



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
SUMNER KS

CREAMER SWD 1-2
FLOWLINE

Report Date: 01-22-2016 Sampled: 01-13-2016
Sample #: 3076 at 0000

Sample ID: 117388

CATIONS

| | |
|-------------------------------|--------|
| Calcium (as Ca) | 14830 |
| Magnesium (as Mg) | 3523 |
| Barium (as Ba) | 0.204 |
| Strontium (as Sr) | 291.90 |
| Sodium (as Na) | 66509 |
| Potassium (as K) | 742.90 |
| Lithium (as Li) | 9.73 |
| Ammonia (as NH ₃) | 0.00 |
| Aluminum (as Al) | 0.00 |
| Iron (as Fe) | 7.30 |
| Manganese (as Mn) | 0.0120 |
| Zinc (as Zn) | 1.34 |
| Lead (as Pb) | 0.00 |

ANIONS

| | |
|---|--------|
| Chloride (as Cl) | 156600 |
| Sulfate (as SO ₄) | 700.00 |
| Bromine (as Br) | 0.00 |
| Dissolved CO ₂ (as CO ₂) | 125.00 |
| Bicarbonate (as HCO ₃) | 12.70 |
| 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) | 5.44 |

PARAMETERS

| | |
|------------------------|---------|
| Calculated T.D.S. | 230921 |
| Molar Conductivity | 428124 |
| Resistivity | 2.34 |
| Sp.Gr.(g/mL) | 1.16 |
| Pressure(atm) | 1.00 |
| pCO ₂ (atm) | 0.00518 |
| pH ₂ S(atm) | < 0.001 |
| Temperature (°F) | 50.00 |
| pH | 5.41 |

COMMENTS

SUMNER KS



DownHole R_x

DEPOSITION POTENTIAL INDICATORS

LINN OPERATING
MICHAEL BELLOMY
SUMNER KS

CREAMER SWD 1-2
FLOWLINE

Report Date: 01-22-2016 Sampled: 01-13-2016
Sample #: 3076 at 0000

Sample ID: 117388

SATURATION LEVEL

| | |
|--|---------|
| Calcite (CaCO ₃) | 0.00670 |
| Aragonite (CaCO ₃) | 0.00596 |
| Witherite (BaCO ₃) | < 0.001 |
| Strontianite (SrCO ₃) | < 0.001 |
| Calcium oxalate (CaC ₂ O ₄) | 0.00 |
| Magnesite (MgCO ₃) | 0.00159 |
| Anhydrite (CaSO ₄) | 0.510 |
| Gypsum (CaSO ₄ *2H ₂ O) | 0.679 |
| Barite (BaSO ₄) | 0.266 |
| Celestite (SrSO ₄) | 0.155 |
| 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) | < 0.001 |
| Halite (NaCl) | 0.262 |
| Thenardite (Na ₂ SO ₄) | < 0.001 |
| Iron sulfide (FeS) | < 0.001 |

MOMENTARY EXCESS (Lbs/1000 Barrels)

| | |
|--|----------|
| Calcite (CaCO ₃) | -0.00519 |
| Aragonite (CaCO ₃) | -0.00584 |
| Witherite (BaCO ₃) | -25.93 |
| Strontianite (SrCO ₃) | -0.454 |
| Calcium oxalate (CaC ₂ O ₄) | -0.00200 |
| Magnesite (MgCO ₃) | -0.0185 |
| Anhydrite (CaSO ₄) | -50.08 |
| Gypsum (CaSO ₄ *2H ₂ O) | -27.98 |
| Barite (BaSO ₄) | -0.332 |
| Celestite (SrSO ₄) | -178.27 |
| Fluorite (CaF ₂) | -1.36 |
| Calcium phosphate | >-0.001 |
| Hydroxyapatite | -214.48 |
| Silica (SiO ₂) | -19.22 |
| Brucite (Mg(OH) ₂) | < 0.001 |
| Magnesium silicate | -71.96 |
| Iron hydroxide (Fe(OH) ₃) | < 0.001 |
| Strengite (FePO ₄ *2H ₂ O) | >-0.001 |
| Siderite (FeCO ₃) | -0.0408 |
| Halite (NaCl) | -64261 |
| Thenardite (Na ₂ SO ₄) | -88860 |
| Iron sulfide (FeS) | -2.01 |

SIMPLE INDICES

| | |
|--------------------|-------|
| Langelier | -1.33 |
| Ryznar | 8.07 |
| Puckorius | 7.67 |
| Larson-Skold Index | 24993 |
| Stiff Davis Index | -1.40 |
| Oddo-Tomson | -2.39 |

BOUND IONS

| | |
|-----------|--------|
| Calcium | 14830 |
| Barium | 0.204 |
| Carbonate | 0.0142 |
| Phosphate | 0.00 |
| Sulfate | 700.00 |

TOTAL

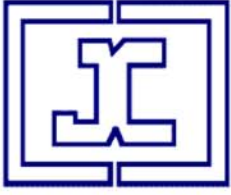
FREE

| |
|---------|
| 14674 |
| 0.204 |
| < 0.001 |
| 0.00 |
| 106.37 |

OPERATING CONDITIONS

| | |
|------------------|-------|
| Temperature (°F) | 50.00 |
| Time(secs) | 0.00 |

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

LINN OPERATING
 CREAMER SWD 1-2
 MICHAEL BELLOWY
 FLOWLINE
 SUMNER KS

Sample ID#: 3076
 ID: 117388
 Report Date: 01-22-2016
 Sample Date: 01-13-2016
 at 0000

WATER CHEMISTRY

CATIONS

| | |
|------------------------------|--------|
| Calcium(as Ca) | 14830 |
| Magnesium(as Mg) | 3523 |
| Barium(as Ba) | 0.204 |
| Strontium(as Sr) | 291.90 |
| Sodium(as Na) | 66509 |
| Potassium(as K) | 742.90 |
| Lithium(as Li) | 9.73 |
| Iron(as Fe) | 7.30 |
| 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) | 1.34 |
| Lead(as Pb) | 0.00 |

ANIONS

| | |
|---|--------|
| Chloride(as Cl) | 156600 |
| Sulfate(as SO ₄) | 700.00 |
| Bromine(as Br) | 0.00 |
| Dissolved CO ₂ (as CO ₂) | 125.00 |
| Bicarbonate(as HCO ₃) | 12.70 |
| 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) | 5.44 |

PARAMETERS

| | |
|-----------------|--------|
| Temperature(°F) | 50.00 |
| T.D.S. | 230921 |
| Resistivity: | 2.34 |
| Sample pH | 5.41 |
| Conductivity: | 428124 |

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 | 0.00670 | -0.00519 | 0.510 | -50.08 | 0.679 | -27.98 | 0.266 | -0.332 | 0.155 | -178.27 | < 0.001 | -0.0408 | 0.00279 | -2.00 | 0.0928 | 0.00518 |
| 65.45 | 0.00 | 0.00901 | -0.00457 | 0.456 | -57.53 | 0.586 | -38.54 | 0.159 | -0.632 | 0.134 | -192.12 | 0.00148 | -0.0322 | 0.00275 | -2.04 | 0.339 | 0.00518 |
| 80.91 | 0.00 | 0.0117 | -0.00408 | 0.431 | -58.87 | 0.518 | -47.16 | 0.102 | -1.05 | 0.123 | -196.64 | 0.00214 | -0.0259 | 0.00268 | -2.08 | 0.142 | 0.00518 |
| 96.36 | 0.00 | 0.0146 | -0.00369 | 0.430 | -55.12 | 0.466 | -53.90 | 0.0686 | -1.60 | 0.116 | -196.06 | 0.00296 | -0.0212 | 0.00257 | -2.12 | 0.186 | 0.00518 |
| 111.82 | 0.00 | 0.0177 | -0.00337 | 0.449 | -47.74 | 0.460 | -51.73 | 0.0485 | -2.29 | 0.112 | -193.42 | 0.00396 | -0.0176 | 0.00245 | -2.17 | 0.205 | 0.00518 |
| 127.27 | 0.00 | 0.0211 | -0.00312 | 0.489 | -38.25 | 0.480 | -44.76 | 0.0348 | -3.18 | 0.108 | -191.64 | 0.00518 | -0.0149 | 0.00234 | -2.22 | 0.196 | 0.00518 |
| 142.73 | 0.00 | 0.0249 | -0.00291 | 0.552 | -27.99 | 0.498 | -39.37 | 0.0253 | -4.33 | 0.104 | -190.92 | 0.00666 | -0.0128 | 0.00225 | -2.27 | 0.182 | 0.00518 |
| 158.18 | 0.00 | 0.0289 | -0.00275 | 0.646 | -17.99 | 0.513 | -35.21 | 0.0186 | -5.78 | 0.0993 | -191.21 | 0.00840 | -0.0111 | 0.00216 | -2.33 | 0.166 | 0.00518 |
| 173.64 | 0.00 | 0.0329 | -0.00262 | 0.779 | -8.92 | 0.526 | -32.01 | 0.0138 | -7.57 | 0.0948 | -192.48 | 0.0104 | -0.00982 | 0.00207 | -2.40 | 0.150 | 0.00518 |
| 189.09 | 0.00 | 0.0370 | -0.00252 | 0.965 | -1.10 | 0.535 | -29.57 | 0.0103 | -9.73 | 0.0904 | -194.74 | 0.0126 | -0.00877 | 0.00198 | -2.47 | 0.0642 | 0.00518 |
| 204.55 | 0.00 | 0.0407 | -0.00245 | 1.23 | 5.37 | 0.543 | -27.75 | 0.00782 | -12.29 | 0.0860 | -198.01 | 0.0149 | -0.00794 | 0.00189 | -2.54 | 0.0198 | 0.00518 |
| 220.00 | 0.171 | 0.0432 | -0.00249 | 1.58 | 10.77 | 0.545 | -27.57 | 0.00593 | -15.45 | 0.0812 | -207.00 | 0.0170 | -0.00751 | 0.00202 | -2.65 | 0.00 | 0.00607 |
| | | 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.

