Facility Well Name Northern (Bushton) #1 **UIC Permit #** KS-01-159-003 **Month** September **Year** 2019

Submitted 10/09/2019 **Approved** 10/25/2019 **KOLAR Document ID** 1474487

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 22

Barrels per Day Maximum: 3,840

			Annulus Pressure psig min 60		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	78	0.00	92	91	-22.5	-24.6	0
Monthly Maximum	328	0.00	95	94	-18.0	-20.0	0
Monthly Minimum	0	0.00	90	89	-23.0	-25.0	0
Monthly Total	2,343						0

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
165.00	-0.10	1.30	-26.00

Comments:

October 1, 2019 replaced manual guages and calibrated electronic transducers as part of an annual maintenance task. Annulus tank was isolated blown down for guage replacement and calibration. Injection pressure(vacuum) line was isolated for replacement and calibration.

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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	11:00	78.36	0.00	91	90.0	-23	-25.0	15	N/A	0	RB		
2	06:00	0.00	0.00	94	91.0	-23	-25.0	12	N/A		MU		
3	06:00	78.57	0.00	91	90.0	-23	-25.0	12	N/A	0	MU		
4	06:00	0.00	0.00	93	91.0	-23	-25.0	12	N/A		MU		
5	06:00	75.52	0.00	92	90.0	-23	-25.0	12	N/A	0	MU		
6	06:15	15.31	0.00	94	92.0	-23	-25.0	13	N/A	0	LM		
7	07:00	0.00	0.00	94	92.0	-23	-25.0	13	N/A	0	LM		
8	07:10	0.00	0.00	93	92.0	-23	-25.0	13	N/A	0	LM		
9	13:00	327.62	0.00	91	90.0	-23	-25.0	13	N/A	0	RB		
10	13:00	82.02	0.00	91	91.0	-23	-25.0	13	N/A	0	RB		
11	14:00	84.76	0.00	91	90.0	-23	-25.0	13	N/A	0	RB		
12	12:00	0.00	0.00	91	90.0	-23	-25.0	12	N/A	0	RB		
13	06:30	161.40	0.00	91	90.0	-22	-25.0	12	N/A	0	RB		
14	06:15	80.50	0.00	91	90.0	-23	-25.0	12	N/A	0	RB		
15	07:00	83.00	0.00	91	90.0	-23	-25.0	12	N/A	0	RB		
16	07:30	0.00	0.00	93	92.0	-23	-25.0	12	N/A	0	LM		
17	06:20	78.62	0.00	94	92.0	-23	-25.0	13	N/A	0	LM		
18	08:30	77.76	0.00	93	92.0	-23	-25.0	13	N/A	0	LM		
19	07:40	260.24	0.00	90	89.0	-22	-24.0	13	N/A	0	LM		
20	06:00	31.95	0.00	90	89.0	-18	-20.0	12	N/A	0	MU		
21	06:00	91.14	0.00	90	89.0	-21	-23.0	12	N/A	0	MU		
22	06:00	0.00	0.00	90	89.0	-20	-21.0	12	N/A	0	MU		
23	06:00	210.64	0.00	90	89.0	-22	-25.0	12	N/A	0	MU		
24	07:45	106.26	0.00	90	89.0	-23	-25.0	12	N/A	0	LM		
25	06:45	38.64	0.00	93	92.0	-23	-25.0	12	N/A	0	RB		
26	06:30	0.00	0.00	90	92.0	-22	-25.0	12	N/A	0	RB		
27	06:35	14.95	0.00	90	92.0	-22	-25.0	12	N/A	0	RB		
28	06:10	194.33	0.00	95	94.0	-23	-25.0	12	N/A	0	RB		
29	08:00	81.50	0.00	95	93.0	-23	-25.0	12	N/A	0	RB		
30	08:00	89.69	0.00	93	91.0	-23	-25.0	12	N/A	0	MU		

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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	70.00	09/05/2019	7.04	09/05/2019	N/A				
2	71.00	09/09/2019	7.36	09/09/2019	N/A				
3	72.00	09/18/2019	7.04	09/18/2019	N/A				
4	71.00	09/26/2019	7.10	09/26/2019	N/A				
5	71.00	09/30/2019	8.54	09/30/2019	N/A				

No monthly injectate samples required.

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Quarterly Injectate Samples

Quarter 3
Date Sample Collected 08/05/2019
Kansas Lab Certificate Number 1011610146
Lab Name

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

Constituent	Value	Units
Calcium	161.000	mg/l
Chloride	717.000	mg/l
Iron	9.700	mg/l
Magnesium	16.800	mg/l
Sulfate	26.000	mg/l
Diethanolamine	<50.000	mg/l
Total Dissolved Solids	2,820.000	mg/l
Total Alkalinity as CaCO3	477.000	mg/l (as CaCO3)
Total Hardness as CaCO3	471.000	mg/l (as CaCO3)
Conductivity	349.000	Mmhos