

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	_____	_____	_____	_____	_____



Location/Laboratory
Address
City, State, Zip

Report Date: 2/20/2019

Complete Water Analysis Report SSP v.8

Customer:	Great Plains Energy	Sample Date:	2/20/2019
District:		Log Out Date:	
Area:	Oberlin,ks	Sample ID:	
Lease:	Sauvage #2 SWD	Analyst:	Greg Pollnow
Sample Point Name	Tank to Disposal	Chemical Used:	
Sales Rep:	Greg Pollnow	Comments:	

Great Plains Energy, Sauvage #2 SWD, Tank to Disposal

Field Data		Analysis of Sample											
		Anions:		mg/L		meq/L		Cations:		mg/L		meq/L	
Initial Temperature (°F):	44	Chloride (Cl ⁻):	51250	1443.7	Sodium (Na ⁺):	28844	1259.6						
Final Temperature (°F):	100	Sulfate (SO ₄ ²⁻):	725	15.1	Potassium (K ⁺):	0	0.0						
Initial Pressure (psi):	1	Borate (H ₃ BO ₃):	0.0	0.0	Magnesium (Mg ²⁺):	486	40.0						
Final Pressure (psi):	25	Fluoride (F ⁻):	0.0	0.0	Calcium (Ca ²⁺):	3300	164.7						
		Bromide (Br ⁻):	0.0	0.0	Strontium (Sr ²⁺):	0	0.0						
pH:		Nitrite (NO ₂ ⁻):	0.0	0.0	Barium (Ba ²⁺):	0.0	0.0						
pH at time of sampling:	6.3	Nitrate (NO ₃ ⁻):	0.0	0.0	Iron (Fe ²⁺):	32.0	1.1						
pH at time of analysis:	NA	Phosphate (PO ₄ ³⁻):	0.0	0.0	Manganese (Mn ²⁺):	0.00	0.0						
pH used in Calcs:	6	Silica (SiO ₂):	0.0	0.0	Lead (Pb ²⁺):	0.00	0.0						
					Zinc (Zn ²⁺):	0.0	0.0						
Alkalinity by Titration:	mg/L meq/L				Aluminum (Al ³⁺):	0.0	0.0						
Bicarbonate (HCO ₃ ⁻):	331 5.4				Chromium (Cr ³⁺):	0.0	0.0						
Carbonate (CO ₃ ²⁻):	0 0.0				Cobalt (Co ²⁺):	0.0	0.0						
Hydroxide (OH ⁻):	0 0.0				Copper (Cu ²⁺):	0.0	0.0						
aqueous CO ₂ (ppm):	95 0.0	Organic Acids:	mg/L meq/L		Molybdenum (Mo ²⁺):	0.0	0.0						
aqueous H ₂ S (ppm):	10 0.0	Formate:	0.0 0.0		Nickel (Ni ²⁺):	0.0	0.0						
aqueous O ₂ (ppb):	0 0.0	Acetate:	0.0 0.0		Tin (Sn ²⁺):	0.0	0.0						
		Propionate:	0.0 0.0		Titanium (Ti ²⁺):	0.0	0.0						
Calculated TDS (mg/L):	84968	Butyrate:	0.0 0.0		Vanadium (V ²⁺):	0.0	0.0						
Density/Specific Gravity (g/cm ³):	1.0450	Valerate:	0.0 0.0		Zirconium (Zr ²⁺):	0.0	0.0						
Measured Density/Specific Gravity	0				Total Hardness:	7950	N/A						
Conductivity (µmhos):	0												
MCF/D:	0	Anion/Cation Ratio:		1.00									
BOPD:	0												
BWPD:	0												

Conditions		Barite (BaSO ₄)		Calcite (CaCO ₃)		Gypsum (CaSO ₄ ·2H ₂ O)		Anhydrite (CaSO ₄)	
Temp	Press.	Index	Amt (PTB)	Index	Amt (PTB)	Index	Amount	Index	Amt (PTB)
100°F	25 psi		0.000	0.38	31.405	-0.52	0.000	-0.65	0.000
94°F	24 psi		0.000	0.34	28.472	-0.53	0.000	-0.68	0.000
88°F	23 psi		0.000	0.30	25.382	-0.53	0.000	-0.71	0.000
81°F	22 psi		0.000	0.26	22.120	-0.53	0.000	-0.73	0.000
75°F	20 psi		0.000	0.21	18.672	-0.54	0.000	-0.76	0.000
69°F	19 psi		0.000	0.17	15.014	-0.54	0.000	-0.79	0.000
63°F	18 psi		0.000	0.12	11.114	-0.55	0.000	-0.82	0.000
56°F	17 psi		0.000	0.07	6.922	-0.55	0.000	-0.85	0.000
50°F	16 psi		0.000	0.02	2.347	-0.56	0.000	-0.88	0.000
44°F	15 psi		0.000	-0.03	0.000	-0.57	0.000	-0.91	0.000

Conditions		Celestite (SrSO ₄)		Halite (NaCl)		Iron Sulfide (FeS)		Iron Carbonate (FeCO ₃)	
Temp	Press.	Index	Amt (PTB)	Index	Amt (PTB)	Index	Amt (PTB)	Index	Amt (PTB)
100°F	25 psi		0.000	-1.68	0.000	-9.34	0.000	0.10	3.276
94°F	24 psi		0.000	-1.67	0.000	-9.36	0.000	0.04	1.286
88°F	23 psi		0.000	-1.67	0.000	-9.38	0.000	-0.02	0.000
81°F	22 psi		0.000	-1.66	0.000	-9.39	0.000	-0.09	0.000
75°F	20 psi		0.000	-1.66	0.000	-9.41	0.000	-0.15	0.000
69°F	19 psi		0.000	-1.65	0.000	-9.42	0.000	-0.22	0.000
63°F	18 psi		0.000	-1.64	0.000	-9.43	0.000	-0.29	0.000
56°F	17 psi		0.000	-1.64	0.000	-9.44	0.000	-0.35	0.000
50°F	16 psi		0.000	-1.63	0.000	-9.44	0.000	-0.42	0.000
44°F	15 psi		0.000	-1.62	0.000	-9.44	0.000	-0.50	0.000

Note 1: When assessing the severity of the scale problem, both the saturation index (SI) and amount of scale must be considered
 Note 2: Precipitation of each scale is considered separately. Total scale will be less than the sum of the amounts of the eight (8) scales.
 Note 3: Saturation Index predictions on this sheet use pH and alkalinity. %CO₂ is not included in the calculations.



Sample ID: Great Plains Energy, Sauvage #2 SWD, Tank to Disposal

