Facility Well Name Northern (Mullinville) #1 **UIC Permit #** KS-01-097-001 **Month** January **Year** 2019

Submitted 03/07/2019 **Approved** 03/08/2019 **KOLAR Document ID** 1448520

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 15

Barrels per Day Maximum: 2,381

			Annulus Pressure psig min 40		Injection Pressure		
	Injection Volume Barrels per Day	Injection Rate Barrels per Minute	Gauge psig	Cont. Record psig	Gauge psig	Cont. Record psig	Amount Added to Seal Pot
Monthly Average	89	0.07	70	69	-27.0	-25.9	0
Monthly Maximum	310	2.14	71	71	-26.0	-25.0	0
Monthly Minimum	0	0.00	69	68	-28.0	-27.0	0
Monthly Total	2,762						0

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
71.00	67.00	-11.00	-27.00

Comments:

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Daily Recorder Data

Day	Time 24 hr	Injection Volume Barrels Per Day	Injection Rate Barrels Per Minute	Annulus Pressure (Gauge) psig	Annulus Pressure (Continuous Recorder) psig	Injection Pressure (Gauge) + / -	Injection Pressure (Continuous Recorder) + / -	Seal Pot Fluid Level inches	Type of Fluid Added to Seal Pot	Amount of Fluid Added to Seal Pot gallons	Initials of Collector of Field Recordings		
1	09:30	0.00	0.00	69	69.0	-27	-26.0	44	N/A	0	GDJ		
2	09:15	0.00	0.00	69	69.0	-27	-26.0	46	N/A	0	JN		
3	10:15	190.48	0.00	69	69.0	-27	-26.0	47	N/A	0	JN		
4	09:15	214.29	0.00	70	69.0	-27	-26.0	44	N/A	0	JN		
5	08:00	142.86	0.00	69	68.0	-27	-25.0	47	N/A	0	JN		
6	08:00	166.67	0.00	70	70.0	-27	-26.0	42	N/A	0	JN		
7	10:30	214.29	2.14	70	71.0	-27	-26.0	47	N/A	0	JN		
8	09:50	261.90	0.00	71	71.0	-27	-26.0	40	N/A	0	LR		
9	08:09	0.00	0.00	70	69.0	-27	-26.0	46	N/A	0	RFS		
10	06:40	309.52	0.00	70	71.0	-27	-26.0	42	N/A	0	RFS		
11	08:40	0.00	0.00	70	68.0	-27	-26.0	46	N/A	0	AAT		
12	06:42	166.67	0.00	70	69.0	-27	-26.0	46	N/A	0	RFS		
13	06:33	0.00	0.00	70	68.0	-27	-26.0	48	N/A	0	RFS		
14	06:36	0.00	0.00	70	69.0	-28	-27.0	48	N/A	0	RFS		
15	06:35	0.00	0.00	70	69.0	-27	-26.0	48	N/A	0	RFS		
16	08:00	0.00	0.00	70	69.0	-27	-26.0	49	N/A	0	GBS		
17	08:30	23.81	0.00	70	69.0	-26	-26.0	49	N/A	0	GBS		
18	07:55	309.52	0.00	71	70.0	-26	-25.0	43	N/A	0	GBS		
19	07:45	0.00	0.00	69	68.0	-27	-25.0	47	N/A	0	GBS		
20	07:20	0.00	0.00	70	69.0	-27	-26.0	48	N/A	0	GBS		
21	08:40	309.52	0.00	71	71.0	-27	-26.0	39	N/A	0	GBS		
22	09:00	0.00	0.00	70	68.0	-27	-26.0	47	N/A	0	GBS		
23	09:05	142.86	0.00	70	69.0	-27	-26.0	46	N/A	0	AT		
24	09:10	23.81	0.00	70	69.0	-27	-26.0	45	N/A	0	LKR		
25	09:10	0.00	0.00	70	69.0	-27	-26.0	48	N/A	0	AT		
26	07:30	142.86	0.00	71	71.0	-27	-26.0	40	N/A	0	CC		
27	07:45	0.00	0.00	69	69.0	-27	-26.0	48	N/A	0	CC		
28	09:30	0.00	0.00	69	68.0	-27	-26.0	49	N/A	0	AT		
29	08:30	0.00	0.00	70	69.0	-27	-26.0	49	N/A	0	AT		
30	09:30	0.00	0.00	70	69.0	-27	-26.0	49	N/A	0	KG		
31	08:45	142.86	0.00	70	69.0	-27	-26.0	48	N/A	0	GBS		

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Weekly Injectate Samples

Kansas Lab Certificate Number

Week	Temperature		pH		Chloride				
	Degrees Fahrenheit	Date	Standard Units	Date	Cl concentration (mg/l)	Date Sample Collected	Date Sampl Analysed		
1	44.40	01/03/2019	6.70	01/03/2019	N/A				
2	64.20	01/10/2019	7.00	01/10/2019	N/A				
3	49.60	01/17/2019	7.10	01/17/2019	N/A				
4	48.00	01/24/2019	7.00	01/24/2019	N/A				
5	45.00	01/31/2019	6.30	01/31/2019	N/A				

No monthly injectate samples required.

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Quarterly Injectate Samples

Quarter 1
Date Sample Collected 01/17/2018
Kansas Lab Certificate Number E-10146
Lab Name Pace Analytical-Salina

These samples shall be representative of injection activity and shall therefore be collected on days of injection.

Constituent	Value	Units
Acetone		mg/l
Calcium	205.000	mg/l
Chloride		mg/l
Iron	471.000	mg/l
Magnesium	30.000	mg/l
Sulfate	589.000	mg/l
Total Dissolved Solids	644.000	mg/l
Total Suspended Solids		mg/l
Total Alkalinity as CaCO3	50.600	mg/l (as CaCO3)
Total Hardness as CaCO3	636.000	mg/l (as CaCO3)
Conductivity	1,600.000	Mmhos