



**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	_____	_____	_____	_____	_____
	TOTAL	_____	_____	_____	_____	_____



LINN OPERATING
MICHAEL BELLOMY
STANTON KS

CLARK SWD
FLOWLINE

Report Date: 01-22-2016 Sampled: 01-11-2016
Sample #: 3076 at 0000

Sample ID: 117368

CATIONS

Calcium (as Ca)	7874
Magnesium (as Mg)	2518
Barium (as Ba)	0.204
Strontium (as Sr)	166.80
Sodium (as Na)	76829
Potassium (as K)	466.00
Lithium (as Li)	6.29
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	0.00
Iron (as Fe)	2.15
Manganese (as Mn)	0.0120
Zinc (as Zn)	1.58
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	159600
Sulfate (as SO ₄)	1150
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	75.00
Bicarbonate (as HCO ₃)	12.20
Carbonate (as CO ₃)	0.00
Oxalic acid (as C ₂ O ₄)	0.00
Silica (as SiO ₂)	0.00
Phosphate(as PO ₄)	0.00
H ₂ S (as H ₂ S)	0.500
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	0.291

PARAMETERS

Calculated T.D.S.	234572
Molar Conductivity	428195
Resistivity	2.34
Sp.Gr.(g/mL)	1.17
Pressure(atm)	1.00
pCO ₂ (atm)	0.00348
pH ₂ S(atm)	< 0.001
Temperature (°F)	48.00
pH	5.99

COMMENTS

STANTON KS



LINN OPERATING	CLARK SWD
MICHAEL BELLOMY	FLOWLINE
STANTON KS	
Report Date: 01-22-2016	Sampled: 01-11-2016
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SATURATION LEVEL

Calcite (CaCO ₃)	0.0156
Aragonite (CaCO ₃)	0.0139
Witherite (BaCO ₃)	< 0.001
Strontianite (SrCO ₃)	< 0.001
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.00479
Anhydrite (CaSO ₄)	0.635
Gypsum (CaSO ₄ *2H ₂ O)	0.836
Barite (BaSO ₄)	0.720
Celestite (SrSO ₄)	0.229
Fluorite (CaF ₂)	0.00
Calcium phosphate	0.00
Hydroxyapatite	0.00
Silica (SiO ₂)	0.00
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	0.00
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	0.00
Siderite (FeCO ₃)	0.00136
Halite (NaCl)	0.300
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.00201

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.0106
Aragonite (CaCO ₃)	-0.0119
Witherite (BaCO ₃)	-25.30
Strontianite (SrCO ₃)	-0.761
Calcium oxalate (CaC ₂ O ₄)	-0.00402
Magnesite (MgCO ₃)	-0.0292
Anhydrite (CaSO ₄)	-72.05
Gypsum (CaSO ₄ *2H ₂ O)	-28.07
Barite (BaSO ₄)	-0.0470
Celestite (SrSO ₄)	-157.08
Fluorite (CaF ₂)	-1.92
Calcium phosphate	>-0.001
Hydroxyapatite	-216.44
Silica (SiO ₂)	-18.37
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	-72.68
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	-0.131
Halite (NaCl)	-60615
Thenardite (Na ₂ SO ₄)	-88060
Iron sulfide (FeS)	-1.07

SIMPLE INDICES

Langelier	-1.09
Ryznar	8.17
Puckorius	8.37
Larson-Skold Index	26984
Stiff Davis Index	-1.19
Oddo-Tomson	-2.18

BOUND IONS

Calcium	7874	7685
Barium	0.204	0.204
Carbonate	0.0650	< 0.001
Phosphate	0.00	0.00
Sulfate	1150	259.72

TOTAL

FREE

OPERATING CONDITIONS

Temperature (°F)	48.00
Time(secs)	0.00

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

LINN OPERATING
CLARK SWD
MICHAEL BELLOMY
FLOWLINE
STANTON KS

Sample ID#: 3076
ID: 117368
Report Date: 01-22-2016
Sample Date: 01-11-2016
at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	7874
Magnesium(as Mg)	2518
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Strontium(as Sr)	166.80
Sodium(as Na)	76829
Potassium(as K)	466.00
Lithium(as Li)	6.29
Iron(as Fe)	2.15
Field Iron(as Fe)	0.00
Ammonia(as NH ₃)	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	0.0120
Zinc(as Zn)	1.58
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	159600
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Bicarbonate(as HCO ₃)	12.20
Carbonate(as CO ₃)	0.00
Silica(as SiO ₂)	0.00
Phosphate(as PO ₄)	0.00
H ₂ S (as H ₂ S)	0.500
Fluoride(as F)	0.00
Nitrate(as NO ₃)	0.00
Boron(as B)	0.291

PARAMETERS

Temperature(°F)	48.00
T.D.S.	234572
Conductivity:	428195
Sample pH	5.99
Resistivity:	2.34

SCALE AND CORROSION POTENTIAL

Temp. (°F)	Press. (atm)	Calcite CaCO ₃		Anhydrite CaSO ₄		Gypsum CaSO ₄ *2H ₂ O		Barite BaSO ₄		Celestite SrSO ₄		Siderite FeCO ₃		Mackawenite FeS		CO ₂ (mpy)	pCO ₂ (atm)
50.00	0.00	0.0163	-0.0104	0.623	-75.01	0.819	-31.25	0.671	-0.0593	0.223	-160.17	0.00144	-0.127	0.0109	-1.04	0.0566	0.00348
65.45	0.00	0.0222	-0.00910	0.558	-90.83	0.709	-53.60	0.403	-0.179	0.193	-176.67	0.00221	-0.101	0.0104	-1.06	0.167	0.00348
80.91	0.00	0.0289	-0.00808	0.529	-94.77	0.627	-72.00	0.257	-0.348	0.177	-183.68	0.00321	-0.0822	0.00984	-1.08	0.0626	0.00348
96.36	0.00	0.0361	-0.00727	0.528	-88.78	0.565	-86.55	0.174	-0.572	0.168	-185.39	0.00443	-0.0678	0.00914	-1.10	0.0820	0.00348
111.82	0.00	0.0433	-0.00661	0.551	-75.62	0.558	-83.51	0.123	-0.858	0.162	-184.81	0.00586	-0.0567	0.00839	-1.12	0.0873	0.00348
127.27	0.00	0.0505	-0.00608	0.600	-58.24	0.583	-70.92	0.0881	-1.24	0.156	-184.88	0.00749	-0.0482	0.00773	-1.15	0.0766	0.00348
142.73	0.00	0.0573	-0.00566	0.678	-39.22	0.604	-61.31	0.0639	-1.75	0.150	-185.81	0.00925	-0.0415	0.00713	-1.17	0.0646	0.00348
158.18	0.00	0.0628	-0.00532	0.793	-20.55	0.622	-53.97	0.0469	-2.41	0.143	-187.57	0.0110	-0.0362	0.00657	-1.20	0.0601	0.00348
173.64	0.00	0.0663	-0.00507	0.955	-3.55	0.636	-48.41	0.0348	-3.27	0.137	-190.12	0.0126	-0.0320	0.00603	-1.24	0.0556	0.00348
189.09	0.00	0.0671	-0.00489	1.18	11.12	0.648	-44.24	0.0260	-4.37	0.130	-193.50	0.0137	-0.0287	0.00552	-1.27	0.0243	0.00348
204.55	0.00	0.0651	-0.00478	1.50	23.25	0.656	-41.20	0.0196	-5.75	0.123	-197.71	0.0143	-0.0261	0.00503	-1.31	0.0183	0.00348
220.00	0.171	0.0591	-0.00490	1.93	33.58	0.656	-41.07	0.0148	-7.54	0.116	-206.98	0.0139	-0.0249	0.00512	-1.36	0.0244	0.00407

	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	xSAT	Lbs per 1000 Barrels		

Saturation Levels (xSAT) are the ratio of ion activity to solubility, e.g. {Ca}{CO₃}/K_{sp}. pCO₂ (atm) is the partial pressure of CO₂ in the gas phase. Lbs/1000 Barrels scale is the quantity of precipitation (or dissolution) required to instantaneously bring the water to equilibrium.

