

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 SAT Rx

FORMATION WATER CHEMISTRY INPUT

Red Oak Energy
Smith HF 1
Pump Before Filter

Pro-Stim Chemicals
Paul Dwyer & Ryan Uhland

Report Date: 01-11-2018 Sampled: 12-29-2017
Sample #: 2750 at 0823

CATIONS

Calcium (as Ca)	1960
Magnesium (as Mg)	122.00
Barium (as Ba)	0.00
Strontium (as Sr)	0.00
Sodium (as Na)	23958
Potassium (as K)	0.00
Lithium (as Li)	0.00
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	0.00
Iron (as Fe)	7.50
Manganese (as Mn)	0.300
Zinc (as Zn)	0.00
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	38000
Sulfate (as SO ₄)	5150
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	150.00
Bicarbonate (as HCO ₃)	460.00
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)	0.00
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	0.00

PARAMETERS

Calculated T.D.S.	68945
Molar Conductivity	90013
Resistivity	11.11
Sp.Gr.(g/mL)	1.03
Pressure(PSIA)	14.70
pCO ₂ (PSIA)	0.0198
pH ₂ S(atm)	0.00
Temperature (°F)	70.00
pH	7.21

COMMENTS All anions & cations are in mg/l

FRENCH CREEK SOFTWARE, INC.
1220 VALLEY FORGE ROAD, BUILDING 21, VALLEY FORGE, PA 19460



DownHole SAT Rx

FORMATION WATER DEPOSITION POTENTIAL INDICATORS

Red Oak Energy
Smith HF 1
Pump Before Filter

Pro-Stim Chemicals
Paul Dwyer & Ryan Uhland

Report Date: 01-11-2018 Sampled: 12-29-2017
Sample #: 2750 at 0823

SATURATION LEVEL

Calcite (CaCO ₃)	5.27
Aragonite (CaCO ₃)	4.61
Witherite (BaCO ₃)	0.00
Strontianite (SrCO ₃)	0.00
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.286
Anhydrite (CaSO ₄)	1.12
Gypsum (CaSO ₄ *2H ₂ O)	1.77
Barite (BaSO ₄)	0.00
Celestite (SrSO ₄)	0.00
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)	185.92
Strengite (FePO ₄ *2H ₂ O)	0.00
Siderite (FeCO ₃)	27.14
Halite (NaCl)	0.0134
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.00

FREE ION MOMENTARY EXCESS (ppm)

Calcite (CaCO ₃)	1.07
Aragonite (CaCO ₃)	1.03
Witherite (BaCO ₃)	-58.27
Strontianite (SrCO ₃)	-18.55
Calcium oxalate (CaC ₂ O ₄)	-0.119
Magnesite (MgCO ₃)	-2.75
Anhydrite (CaSO ₄)	270.25
Gypsum (CaSO ₄ *2H ₂ O)	1385
Barite (BaSO ₄)	-0.0266
Celestite (SrSO ₄)	-50.92
Fluorite (CaF ₂)	-19.35
Calcium phosphate	>-0.001
Hydroxyapatite	-968.29
Silica (SiO ₂)	-97.42
Brucite (Mg(OH) ₂)	0.0107
Magnesium silicate	-289.54
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	1.46
Halite (NaCl)	-464084
Thenardite (Na ₂ SO ₄)	-206272
Iron sulfide (FeS)	-0.223

SIMPLE INDICES

Langelier	0.996
Ryznar	5.22
Puckorius	4.14
Larson-Skold Index	158.03
Stiff Davis Index	0.268
Oddo-Tomson	0.0859

BOUND IONS

Calcium	1960	1551
Barium	0.00	0.00
Carbonate	10.21	0.791
Phosphate	0.00	0.00
Sulfate	5150	3248

OPERATING CONDITIONS

Temperature (°F)	70.00
Time(mins)	3.00



DownHole SAT Rx

FORMATION WATER CHEMISTRY INPUT

Red Oak Energy
Smith HF 1
Wellhead After Filter

Pro-Stim Chemicals
Paul Dwyer & Ryan Uhland

Report Date: 01-11-2018 Sampled: 12-29-2017
Sample #: 2751 at 0823

CATIONS

Calcium (as Ca)	1960
Magnesium (as Mg)	122.00
Barium (as Ba)	0.00
Strontium (as Sr)	0.00
Sodium (as Na)	23563
Potassium (as K)	0.00
Lithium (as Li)	0.00
Ammonia (as NH ₃)	0.00
Aluminum (as Al)	0.00
Iron (as Fe)	12.50
Manganese (as Mn)	0.270
Zinc (as Zn)	0.00
Lead (as Pb)	0.00

ANIONS

Chloride (as Cl)	38000
Sulfate (as SO ₄)	4350
Bromine (as Br)	0.00
Dissolved CO ₂ (as CO ₂)	150.00
Bicarbonate (as HCO ₃)	400.00
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)	0.00
Fluoride (as F)	0.00
Nitrate (as NO ₃)	0.00
Boron (as B)	0.00

PARAMETERS

Calculated T.D.S.	67707
Molar Conductivity	89233
Resistivity	11.21
Sp.Gr.(g/mL)	1.03
Pressure(psia)	14.70
pCO ₂ (psia)	0.0142
pH ₂ S(atm)	0.00
Temperature (°F)	70.00
pH	7.30

COMMENTS All anions & cations are in mg/l

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Smith HF 1
Wellhead After Filter

Pro-Stim Chemicals
Paul Dwyer & Ryan Uhland

Report Date: 01-11-2018 Sampled: 12-29-2017
Sample #: 2751 at 0823

SATURATION LEVEL

Calcite (CaCO ₃)	5.78
Aragonite (CaCO ₃)	5.06
Witherite (BaCO ₃)	0.00
Strontianite (SrCO ₃)	0.00
Calcium oxalate (CaC ₂ O ₄)	0.00
Magnesite (MgCO ₃)	0.313
Anhydrite (CaSO ₄)	0.975
Gypsum (CaSO ₄ *2H ₂ O)	1.54
Barite (BaSO ₄)	0.00
Celestite (SrSO ₄)	0.00
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)	480.30
Strengite (FePO ₄ *2H ₂ O)	0.00
Siderite (FeCO ₃)	49.13
Halite (NaCl)	0.0132
Thenardite (Na ₂ SO ₄)	< 0.001
Iron sulfide (FeS)	0.00

FREE ION MOMENTARY EXCESS (ppm)

Calcite (CaCO ₃)	1.16
Aragonite (CaCO ₃)	1.12
Witherite (BaCO ₃)	-57.99
Strontianite (SrCO ₃)	-18.43
Calcium oxalate (CaC ₂ O ₄)	-0.115
Magnesite (MgCO ₃)	-2.56
Anhydrite (CaSO ₄)	-59.36
Gypsum (CaSO ₄ *2H ₂ O)	996.59
Barite (BaSO ₄)	-0.0314
Celestite (SrSO ₄)	-59.88
Fluorite (CaF ₂)	-19.06
Calcium phosphate	>-0.001
Hydroxyapatite	-968.72
Silica (SiO ₂)	-97.64
Brucite (Mg(OH) ₂)	0.0132
Magnesium silicate	-289.85
Iron hydroxide (Fe(OH) ₃)	< 0.001
Strengite (FePO ₄ *2H ₂ O)	>-0.001
Siderite (FeCO ₃)	1.59
Halite (NaCl)	-465293
Thenardite (Na ₂ SO ₄)	-205950
Iron sulfide (FeS)	-0.114

SIMPLE INDICES

Langelier	1.03
Ryznar	5.25
Puckorius	4.35
Larson-Skold Index	178.34
Stiff Davis Index	0.298
Oddo-Tomson	0.122

BOUND IONS

Calcium	1960	1603
Barium	0.00	0.00
Carbonate	10.69	0.840
Phosphate	0.00	0.00
Sulfate	4350	2729

OPERATING CONDITIONS

Temperature (°F)	70.00
Time(mins)	3.00