



# 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 1441 B SWD  
DREW LOTT  
TANK  
HAMILTON KS

Sample ID#: 3076  
ID: 117229  
Report Date: 01-22-2016  
Sample Date: 01-19-2016  
at 0000

## WATER CHEMISTRY

### CATIONS

Calcium(as Ca)	5285
Magnesium(as Mg)	1779
Barium(as Ba)	0.832
Strontium(as Sr)	118.60
Sodium(as Na)	62503
Potassium(as K)	450.60
Lithium(as Li)	8.72
Iron(as Fe)	65.99
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)	0.893
Lead(as Pb)	0.00

### ANIONS

Chloride(as Cl)	122600
Sulfate(as SO <sub>4</sub> )	2025
Bromine(as Br)	0.00
Dissolved CO <sub>2</sub> (as CO <sub>2</sub> )	70.00
Bicarbonate(as HCO <sub>3</sub> )	82.00
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)	4.75

### PARAMETERS

Temperature(°F)	41.00
T.D.S.	187297
Conductivity:	306297
Sample pH	6.80
Resistivity:	3.26

## 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	0.501	-0.0110	0.859	-50.78	1.21	62.97	8.59	0.435	0.497	-65.41	3.03	0.00855	0.00	-0.0358	0.0330	0.00741
65.45	0.00	0.681	-0.00619	0.779	-81.95	1.07	20.44	5.23	0.398	0.435	-80.25	4.63	0.0120	0.00	-0.0374	0.0617	0.00741
80.91	0.00	0.873	-0.00220	0.748	-91.59	0.954	-14.94	3.38	0.347	0.405	-87.97	6.61	0.0149	0.00	-0.0393	0.0278	0.00741
96.36	0.00	1.05	< 0.001	0.755	-83.20	0.871	-43.36	2.31	0.280	0.389	-91.48	8.83	0.0170	0.00	-0.0414	0.0364	0.00741
111.82	0.00	1.20	0.00287	0.798	-61.65	0.869	-41.63	1.65	0.195	0.380	-93.05	11.07	0.0181	0.00	-0.0438	0.0382	0.00741
127.27	0.00	1.30	0.00398	0.879	-32.14	0.919	-23.38	1.20	0.0821	0.370	-95.03	13.11	0.0185	0.00	-0.0466	0.0321	0.00741
142.73	0.00	1.34	0.00418	1.00	0.727	0.963	-9.82	0.880	-0.0670	0.358	-97.58	14.67	0.0179	0.00	-0.0498	0.0260	0.00741
158.18	0.00	1.30	0.00357	1.18	33.33	1.00	0.228	0.652	-0.263	0.346	-100.66	15.49	0.0166	0.00	-0.0536	0.0271	0.00741
173.64	0.00	1.21	0.00238	1.44	63.24	1.03	7.64	0.488	-0.516	0.333	-104.24	15.49	0.0147	0.00	-0.0580	0.0280	0.00741
189.09	0.00	1.08	< 0.001	1.80	89.14	1.06	13.02	0.368	-0.843	0.319	-108.32	14.75	0.0126	0.00	-0.0632	0.0141	0.00741
204.55	0.00	0.932	> -0.001	2.30	110.65	1.08	16.88	0.280	-1.26	0.306	-112.88	13.49	0.0105	0.00	-0.0695	0.0118	0.00741
220.00	0.171	0.762	-0.00254	2.97	130.16	1.09	17.78	0.212	-1.81	0.288	-120.45	11.61	0.00860	0.00	-0.0799	0.0161	0.00868
		xSAT	Lbs per 1000 Barrels	xSAT	Lbs per 1000 Barrels	xSAT	Lbs per 1000 Barrels	xSAT	Lbs per 1000 Barrels	xSAT	Lbs per 1000 Barrels	xSAT	Lbs per 1000 Barrels	xSAT	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.

