



**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
HASKELL KS

WINSTEAD SWD
FLOWLINE

Report Date: 01-26-2016 Sampled: 01-18-2016
Sample #: 3076 at 0000

Sample ID: 117610

CATIONS

Calcium (as Ca)	2287
Magnesium (as Mg)	643.70
Barium (as Ba)	1.24
Strontium (as Sr)	53.45
Sodium (as Na)	13856
Potassium (as K)	159.80
Lithium (as Li)	3.84
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	0.00
Iron (as Fe)	39.80
Manganese (as Mn)	3.22
Zinc (as Zn)	0.870
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	28200
Sulfate (as SO ₄)	25.00
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	120.00
Bicarbonate (as HCO ₃)	140.00
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)	1.00
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	0.291

PARAMETERS

Calculated T.D.S.	45179
Molar Conductivity	61876
Resistivity	16.16
Sp.Gr.(g/mL)	1.03
Pressure(atm)	1.00
pCO ₂ (atm)	0.0203
pH ₂ S(atm)	< 0.001
Temperature (°F)	42.00
pH	6.57

COMMENTS

HASKELL KS



DownHole R_x

DEPOSITION POTENTIAL INDICATORS

LINN OPERATING
MICHAEL BELLOMY
HASKELL KS

WINSTEAD SWD
FLOWLINE

Report Date: 01-26-2016 Sampled: 01-18-2016
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SATURATION LEVEL

Calcite (CaCO ₃)	0.274
Aragonite (CaCO ₃)	0.245
Witherite (BaCO ₃)	< 0.001
Strontianite (SrCO ₃)	0.0277
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.0483
Anhydrite (CaSO ₄)	0.00852
Gypsum (CaSO ₄ *2H ₂ O)	0.0146
Barite (BaSO ₄)	0.973
Celestite (SrSO ₄)	0.0139
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)	5.39
Halite (NaCl)	0.00624
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	1.79

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.0530
Aragonite (CaCO ₃)	-0.0616
Witherite (BaCO ₃)	-16.07
Strontianite (SrCO ₃)	-1.00
Calcium oxalate (CaC ₂ O ₄)	-0.0256
Magnesite (MgCO ₃)	-0.333
Anhydrite (CaSO ₄)	-672.35
Gypsum (CaSO ₄ *2H ₂ O)	-476.87
Barite (BaSO ₄)	-0.0189
Celestite (SrSO ₄)	-141.79
Fluorite (CaF ₂)	-5.06
Calcium phosphate	>-0.001
Hydroxyapatite	-284.90
Silica (SiO ₂)	-23.41
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	-85.67
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	0.0189
Halite (NaCl)	-162955
Thenardite (Na ₂ SO ₄)	-68593
Iron sulfide (FeS)	0.0373

SIMPLE INDICES

Langelier	-0.419
Ryznar	7.41
Puckorius	6.47
Larson-Skold Index	361.74
Stiff Davis Index	-0.971
Oddo-Tomson	-1.18

BOUND IONS

Calcium	2287
Barium	1.24
Carbonate	0.263
Phosphate	0.00
Sulfate	25.00

TOTAL

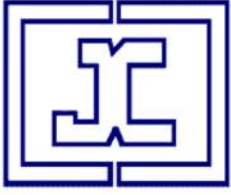
FREE

2277
1.24
0.0345
0.00
14.65

OPERATING CONDITIONS

Temperature (°F)	42.00
Time(secs)	0.00

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

LINN OPERATING
WINSTEAD SWD
MICHAEL BELLOWY
FLOWLINE
HASKELL KS

Sample ID#: 3076
ID: 117610
Report Date: 01-26-2016
Sample Date: 01-18-2016
at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	2287
Magnesium(as Mg)	643.70
Barium(as Ba)	1.24
Strontium(as Sr)	53.45
Sodium(as Na)	13856
Potassium(as K)	159.80
Lithium(as Li)	3.84
Iron(as Fe)	39.80
Field Iron(as Fe)	0.00
Ammonia(as NH ₃)	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	3.22
Zinc(as Zn)	0.870
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	28200
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H ₂ S (as H ₂ S)	1.00
Fluoride(as F)	0.00
Nitrate(as NO ₃)	0.00
Boron(as B)	0.291

PARAMETERS

Temperature(°F)	42.00
Sample pH	6.57
T.D.S.	45179
Conductivity:	61876
Resistivity:	16.16

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	0.334	-0.0453	0.00803	-694.07	0.0137	-494.14	0.746	-0.233	0.0127	-147.58	6.98	0.0225	11.22	0.493	0.0290	0.0203
65.45	0.00	0.471	-0.0316	0.00750	-709.83	0.0124	-521.47	0.468	-0.742	0.0115	-152.97	11.04	0.0296	10.15	0.459	0.0543	0.0203
80.91	0.00	0.634	-0.0194	0.00741	-693.37	0.0114	-540.87	0.312	-1.36	0.0110	-153.27	16.57	0.0366	9.06	0.422	0.0318	0.0203
96.36	0.00	0.818	-0.00867	0.00768	-650.16	0.0107	-552.68	0.220	-2.07	0.0109	-150.84	23.69	0.0433	8.02	0.384	0.0416	0.0203
111.82	0.00	1.02	< 0.001	0.00832	-587.46	0.0110	-523.28	0.161	-2.84	0.0109	-147.38	32.47	0.0497	7.06	0.348	0.0437	0.0203
127.27	0.00	1.25	0.00980	0.00937	-513.03	0.0119	-472.12	0.120	-3.72	0.0109	-144.50	43.47	0.0563	6.24	0.317	0.0366	0.0203
142.73	0.00	1.50	0.0185	0.0109	-434.04	0.0127	-430.05	0.0903	-4.72	0.0108	-142.29	56.99	0.0632	5.53	0.290	0.0297	0.0203
158.18	0.00	1.77	0.0270	0.0132	-356.47	0.0135	-395.41	0.0684	-5.85	0.0107	-140.70	73.15	0.0705	4.91	0.267	0.0309	0.0203
173.64	0.00	2.07	0.0352	0.0163	-284.72	0.0142	-366.93	0.0522	-7.12	0.0105	-139.71	91.93	0.0780	4.36	0.245	0.0320	0.0203
189.09	0.00	2.38	0.0433	0.0207	-221.58	0.0148	-343.62	0.0402	-8.52	0.0103	-139.28	113.02	0.0857	3.86	0.224	0.0161	0.0203
204.55	0.00	2.68	0.0510	0.0268	-168.31	0.0153	-324.71	0.0311	-10.07	0.00999	-139.42	135.76	0.0934	3.41	0.204	0.0135	0.0203
220.00	0.171	2.93	0.0587	0.0351	-128.65	0.0155	-318.16	0.0239	-11.96	0.00956	-142.43	157.21	0.102	3.38	0.227	0.0184	0.0237

	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.

