

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	_____	_____	_____	_____	_____



DownHole Rx

WATER CHEMISTRY

SUEMAUR EXPLORATION
DALE MEDER
SHERIDAN KSKUEHN FAMILY TRUST 1-23
FLOWLINE

Report Date: 09-19-2017 Sampled: 09-13-2017
Sample #: 5115 at 0000

Sample ID: 164052

CATIONS

Calcium (as Ca)	888.40
Magnesium (as Mg)	402.80
Barium (as Ba)	0.00
Strontium (as Sr)	35.21
Sodium (as Na)	23089
Potassium (as K)	219.70
Lithium (as Li)	7.71
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	1.98
Iron (as Fe)	0.0510
Manganese (as Mn)	0.0120
Zinc (as Zn)	0.856
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	37995
Sulfate (as SO ₄)	3025
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	120.00
Bicarbonate (as HCO ₃)	122.00
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)	145.00
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	31.77

PARAMETERS

Calculated T.D.S.	65313
Molar Conductivity	85322
Resistivity	11.72
Sp.Gr.(g/mL)	1.05
Pressure(atm)	1.00
pCO ₂ (atm)	0.00800
pH ₂ S(atm)	0.0919
Temperature (°F)	108.00
pH	7.00

COMMENTSSHERIDAN KS

JACAM LABORATORIES**205 S. Broadway · P.O. Box 96 · Sterling, KS 67579-0096**



DownHole R_x
DEPOSITION POTENTIAL INDICATORS

SUEMAUR EXPLORATION	KUEHN FAMILY TRUST 1-23
DALE MEDER	FLOWLINE
SHERIDAN KS	
Report Date: 09-19-2017	Sampled: 09-13-2017
Sample #: 5115	at 0000
Sample ID: 164052	

SATURATION LEVEL

Calcite (CaCO ₃)	0.0612
Aragonite (CaCO ₃)	0.0522
Witherite (BaCO ₃)	0.00
Strontianite (SrCO ₃)	0.00579
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.0321
Anhydrite (CaSO ₄)	0.377
Gypsum (CaSO ₄ *2H ₂ O)	0.486
Barite (BaSO ₄)	0.00
Celestite (SrSO ₄)	0.889
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)	0.00607
Halite (NaCl)	0.0109
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	1.57

MOMENTARY EXCESS (Lbs/1000 Barrels)

Calcite (CaCO ₃)	-0.131
Aragonite (CaCO ₃)	-0.155
Witherite (BaCO ₃)	-21.63
Strontianite (SrCO ₃)	-1.97
Calcium oxalate (CaC ₂ O ₄)	-0.0953
Magnesite (MgCO ₃)	-0.217
Anhydrite (CaSO ₄)	-574.18
Gypsum (CaSO ₄ *2H ₂ O)	-448.43
Barite (BaSO ₄)	-0.0344
Celestite (SrSO ₄)	-3.14
Fluorite (CaF ₂)	-11.09
Calcium phosphate	>-0.001
Hydroxyapatite	-420.61
Silica (SiO ₂)	-57.62
Brucite (Mg(OH) ₂)	0.0104
Magnesium silicate	-126.90
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	-0.213
Halite (NaCl)	-178748
Thenardite (Na ₂ SO ₄)	-72709
Iron sulfide (FeS)	0.00177

SIMPLE INDICES

Langelier	-1.03
Ryznar	9.06
Puckorius	10.00
Larson-Skold Index	7333
Stiff Davis Index	-1.50
Oddo-Tomson	-1.77

BOUND IONS

Calcium	888.40
Barium	0.00
Carbonate	0.371
Phosphate	0.00
Sulfate	3025

TOTAL

FREE

770.27
0.00
0.0147
0.00
1851

OPERATING CONDITIONS

Temperature (°F)	108.00
Time(secs)	0.00

DownHole SAT™ Water Analysis Report



JACAM LABORATORIES

SYSTEM IDENTIFICATION

SUEMAUR EXPLORATION
KUEHN FAMILY TRUST 1-23
DALE MEDER
FLOWLINE
SHERIDAN KS

Sample ID#: 5115
ID: 164052
Report Date: 09-19-2017
Sample Date: 09-13-2017
at 0000

WATER CHEMISTRY

CATIONS

Calcium(as Ca)	888.40
Magnesium(as Mg)	402.80
Barium(as Ba)	0.00
Strontium(as Sr)	35.21
Sodium(as Na)	23089
Potassium(as K)	219.70
Lithium(as Li)	7.71
Iron(as Fe)	0.0510
Field Iron(as Fe)	0.00
Ammonia(as NH ₃)	0.00
Aluminum(as Al)	1.98
Manganese(as Mn)	0.0120
Zinc(as Zn)	0.856
Lead(as Pb)	0.00

ANIONS

Chloride(as Cl)	37995
Sulfate(as SO ₄)	3025
Bromine(as Br)	0.00
Dissolved CO ₂ (as CO ₂)	120.00
Bicarbonate(as HCO ₃)	122.00
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)	145.00
Fluoride(as F)	0.00
Nitrate(as NO ₃)	0.00
Boron(as B)	31.77

PARAMETERS

Temperature(°F)	108.00
T.D.S.	65313
Conductivity:	85322
Sample pH	7.00
Resistivity:	11.72

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	0.0211	-0.207	0.361	-642.47	0.604	-314.73	0.00	-0.00832	0.999	-0.0349	0.00138	-0.335	7.47	0.00447	0.0340	0.00800
65.45	0.00	0.0299	-0.181	0.340	-681.16	0.549	-376.84	0.00	-0.0131	0.911	-2.46	0.00221	-0.293	6.26	0.00428	0.0636	0.00800
80.91	0.00	0.0404	-0.159	0.338	-674.42	0.510	-425.07	0.00	-0.0195	0.881	-3.38	0.00334	-0.259	5.23	0.00406	0.0292	0.00800
96.36	0.00	0.0521	-0.142	0.354	-628.97	0.482	-460.27	0.00	-0.0274	0.880	-3.42	0.00479	-0.231	4.38	0.00381	0.0383	0.00800
111.82	0.00	0.0644	-0.127	0.387	-553.09	0.498	-429.84	0.00	-0.0370	0.891	-3.08	0.00654	-0.207	3.69	0.00353	0.0401	0.00800
127.27	0.00	0.0776	-0.115	0.440	-455.49	0.544	-361.98	0.00	-0.0493	0.897	-2.88	0.00864	-0.188	3.13	0.00322	0.0337	0.00800
142.73	0.00	0.0912	-0.106	0.519	-344.38	0.588	-305.15	0.00	-0.0651	0.898	-2.86	0.0111	-0.171	2.68	0.00289	0.0273	0.00800
158.18	0.00	0.104	-0.0976	0.631	-226.89	0.630	-257.55	0.00	-0.0852	0.893	-3.00	0.0137	-0.157	2.29	0.00252	0.0106	0.00800
173.64	0.00	0.116	-0.0911	0.789	-108.84	0.670	-217.75	0.00	-0.111	0.884	-3.30	0.0162	-0.145	1.97	0.00212	0.0206	0.00800
189.09	0.00	0.124	-0.0860	1.01	5.39	0.707	-184.64	0.00	-0.143	0.870	-3.74	0.0185	-0.135	1.68	0.00168	0.0146	0.00800
204.55	0.00	0.129	-0.0823	1.33	112.75	0.740	-157.34	0.00	-0.183	0.853	-4.32	0.0201	-0.127	1.43	0.00118	0.0153	0.00800
220.00	0.171	0.127	-0.0823	1.74	206.67	0.754	-146.49	0.00	-0.239	0.814	-5.70	0.0205	-0.123	1.37	< 0.001	0.0220	0.00937
		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.

