



**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>	_____	_____	_____	_____	_____





LINN OPERATING  
DREW LOTT  
KEARNY KS

BURG K L 1 SWDW  
WATER DUMP VALVE

Report Date: 01-22-2016    Sampled: 01-18-2016  
Sample #: 3076                      at 0000  
  
Sample ID: 117224

**SATURATION LEVEL**

Calcite (CaCO <sub>3</sub> )	< 0.001
Aragonite (CaCO <sub>3</sub> )	< 0.001
Witherite (BaCO <sub>3</sub> )	< 0.001
Strontianite (SrCO <sub>3</sub> )	< 0.001
Calcium oxalate (CaC <sub>2</sub> O <sub>4</sub> )	0.00
Magnesite (MgCO <sub>3</sub> )	< 0.001
Anhydrite (CaSO <sub>4</sub> )	0.439
Gypsum (CaSO <sub>4</sub> *2H <sub>2</sub> O)	0.741
Barite (BaSO <sub>4</sub> )	64.62
Celestite (SrSO <sub>4</sub> )	0.954
Fluorite (CaF <sub>2</sub> )	0.00
Calcium phosphate	0.00
Hydroxyapatite	0.00
Silica (SiO <sub>2</sub> )	0.00
Brucite (Mg(OH) <sub>2</sub> )	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH) <sub>3</sub> )	< 0.001
Strengite (FePO <sub>4</sub> *2H <sub>2</sub> O)	0.00
Siderite (FeCO <sub>3</sub> )	< 0.001
Halite (NaCl)	0.0110
Thenardite (Na <sub>2</sub> SO <sub>4</sub> )	< 0.001
Iron sulfide (FeS)	113.04

**MOMENTARY EXCESS (Lbs/1000 Barrels)**

Calcite (CaCO <sub>3</sub> )	-0.203
Aragonite (CaCO <sub>3</sub> )	-0.227
Witherite (BaCO <sub>3</sub> )	-17.10
Strontianite (SrCO <sub>3</sub> )	-1.99
Calcium oxalate (CaC <sub>2</sub> O <sub>4</sub> )	-0.0712
Magnesite (MgCO <sub>3</sub> )	-0.582
Anhydrite (CaSO <sub>4</sub> )	-524.85
Gypsum (CaSO <sub>4</sub> *2H <sub>2</sub> O)	-188.84
Barite (BaSO <sub>4</sub> )	0.372
Celestite (SrSO <sub>4</sub> )	-0.977
Fluorite (CaF <sub>2</sub> )	-8.32
Calcium phosphate	>-0.001
Hydroxyapatite	-287.92
Silica (SiO <sub>2</sub> )	-22.85
Brucite (Mg(OH) <sub>2</sub> )	< 0.001
Magnesium silicate	-85.88
Iron hydroxide (Fe(OH) <sub>3</sub> )	< 0.001
Strengite (FePO <sub>4</sub> *2H <sub>2</sub> O)	>-0.001
Siderite (FeCO <sub>3</sub> )	-0.0542
Halite (NaCl)	-157655
Thenardite (Na <sub>2</sub> SO <sub>4</sub> )	-70660
Iron sulfide (FeS)	0.386

**SIMPLE INDICES**

Langelier	N/A
Ryznar	N/A
Puckorius	N/A
Larson-Skold Index	N/A
Stiff Davis Index	N/A
Oddo-Tomson	N/A

**BOUND IONS**

Calcium	978.70
Barium	0.638
Carbonate	< 0.001
Phosphate	0.00
Sulfate	3075

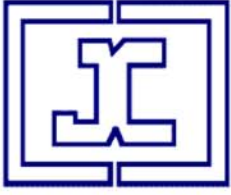
**TOTAL**

**FREE**

**OPERATING CONDITIONS**

Temperature (°F)	42.00
Time(secs)	0.00

# DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

## SYSTEM IDENTIFICATION

LINN OPERATING  
BURG K L 1 SWDW  
DREW LOTT  
WATER DUMP VALVE  
KEARNY KS

Sample ID#: 3076  
ID: 117224  
Report Date: 01-22-2016  
Sample Date: 01-18-2016  
at 0000

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	978.70
Magnesium(as Mg)	430.20
Barium(as Ba)	0.638
Strontium(as Sr)	28.28
Sodium(as Na)	20502
Potassium(as K)	208.90
Lithium(as Li)	4.25
Iron(as Fe)	3.76
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.0120
Zinc(as Zn)	0.188
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	33700
Sulfate(as SO <sub>4</sub> )	3075
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	125.00
Bicarbonate(as HCO <sub>3</sub> )	92.00
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)	500.00
Fluoride(as F)	0.00
Nitrate(as NO <sub>3</sub> )	0.00
Boron(as B)	17.18

### PARAMETERS

Temperature(°F)	42.00
T.D.S.	58835
Resistivity:	12.73
Sample pH	6.70
Conductivity:	78570

## 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	< 0.001	-0.189	0.416	-562.61	0.699	-226.53	49.62	0.370	0.875	-2.90	< 0.001	-0.0474	696.49	0.386	0.0379	0.0107
65.45	0.00	< 0.001	-0.166	0.391	-601.75	0.636	-288.55	31.46	0.366	0.799	-5.12	< 0.001	-0.0372	617.27	0.381	0.0709	0.0107
80.91	0.00	< 0.001	-0.148	0.389	-595.90	0.591	-336.71	21.19	0.360	0.773	-5.96	< 0.001	-0.0296	541.46	0.376	0.0352	0.0107
96.36	0.00	< 0.001	-0.133	0.407	-551.79	0.559	-371.86	15.06	0.353	0.772	-5.97	< 0.001	-0.0240	471.88	0.370	0.0460	0.0107
111.82	0.00	< 0.001	-0.121	0.445	-477.69	0.578	-342.67	11.17	0.344	0.782	-5.64	< 0.001	-0.0198	410.40	0.363	0.0483	0.0107
127.27	0.00	< 0.001	-0.112	0.507	-382.23	0.631	-276.81	8.40	0.333	0.788	-5.45	< 0.001	-0.0166	358.89	0.356	0.0405	0.0107
142.73	0.00	< 0.001	-0.103	0.598	-273.63	0.683	-221.80	6.37	0.318	0.789	-5.41	< 0.001	-0.0141	315.17	0.348	0.0328	0.0107
158.18	0.00	< 0.001	-0.0969	0.728	-158.80	0.733	-175.65	4.87	0.300	0.786	-5.52	< 0.001	-0.0122	277.35	0.339	0.0342	0.0107
173.64	0.00	< 0.001	-0.0915	0.911	-43.56	0.779	-137.07	3.75	0.277	0.778	-5.76	< 0.001	-0.0107	244.09	0.329	0.0354	0.0107
189.09	0.00	< 0.001	-0.0872	1.17	67.74	0.823	-104.93	2.91	0.248	0.767	-6.14	< 0.001	-0.00952	214.39	0.318	0.0178	0.0107
204.55	0.00	< 0.001	-0.0838	1.54	172.07	0.862	-78.37	2.27	0.211	0.752	-6.65	< 0.001	-0.00862	187.54	0.305	0.0149	0.0107
220.00	0.171	< 0.001	-0.0835	2.02	263.67	0.880	-67.00	1.74	0.161	0.719	-7.88	< 0.001	-0.00816	184.39	0.287	0.0203	0.0125

	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
50.00																
65.45																
80.91																
96.36																
111.82																
127.27																
142.73																
158.18																
173.64																
189.09																
204.55																
220.00																

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.

