



**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



JACAM LABORATORIES

## SYSTEM IDENTIFICATION

LINN OPERATING  
 HCU 3030 E SWD  
 DREW LOTT  
 TANK  
 HAMILTON KS

Sample ID#: 3076  
 ID: 117234  
 Report Date: 01-22-2016  
 Sample Date: 01-19-2016  
 at 0000

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	5522
Magnesium(as Mg)	1857
Barium(as Ba)	0.821
Strontium(as Sr)	122.70
Sodium(as Na)	60606
Potassium(as K)	471.80
Lithium(as Li)	9.06
Iron(as Fe)	67.96
Field Iron(as Fe)	0.00
Ammonia(as NH <sub>3</sub> )	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.0400
Zinc(as Zn)	1.24
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	119800
Sulfate(as SO <sub>4</sub> )	2125
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	90.00
Bicarbonate(as HCO <sub>3</sub> )	84.00
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)	5.00

### PARAMETERS

Temperature(°F)	40.00
Sample pH	6.80
T.D.S.	183527
Conductivity:	296972
Resistivity:	3.37

## 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	0.529	-0.0102	0.919	-28.62	1.31	87.74	8.92	0.432	0.541	-57.70	3.24	0.00914	0.00	-0.0347	0.0333	0.00759
65.45	0.00	0.720	-0.00534	0.833	-60.61	1.15	44.56	5.43	0.397	0.474	-72.45	4.95	0.0127	0.00	-0.0363	0.0623	0.00759
80.91	0.00	0.925	-0.00128	0.799	-71.28	1.03	8.54	3.51	0.348	0.441	-80.21	7.08	0.0156	0.00	-0.0380	0.0283	0.00759
96.36	0.00	1.12	0.00188	0.807	-64.11	0.937	-20.51	2.40	0.284	0.424	-83.83	9.51	0.0179	0.00	-0.0401	0.0370	0.00759
111.82	0.00	1.28	0.00401	0.853	-43.93	0.935	-20.03	1.72	0.203	0.414	-85.54	11.99	0.0192	0.00	-0.0424	0.0388	0.00759
127.27	0.00	1.40	0.00526	0.939	-15.85	0.988	-3.31	1.25	0.0959	0.402	-87.63	14.33	0.0197	0.00	-0.0451	0.0325	0.00759
142.73	0.00	1.46	0.00558	1.07	15.59	1.04	8.96	0.914	-0.0458	0.390	-90.28	16.20	0.0193	0.00	-0.0482	0.0264	0.00759
158.18	0.00	1.44	0.00505	1.27	46.83	1.08	17.93	0.677	-0.232	0.376	-93.44	17.29	0.0181	0.00	-0.0519	0.0275	0.00759
173.64	0.00	1.35	0.00387	1.54	75.50	1.11	24.45	0.506	-0.473	0.362	-97.08	17.48	0.0162	0.00	-0.0561	0.0284	0.00759
189.09	0.00	1.22	0.00230	1.92	100.31	1.14	29.10	0.382	-0.784	0.347	-101.19	16.81	0.0140	0.00	-0.0612	0.0143	0.00759
204.55	0.00	1.06	< 0.001	2.46	120.90	1.17	32.40	0.291	-1.18	0.333	-105.78	15.51	0.0118	0.00	-0.0673	0.0120	0.00759
220.00	0.171	0.872	-0.00134	3.18	139.93	1.17	33.31	0.221	-1.71	0.314	-113.24	13.46	0.00978	0.00	-0.0774	0.0164	0.00888
		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.

