

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form U3C
June 2015
Form must be Typed
Form must be completed
on a per well basis

**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
KENT MILBURN
STANTON KS

NEFF MINNIE 1 SWDW
TANK BATTERY

Report Date: 12-31-2018 Sampled: 12-12-2018
Sample #: 3076 at 0000

Sample ID: 208726

SATURATION LEVEL

Calcite (CaCO ₃)	0.0179
Aragonite (CaCO ₃)	0.0159
Witherite (BaCO ₃)	< 0.001
Strontianite (SrCO ₃)	< 0.001
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.0162
Anhydrite (CaSO ₄)	0.264
Gypsum (CaSO ₄ *2H ₂ O)	0.338
Barite (BaSO ₄)	0.275
Celestite (SrSO ₄)	0.0941
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)	0.00398
Halite (NaCl)	0.349
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.00225

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.00660
Aragonite (CaCO ₃)	-0.00744
Witherite (BaCO ₃)	-26.26
Strontianite (SrCO ₃)	-0.496
Calcium oxalate (CaC ₂ O ₄)	-0.00258
Magnesite (MgCO ₃)	-0.00615
Anhydrite (CaSO ₄)	-101.59
Gypsum (CaSO ₄ *2H ₂ O)	-80.93
Barite (BaSO ₄)	-0.504
Celestite (SrSO ₄)	-208.72
Fluorite (CaF ₂)	-1.54
Calcium phosphate	>-0.001
Hydroxyapatite	-197.85
Silica (SiO ₂)	-18.33
Brucite (Mg(OH) ₂)	< 0.001
Magnesium silicate	-68.59
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	-0.0347
Halite (NaCl)	-50780
Thenardite (Na ₂ SO ₄)	-89660
Iron sulfide (FeS)	-1.33

SIMPLE INDICES

Langelier	-0.678
Ryznar	7.06
Puckorius	6.27
Larson-Skold Index	9754
Stiff Davis Index	-0.659
Oddo-Tomson	-1.69

BOUND IONS

Calcium	9606	9524
Barium	0.326	0.326
Carbonate	0.0732	< 0.001
Phosphate	0.00	0.00
Sulfate	625.00	74.61

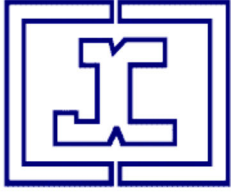
TOTAL

FREE

OPERATING CONDITIONS

Temperature (°F)	50.00
Time(secs)	0.00

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

LINN OPERATING
NEFF MINNIE 1 SWDW
KENT MILBURN
TANK BATTERY
STANTON KS

Sample ID#: 3076
ID: 208726
Report Date: 12-31-2018
Sample Date: 12-12-2018
at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	9606
Magnesium(as Mg)	8297
Barium(as Ba)	0.326
Strontium(as Sr)	273.70
Sodium(as Na)	72700
Potassium(as K)	1126
Lithium(as Li)	11.70
Iron(as Fe)	8.77
Field Iron(as Fe)	0.00
Ammonia(as NH ₃)	0.00
Aluminum(as Al)	0.00
Manganese(as Mn)	8.48
Zinc(as Zn)	0.0820
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	174600
Sulfate(as SO ₄)	625.00
Bromine(as Br)	0.00
Dissolved CO ₂ (as CO ₂)	130.00
Bicarbonate(as HCO ₃)	36.60
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)	4.14

PARAMETERS

Temperature(°F)	50.00
T.D.S.	251111
Conductivity:	517985
Resistivity:	1.93
Sample pH	5.70

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	0.0179	-0.00660	0.264	-101.59	0.338	-80.93	0.275	-0.504	0.0941	-208.72	0.00398	-0.0347	0.0119	-1.31	0.112	0.0131
65.45	0.00	0.0248	-0.00579	0.224	-110.54	0.278	-94.25	0.157	-1.02	0.0773	-223.38	0.00618	-0.0273	0.0116	-1.34	0.374	0.0131
80.91	0.00	0.0327	-0.00514	0.203	-111.30	0.234	-104.87	0.0954	-1.76	0.0676	-228.21	0.00905	-0.0219	0.0111	-1.37	0.199	0.0131
96.36	0.00	0.0410	-0.00461	0.193	-105.24	0.202	-112.90	0.0616	-2.76	0.0614	-227.62	0.0126	-0.0179	0.0105	-1.40	0.260	0.0131
111.82	0.00	0.0495	-0.00420	0.193	-94.33	0.191	-108.60	0.0417	-4.01	0.0567	-224.82	0.0167	-0.0148	0.00989	-1.44	0.281	0.0131
127.27	0.00	0.0587	-0.00386	0.202	-80.62	0.191	-97.67	0.0287	-5.60	0.0525	-222.86	0.0217	-0.0125	0.00930	-1.48	0.257	0.0131
142.73	0.00	0.0683	-0.00358	0.220	-65.94	0.191	-89.05	0.0201	-7.58	0.0485	-221.99	0.0276	-0.0107	0.00877	-1.52	0.227	0.0131
158.18	0.00	0.0781	-0.00336	0.249	-51.67	0.190	-82.25	0.0143	-9.93	0.0448	-222.17	0.0343	-0.00925	0.00828	-1.56	0.207	0.0131
173.64	0.00	0.0874	-0.00318	0.291	-38.71	0.189	-76.92	0.0102	-12.67	0.0415	-223.39	0.0415	-0.00812	0.00779	-1.61	0.188	0.0131
189.09	0.00	0.0954	-0.00305	0.350	-27.55	0.187	-72.78	0.00746	-15.79	0.0384	-225.68	0.0489	-0.00723	0.00730	-1.67	0.0743	0.0131
204.55	0.00	0.101	-0.00296	0.433	-18.32	0.184	-69.67	0.00549	-19.29	0.0355	-229.08	0.0559	-0.00652	0.00681	-1.73	0.0508	0.0131
220.00	0.171	0.103	-0.00301	0.547	-11.37	0.181	-69.90	0.00407	-23.52	0.0328	-238.96	0.0607	-0.00616	0.00711	-1.81	0.0674	0.0153
		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.

