



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
STEVENS KS

LITTELL SWD
FLOWLINE

Report Date: 01-26-2016 Sampled: 01-15-2016
Sample #: 3076 at 0000

Sample ID: 117605

SATURATION LEVEL

Calcite (CaCO ₃)	0.0194
Aragonite (CaCO ₃)	0.0172
Witherite (BaCO ₃)	< 0.001
Strontianite (SrCO ₃)	< 0.001
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.00523
Anhydrite (CaSO ₄)	0.510
Gypsum (CaSO ₄ *2H ₂ O)	0.695
Barite (BaSO ₄)	1.83
Celestite (SrSO ₄)	0.219
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)	0.00577
Halite (NaCl)	0.202
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.00303

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.00835
Aragonite (CaCO ₃)	-0.00945
Witherite (BaCO ₃)	-25.98
Strontianite (SrCO ₃)	-0.554
Calcium oxalate (CaC ₂ O ₄)	-0.00345
Magnesite (MgCO ₃)	-0.0265
Anhydrite (CaSO ₄)	-81.20
Gypsum (CaSO ₄ *2H ₂ O)	-42.23
Barite (BaSO ₄)	0.241
Celestite (SrSO ₄)	-159.02
Fluorite (CaF ₂)	-1.82
Calcium phosphate	>-0.001
Hydroxyapatite	-239.33
Silica (SiO ₂)	-21.56
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	-78.15
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	-0.0328
Halite (NaCl)	-77879
Thenardite (Na ₂ SO ₄)	-87509
Iron sulfide (FeS)	-1.24

SIMPLE INDICES

Langelier	-1.00
Ryznar	7.75
Puckorius	7.43
Larson-Skold Index	15354
Stiff Davis Index	-1.19
Oddo-Tomson	-2.13

BOUND IONS

Calcium	10500
Barium	0.900
Carbonate	0.0506
Phosphate	0.00
Sulfate	850.00

TOTAL

FREE

10337
0.900
< 0.001
0.00
173.40

OPERATING CONDITIONS

Temperature (°F)	55.00
Time(secs)	0.00

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

LINN OPERATING
LITTELL SWD
MICHAEL BELLOWY
FLOWLINE
STEVENS KS

Sample ID#: 3076
ID: 117605
Report Date: 01-26-2016
Sample Date: 01-15-2016
at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	10500
Magnesium(as Mg)	2827
Barium(as Ba)	0.900
Strontium(as Sr)	236.40
Sodium(as Na)	64013
Potassium(as K)	686.00
Lithium(as Li)	10.61
Iron(as Fe)	8.09
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)	0.766
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	140600
Sulfate(as SO ₄)	850.00
Bromine(as Br)	0.00
Dissolved CO ₂ (as CO ₂)	150.00
Bicarbonate(as HCO ₃)	18.30
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)	3.92

PARAMETERS

Temperature(°F)	55.00
T.D.S.	210027
Conductivity:	363456
Sample pH	5.75
Resistivity:	2.75

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	0.0175	-0.00872	0.532	-76.30	0.729	-36.58	2.17	0.287	0.232	-152.88	0.00501	-0.0355	0.0149	-1.20	0.0821	0.00632
65.45	0.00	0.0237	-0.00765	0.477	-88.03	0.632	-53.03	1.30	0.124	0.201	-167.79	0.00761	-0.0279	0.0145	-1.23	0.270	0.00632
80.91	0.00	0.0309	-0.00679	0.453	-90.13	0.560	-66.49	0.835	-0.105	0.185	-173.51	0.0110	-0.0224	0.0139	-1.26	0.119	0.00632
96.36	0.00	0.0388	-0.00610	0.453	-84.19	0.506	-77.05	0.566	-0.406	0.176	-174.16	0.0154	-0.0182	0.0131	-1.29	0.156	0.00632
111.82	0.00	0.0471	-0.00555	0.474	-72.49	0.500	-73.88	0.401	-0.787	0.170	-172.68	0.0205	-0.0151	0.0123	-1.32	0.168	0.00632
127.27	0.00	0.0562	-0.00510	0.517	-57.46	0.524	-63.29	0.289	-1.29	0.164	-171.90	0.0269	-0.0127	0.0116	-1.36	0.152	0.00632
142.73	0.00	0.0657	-0.00473	0.586	-41.21	0.545	-55.15	0.210	-1.95	0.158	-172.04	0.0343	-0.0108	0.0109	-1.40	0.133	0.00632
158.18	0.00	0.0754	-0.00443	0.686	-25.37	0.562	-48.88	0.155	-2.82	0.152	-173.03	0.0428	-0.00935	0.0103	-1.44	0.122	0.00632
173.64	0.00	0.0847	-0.00420	0.829	-10.99	0.577	-44.07	0.115	-3.91	0.145	-174.86	0.0520	-0.00818	0.00965	-1.48	0.111	0.00632
189.09	0.00	0.0927	-0.00402	1.03	1.39	0.588	-40.41	0.0863	-5.29	0.138	-177.53	0.0614	-0.00725	0.00903	-1.53	0.0445	0.00632
204.55	0.00	0.0986	-0.00389	1.31	11.63	0.597	-37.69	0.0654	-7.00	0.132	-181.07	0.0703	-0.00651	0.00841	-1.58	0.0310	0.00632
220.00	0.171	0.100	-0.00396	1.69	20.18	0.599	-37.41	0.0496	-9.17	0.124	-189.61	0.0765	-0.00613	0.00877	-1.66	0.0412	0.00740
		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.

