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

Submitted 11/15/2019 **Approved** 11/26/2019 **KOLAR Document ID** 1482590

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 17

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	208	0.07	70	70	-26.5	-25.3	
Monthly Maximum	905	2.14	71	96	-25.0	-24.0	
Monthly Minimum	0	0.00	69	68	-27.0	-26.0	
Monthly Total	6,452						

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	-23.00	-27.00

Comments:

Northern (Mullinville) #1 10/2019

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	05:45	166.67	0.00	70	70.0	-26	-24.0	47	N/A		RFS		
2	07:06	190.48	0.00	70	70.0	-26	-24.0	47	N/A		RFS		
3	10:32	0.00	0.00	70	70.0	-26	-24.0	47	N/A		RFS		
4	10:45	0.00	0.00	70	69.0	-27	-25.0	47	N/A		RFS		
5	07:24	0.00	0.00	70	69.0	-27	-25.0	47	N/A		RFS		
6	07:46	0.00	0.00	70	69.0	-26	-25.0	47	N/A		RFS		
7	09:22	904.76	0.00	70	69.0	-26	-25.0	47	N/A		RFS		
8	07:52	0.00	0.00	70	69.0	-26	-25.0	47	N/A		RFS		
9	20:20	0.00	0.00	70	96.0	-26	-24.0	45	N/A		GDJ		
10	15:45	404.76	0.00	70	70.0	-26	-24.0	45	N/A		GDJ		
11	09:45	333.33	0.00	70	69.0	-26	-25.0	46	N/A		GDJ		
12	13:15	0.00	0.00	70	69.0	-26	-24.0	46	N/A		GDJ		
13	09:45	357.14	0.00	69	68.0	-26	-24.0	45	N/A		GDJ		
14	08:45	190.48	0.00	70	70.0	-26	-25.0	46	N/A		RFS		
15	09:12	0.00	0.00	70	68.0	-27	-26.0	46	N/A		RFS		
16	13:45	523.81	0.00	70	70.0	-27	-26.0	47	N/A		AT		
17	11:30	0.00	0.00	70	69.0	-27	-26.0	46	N/A		RFS		
18	13:00	380.95	0.00	70	71.0	-25	-25.0	47	N/A		AT		
19	10:05	166.67	0.00	70	69.0	-27	-26.0	47	N/A		AT		
20	07:40	0.00	0.00	70	68.0	-27	-26.0	46	N/A		JN		
21	10:00	571.43	0.00	70	70.0	-27	-26.0	46	N/A		JN		
22	09:15	547.62	0.00	70	71.0	-27	-26.0	46	N/A		AT		
23	09:42	0.00	0.00	70	69.0	-27	-26.0	47	N/A		DA		
24	08:36	357.14	0.00	71	71.0	-27	-26.0	47	N/A		DA		
25	09:45	309.52	0.00	70	69.0	-27	-26.0	47	N/A		AT		
26	08:44	0.00	0.00	70	69.0	-27	-26.0	46	N/A		KG		
27	10:00	357.14	0.00	71	70.0	-27	-26.0	46	N/A		KG		
28	10:00	0.00	0.00	70	69.0	-27	-26.0	46	N/A		DA		
29	14:20	0.00	0.00	70	69.0	-27	-26.0	46	N/A		RFS		
30	08:30	666.67	0.00	70	69.0	-27	-25.0	46	N/A		RFS		
31	15:14	23.81	2.14	70	69.0	-27	-26.0	46	N/A		RFS		

Northern (Mullinville) #1 10/2019

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	68.00	10/03/2019	7.10	10/03/2019	N/A				
2	66.30	10/10/2019	8.00	10/10/2019	N/A				
3	64.10	10/18/2019	7.20	10/18/2019	N/A				
4	64.30	10/24/2019	7.90	10/24/2019	N/A				
5	59.90	10/31/2019	6.80	10/31/2019	N/A				

No monthly injectate samples required.

Northern (Mullinville) #1 10/2019

Quarterly Injectate Samples

Quarter 1
Date Sample Collected 10/04/2019
Kansas Lab Certificate Number 1120
Lab Name

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

Constituent	Value	Units
Calcium	234,000.000	mg/l
Chloride	151.000	mg/l
Iron	902.000	mg/l
Magnesium	31,400.000	mg/l
Sulfate	623.000	mg/l
Total Dissolved Solids	1,460.000	mg/l
Total Alkalinity as CaCO3	6,801.000	mg/l (as CaCO3)
Total Hardness as CaCO3	996.000	mg/l (as CaCO3)
Conductivity	1,770.000	Mmhos