 Report Date: 03-27-2020

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	8521
Magnesium(as Mg)	1899
Barium(as Ba)	18.94
Strontium(as Sr)	432.40
Sodium(as Na)	42151
Potassium(as K)	470.30
Lithium(as Li)	9.24
Iron(as Fe)	11.03
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.975
Zinc(as Zn)	0.864
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	86400
Sulfate(as SO <sub>4</sub> )	25.00
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	230.00
Bicarbonate(as HCO <sub>3</sub> )	146.40
Carbonate(as CO <sub>3</sub> )	0.00
Silica(as SiO <sub>2</sub> )	0.00
Phosphate(as PO <sub>4</sub> )	0.00
H <sub>2</sub> S (as H <sub>2</sub> S)	0.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	9.56

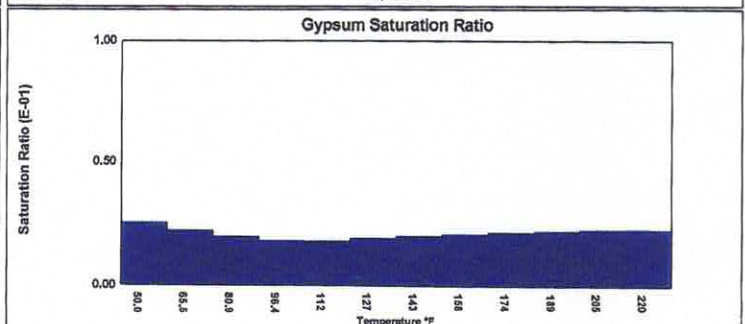
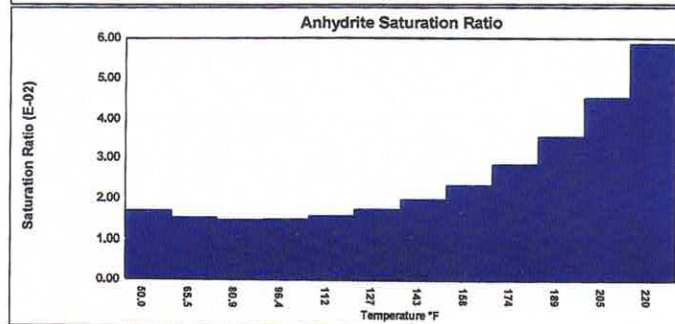
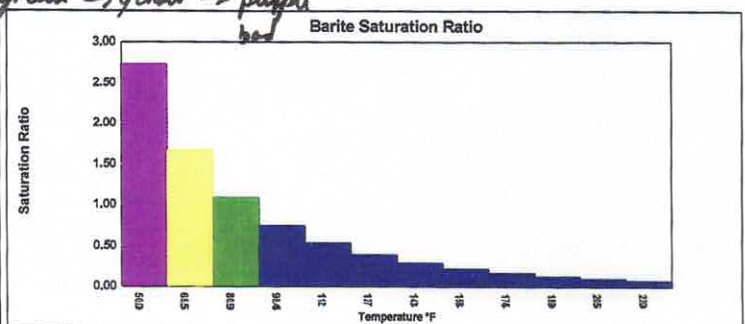
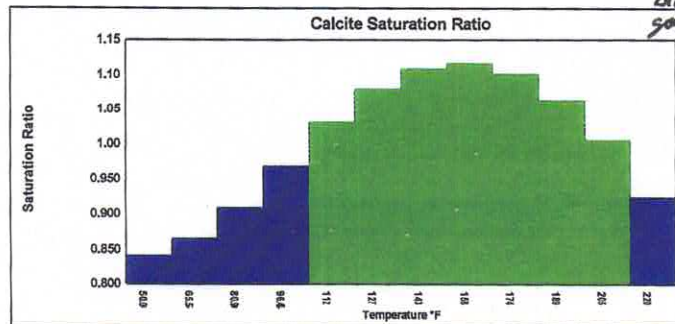
### PARAMETERS

Temperature(°F)	69.00	Sample pH	6.25
Conductivity	132920	Sp.Gr.(g/mL)	1.09
Resistivity	7.52	T.D.S.	149361

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackawenite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)
50.00	0.00	0.841	-0.00214	0.0168	-215.07	0.0250	-162.63	2.73	3.22	0.0252	-138.01	0.611	-0.00832	0.00	-0.320	0.103	0.0351
65.45	0.00	0.864	-0.00161	0.0152	-222.36	0.0220	-174.11	1.66	1.78	0.0221	-145.70	0.705	-0.00497	0.00	-0.411	0.256	0.0351
80.91	0.00	0.908	>-0.001	0.0146	-217.77	0.0197	-182.87	1.08	0.282	0.0206	-146.83	0.826	-0.00236	0.00	-0.501	0.201	0.0351
96.36	0.00	0.968	>-0.001	0.0148	-203.33	0.0180	-188.92	0.739	-1.23	0.0199	-144.44	0.975	>-0.001	0.00	-0.584	0.291	0.0351
111.82	0.00	1.03	< 0.001	0.0156	-181.99	0.0180	-178.99	0.530	-2.74	0.0194	-140.75	1.14	0.00133	0.00	-0.664	0.298	0.0351
127.27	0.00	1.08	< 0.001	0.0172	-156.90	0.0190	-160.74	0.386	-4.36	0.0190	-137.87	1.31	0.00244	0.00	-0.751	0.240	0.0351
142.73	0.00	1.11	< 0.001	0.0197	-130.83	0.0199	-146.13	0.284	-6.15	0.0184	-135.92	1.48	0.00317	0.00	-0.849	0.189	0.0351
158.18	0.00	1.12	< 0.001	0.0232	-105.88	0.0208	-134.43	0.211	-8.10	0.0179	-134.84	1.62	0.00356	0.00	-0.960	0.167	0.0351
173.64	0.00	1.10	< 0.001	0.0283	-83.43	0.0215	-125.09	0.158	-10.26	0.0172	-134.61	1.73	0.00371	0.00	-1.09	0.150	0.0351
189.09	0.00	1.06	< 0.001	0.0353	-64.18	0.0220	-117.69	0.120	-12.64	0.0166	-135.19	1.80	0.00365	0.00	-1.23	0.0628	0.0351
204.55	0.00	1.00	< 0.001	0.0452	-48.29	0.0225	-111.95	0.0913	-15.28	0.0159	-136.61	1.83	0.00344	0.00	-1.39	0.0463	0.0351
220.00	0.171	0.923	>-0.001	0.0587	-36.85	0.0227	-111.34	0.0697	-18.60	0.0151	-142.56	1.81	0.00315	0.00	-1.60	0.0655	0.0412
		Lbs per 1000 Barrels		Lbs per 1000 Barrels		Lbs per 1000 Barrels		Lbs per 1000 Barrels		Lbs per 1000 Barrels		Lbs per 1000 Barrels		Lbs per 1000 Barrels			

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase. Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





# DownHole SAT Water Analysis Report

## SYSTEM IDENTIFICATION

K3 OIL & GAS OPERATING  
FRANKLIN 14-6-3  
ED WEBB  
BLEEDER  
SUMNER KS

Sample ID#: 5027  
Sample ID: 254811  
Sample Date: 03-16-2020 at 0000  
Report Date: 03-27-2020

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	7146
Magnesium(as Mg)	1719
Barium(as Ba)	16.20
Strontium(as Sr)	384.00
Sodium(as Na)	38577
Potassium(as K)	436.50
Lithium(as Li)	8.76
Iron(as Fe)	11.42
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.526
Zinc(as Zn)	0.694
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	77800
Sulfate(as SO <sub>4</sub> )	50.00
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	170.00
Bicarbonate(as HCO <sub>3</sub> )	195.20
Carbonate(as CO <sub>3</sub> )	0.00
Silica(as SiO <sub>2</sub> )	0.00
Phosphate(as PO <sub>4</sub> )	0.00
H <sub>2</sub> S (as H <sub>2</sub> S)	0.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	10.84

Temperature(°F)	84.00
Conductivity	149372
Resistivity	6.69

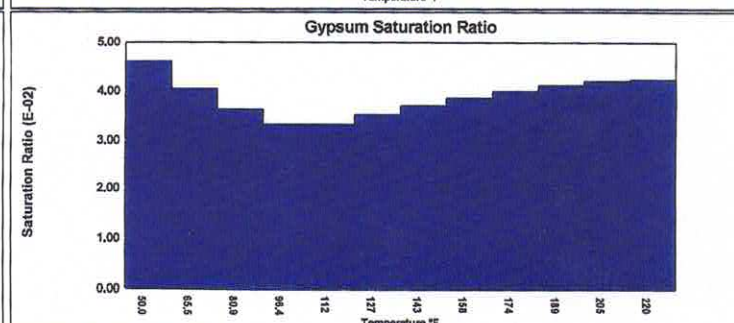
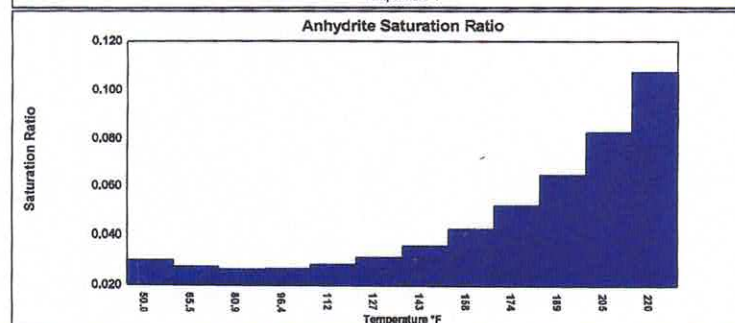
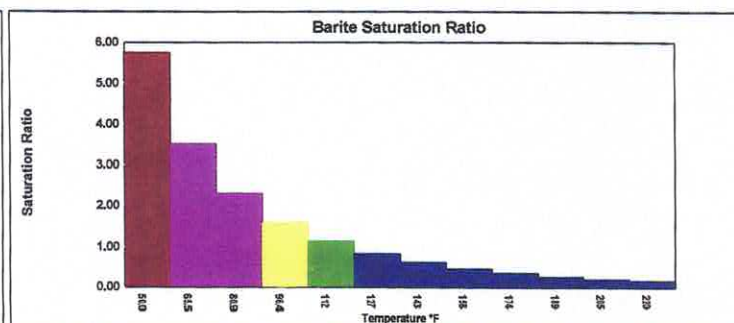
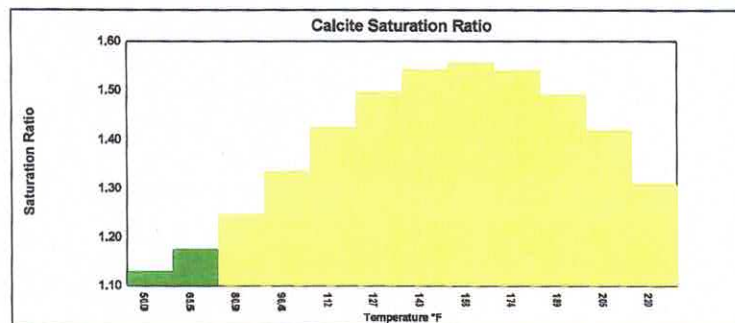
### PARAMETERS

Sample pH	6.32
Sp.Gr.(g/mL)	1.08
T.D.S.	133905

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackawenite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)
50.00	0.00	1.13	0.00225	0.0301	-265.82	0.0460	-195.92	5.74	6.93	0.0549	-133.58	1.15	0.00304	0.00	-0.267	0.0897	0.0425
65.45	0.00	1.17	0.00272	0.0274	-275.01	0.0404	-210.16	3.51	5.46	0.0483	-141.38	1.35	0.00545	0.00	-0.344	0.174	0.0425
80.91	0.00	1.24	0.00340	0.0264	-269.40	0.0363	-221.00	2.28	3.87	0.0452	-142.68	1.59	0.00745	0.00	-0.421	0.113	0.0425
96.36	0.00	1.33	0.00419	0.0267	-251.53	0.0333	-228.49	1.57	2.25	0.0437	-140.48	1.89	0.00915	0.00	-0.494	0.111	0.0425
111.82	0.00	1.42	0.00489	0.0283	-225.04	0.0333	-216.42	1.13	0.628	0.0428	-136.98	2.22	0.0105	0.00	-0.564	0.0677	0.0425
127.27	0.00	1.49	0.00530	0.0313	-193.83	0.0353	-194.15	0.821	-1.11	0.0419	-134.25	2.56	0.0113	0.00	-0.641	0.190	0.0425
142.73	0.00	1.54	0.00542	0.0358	-161.34	0.0371	-176.32	0.605	-2.98	0.0408	-132.41	2.88	0.0117	0.00	-0.729	0.172	0.0425
158.18	0.00	1.55	0.00526	0.0423	-130.21	0.0386	-162.02	0.450	-5.01	0.0395	-131.41	3.16	0.0117	0.00	-0.829	0.175	0.0425
173.64	0.00	1.54	0.00487	0.0516	-102.16	0.0400	-150.58	0.338	-7.21	0.0382	-131.21	3.39	0.0114	0.00	-0.942	0.175	0.0425
189.09	0.00	1.49	0.00428	0.0645	-78.08	0.0411	-141.50	0.256	-9.60	0.0368	-131.79	3.54	0.0108	0.00	-1.07	0.0795	0.0425
204.55	0.00	1.42	0.00353	0.0826	-58.20	0.0420	-134.43	0.195	-12.22	0.0353	-133.16	3.62	0.0101	0.00	-1.22	0.0602	0.0425
220.00	0.171	1.31	0.00265	0.107	-43.80	0.0423	-133.50	0.149	-15.41	0.0335	-138.84	3.59	0.00941	0.00	-1.40	0.0827	0.0498
		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels			

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase. Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





# DownHole SAT Water Analysis Report



## SYSTEM IDENTIFICATION

K3 OIL & GAS OPERATING  
FRANKLIN 14-6-2  
ED WEBB  
BLEEDER  
SUMNER KS

Sample ID#: 5027  
Sample ID: 254807  
Sample Date: 03-16-2020 at 0000  
Report Date: 03-27-2020

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	5592
Magnesium(as Mg)	1389
Barium(as Ba)	31.07
Srionium(as Sr)	330.80
Sodium(as Na)	36423
Potassium(as K)	374.00
Lithium(as Li)	7.04
Iron(as Fe)	29.27
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.644
Zinc(as Zn)	0.524
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	70700
Sulfate(as SO <sub>4</sub> )	25.00
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	220.00
Bicarbonate(as HCO <sub>3</sub> )	183.00
Carbonate(as CO <sub>3</sub> )	0.00
Silica(as SiO <sub>2</sub> )	0.00
Phosphate(as PO <sub>4</sub> )	0.00
H <sub>2</sub> S (as H <sub>2</sub> S)	0.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	12.08

Temperature(°F)	73.00
Conductivity	120154
Resistivity	8.32

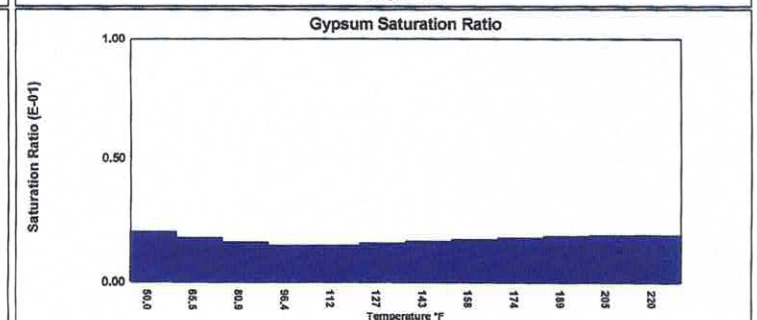
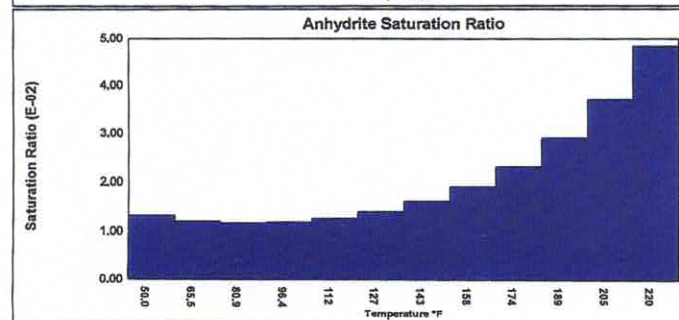
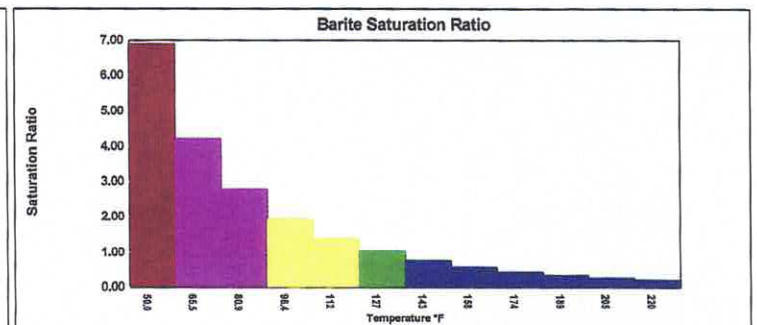
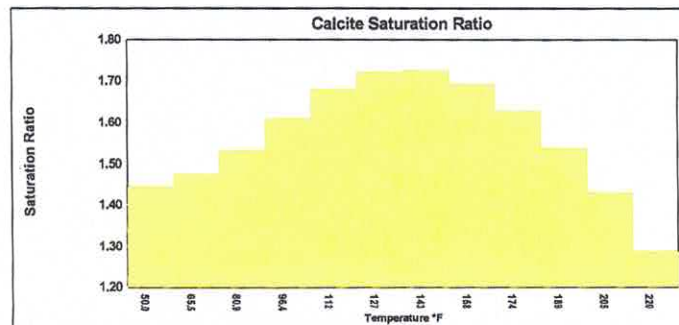
### PARAMETERS

Sample pH	6.52
Sp.Gr.(g/mL)	1.07
T.D.S.	120200

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackawenite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)
50.00	0.00	1.44	0.0106	0.0131	-349.36	0.0203	-257.38	6.88	6.54	0.0296	-138.26	5.38	0.0327	0.00	-0.0717	0.0559	0.0297
65.45	0.00	1.47	0.0100	0.0120	-360.48	0.0180	-274.81	4.23	5.33	0.0261	-145.55	6.17	0.0303	0.00	-0.0997	0.105	0.0297
80.91	0.00	1.53	0.0101	0.0116	-352.86	0.0162	-287.96	2.76	4.05	0.0245	-146.54	7.16	0.0289	0.00	-0.131	0.0680	0.0297
96.36	0.00	1.61	0.0104	0.0118	-329.72	0.0149	-296.88	1.91	2.75	0.0238	-144.16	8.32	0.0281	0.00	-0.163	0.104	0.0297
111.82	0.00	1.68	0.0107	0.0125	-295.60	0.0150	-281.22	1.37	1.44	0.0234	-140.51	9.58	0.0273	0.00	-0.198	0.123	0.0297
127.27	0.00	1.72	0.0104	0.0139	-255.41	0.0159	-252.73	1.01	0.0266	0.0230	-137.63	10.76	0.0262	0.00	-0.240	0.116	0.0297
142.73	0.00	1.72	0.00983	0.0160	-213.48	0.0168	-229.83	0.743	-1.52	0.0225	-135.63	11.77	0.0248	0.00	-0.292	0.106	0.0297
158.18	0.00	1.69	0.00889	0.0189	-173.19	0.0176	-211.38	0.555	-3.22	0.0218	-134.46	12.57	0.0232	0.00	-0.355	0.112	0.0297
173.64	0.00	1.63	0.00769	0.0231	-136.78	0.0182	-196.57	0.418	-5.10	0.0211	-134.08	13.09	0.0213	0.00	-0.433	0.116	0.0297
189.09	0.00	1.54	0.00634	0.0290	-105.44	0.0188	-184.78	0.317	-7.17	0.0204	-134.46	13.34	0.0194	0.00	-0.527	0.0561	0.0297
204.55	0.00	1.43	0.00490	0.0372	-79.51	0.0192	-175.54	0.243	-9.47	0.0196	-135.63	13.31	0.0175	0.00	-0.640	0.0444	0.0297
220.00	0.171	1.29	0.00334	0.0482	-60.75	0.0194	-174.13	0.185	-12.33	0.0186	-140.99	12.89	0.0160	0.00	-0.792	0.0617	0.0347
		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels		xSAT 1000 Lbs per Barrels			

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase. Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





# DownHole SAT™ Water Analysis Report



## SYSTEM IDENTIFICATION

K3 OIL & GAS OPERATING  
FRANKLIN 13-6-4  
ED WEBB  
BLEEDER  
SUMNER KS

Sample ID#: 5027  
Sample ID: 254808  
Sample Date: 03-16-2020 at 0000  
Report Date: 03-27-2020

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	8936
Magnesium(as Mg)	2034
Barium(as Ba)	13.25
Strontium(as Sr)	500.90
Sodium(as Na)	43967
Potassium(as K)	489.60
Lithium(as Li)	9.61
Iron(as Fe)	5.83
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.714
Zinc(as Zn)	0.912
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	90400
Sulfate(as SO <sub>4</sub> )	25.00
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	180.00
Bicarbonate(as HCO <sub>3</sub> )	146.40
Carbonate(as CO <sub>3</sub> )	0.00
Silica(as SiO <sub>2</sub> )	0.00
Phosphate(as PO <sub>4</sub> )	0.00
H <sub>2</sub> S (as H <sub>2</sub> S)	0.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	9.60

Temperature(°F)	73.00
Conductivity	146670
Resistivity	6.82

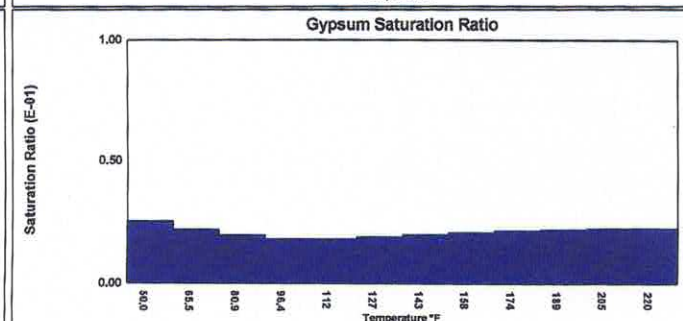
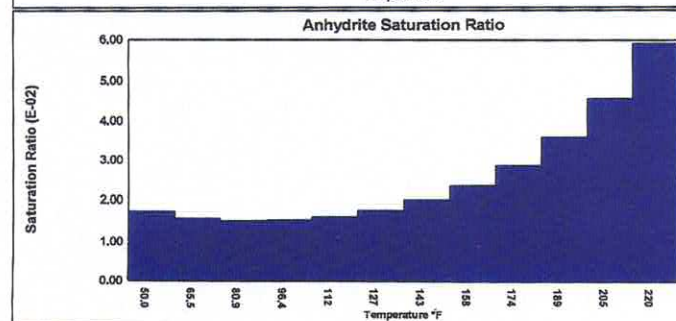
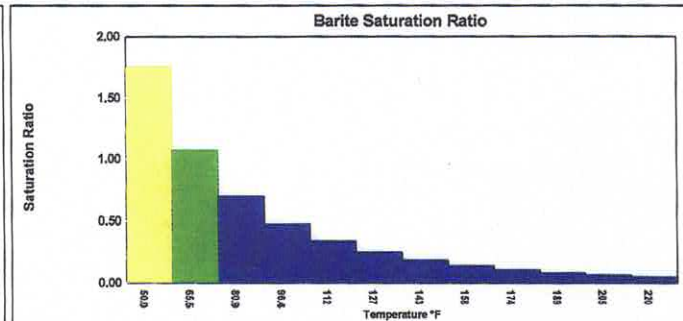
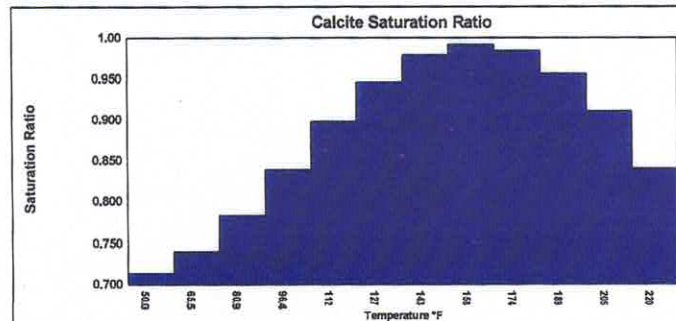
### PARAMETERS

Sample pH	6.17
Sp.Gr.(g/mL)	1.10
T.D.S.	156368

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>	Anhydrite CaSO <sub>4</sub>	Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O	Barite BaSO <sub>4</sub>	Celestite SrSO <sub>4</sub>	Siderite FeCO <sub>3</sub>	Mackawenite FeS	CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)							
50.00	0.00	0.713	-0.00351	0.0172	-198.96	0.0254	-151.88	1.75	1.73	0.0268	-129.79	0.246	-0.0306	0.00	-0.511	0.113	0.0388
65.45	0.00	0.740	-0.00281	0.0156	-205.76	0.0222	-162.66	1.07	0.211	0.0235	-137.31	0.287	-0.0228	0.00	-0.623	0.301	0.0388
80.91	0.00	0.782	-0.00210	0.0149	-201.55	0.0199	-170.90	0.689	-1.35	0.0218	-138.44	0.338	-0.0170	0.00	-0.729	0.240	0.0388
96.36	0.00	0.838	-0.00142	0.0150	-188.20	0.0181	-176.62	0.472	-2.92	0.0210	-136.15	0.401	-0.0126	0.00	-0.825	0.343	0.0388
111.82	0.00	0.897	>-0.001	0.0159	-168.46	0.0181	-167.36	0.338	-4.49	0.0205	-132.59	0.474	-0.00922	0.00	-0.913	0.390	0.0388
127.27	0.00	0.946	>-0.001	0.0175	-145.23	0.0191	-150.32	0.245	-6.17	0.0200	-129.82	0.548	-0.00670	0.00	-1.01	0.365	0.0388
142.73	0.00	0.978	>-0.001	0.0199	-121.10	0.0200	-136.68	0.180	-8.01	0.0194	-127.96	0.619	-0.00485	0.00	-1.11	0.333	0.0388
158.18	0.00	0.991	>-0.001	0.0235	-98.01	0.0208	-125.77	0.134	-10.04	0.0187	-126.96	0.682	-0.00352	0.00	-1.23	0.332	0.0388
173.64	0.00	0.984	>-0.001	0.0286	-77.24	0.0215	-117.06	0.100	-12.26	0.0181	-126.77	0.734	-0.00260	0.00	-1.36	0.325	0.0388
189.09	0.00	0.956	>-0.001	0.0357	-59.42	0.0220	-110.17	0.0756	-14.71	0.0174	-127.38	0.770	-0.00201	0.00	-1.51	0.141	0.0388
204.55	0.00	0.910	>-0.001	0.0456	-44.72	0.0225	-104.83	0.0576	-17.43	0.0166	-128.81	0.788	-0.00168	0.00	-1.68	0.102	0.0388
220.00	0.171	0.840	>-0.001	0.0591	-34.13	0.0226	-104.33	0.0439	-20.85	0.0158	-134.68	0.781	-0.00164	0.00	-1.90	0.139	0.0455
		Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels	Lbs per xSAT 1000 Barrels

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g.  $\{Ca\}\{CO_3\}/K_{sp}$ . pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase.  
Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.





# DownHole SAT Water Analysis Report



## SYSTEM IDENTIFICATION

K3 OIL & GAS OPERATING  
 CONDIFF 8-22-5-23H  
 ED WEBB  
 BLEEDER  
 SUMNER KS

Sample ID#: 5027  
 Sample ID: 254809  
 Sample Date: 03-16-2020 at 0000  
 Report Date: 03-27-2020

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	10070
Magnesium(as Mg)	2277
Barium(as Ba)	0.950
Strontium(as Sr)	340.30
Sodium(as Na)	45007
Potassium(as K)	472.40
Lithium(as Li)	10.45
Iron(as Fe)	3.59
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.412
Zinc(as Zn)	0.852
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	94200
Sulfate(as SO <sub>4</sub> )	500.00
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	340.00
Bicarbonate(as HCO <sub>3</sub> )	170.80
Carbonate(as CO <sub>3</sub> )	0.00
Silica(as SiO <sub>2</sub> )	0.00
Phosphate(as PO <sub>4</sub> )	0.00
H <sub>2</sub> S (as H <sub>2</sub> S)	0.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	11.59

Temperature(°F)	101.00
Conductivity	216473
Resistivity	4.62

### PARAMETERS

Sample pH	6.58
Sp.Gr.(g/mL)	1.10
T.D.S.	163178

## SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO <sub>3</sub>		Anhydrite CaSO <sub>4</sub>		Gypsum CaSO <sub>4</sub> *2H <sub>2</sub> O		Barite BaSO <sub>4</sub>		Celestite SrSO <sub>4</sub>		Siderite FeCO <sub>3</sub>		Mackawenite FeS		CO <sub>2</sub> (mpy)	pCO <sub>2</sub> (atm)
50.00	0.00	2.87	0.0194	0.363	-111.53	0.532	-63.68	2.21	0.337	0.321	-107.16	0.511	-0.0322	0.00	-0.274	0.0527	0.0254
65.45	0.00	2.55	0.0141	0.328	-121.51	0.464	-77.73	1.34	0.157	0.281	-119.66	0.508	-0.0256	0.00	-0.371	0.0987	0.0254
80.91	0.00	2.40	0.0114	0.314	-121.44	0.414	-89.06	0.867	-0.0940	0.261	-124.20	0.534	-0.0196	0.00	-0.466	0.0163	0.0254
96.36	0.00	2.34	0.00993	0.316	-112.99	0.377	-97.69	0.592	-0.420	0.250	-124.35	0.577	-0.0145	0.00	-0.555	0.0292	0.0254
111.82	0.00	2.30	0.00884	0.333	-98.61	0.376	-92.76	0.423	-0.827	0.244	-122.69	0.625	-0.0107	0.00	-0.641	0.0399	0.0254
127.27	0.00	2.24	0.00779	0.366	-80.89	0.397	-80.60	0.307	-1.36	0.238	-121.68	0.666	-0.00808	0.00	-0.735	0.0457	0.0254
142.73	0.00	2.14	0.00674	0.418	-62.09	0.415	-71.10	0.225	-2.05	0.230	-121.47	0.697	-0.00631	0.00	-0.839	0.0520	0.0254
158.18	0.00	2.02	0.00569	0.493	-43.94	0.431	-63.65	0.167	-2.94	0.222	-122.02	0.714	-0.00518	0.00	-0.956	0.0691	0.0254
173.64	0.00	1.88	0.00466	0.599	-27.53	0.445	-57.82	0.125	-4.05	0.214	-123.29	0.718	-0.00452	0.00	-1.09	0.0884	0.0254
189.09	0.00	1.71	0.00367	0.747	-13.45	0.457	-53.31	0.0944	-5.44	0.206	-125.28	0.708	-0.00419	0.00	-1.24	0.0510	0.0254
204.55	0.00	1.54	0.00272	0.955	-1.82	0.466	-49.87	0.0720	-7.13	0.197	-128.00	0.685	-0.00409	0.00	-1.40	0.0470	0.0254
220.00	0.171	1.35	0.00179	1.24	7.45	0.470	-49.30	0.0549	-9.26	0.187	-134.87	0.644	-0.00438	0.00	-1.61	0.0765	0.0298
		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels		Lbs per xSAT 1000 Barrels			

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO<sub>3</sub>}/K<sub>sp</sub>. pCO<sub>2</sub> (atm) is the partial pressure of CO<sub>2</sub> in the gas phase.  
 Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.

