Facility Well Name CHS Refinery #1 **UIC Permit #** KS-01-113-008 **Month** March **Year** 2019

Submitted 04/22/2019 **Approved** 05/01/2019 **KOLAR Document ID** 1458175

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 31

Barrels per Day Maximum: 51,429

			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	20,476	14.22	97	96	6.7	6.1	
Monthly Maximum	21,591	15.00	110	110	14.0	13.6	
Monthly Minimum	18,153	12.60	92	91	2.0	0.9	
Monthly Total	634,768						

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
113.60	90.25	14.09	0.47

Comments:

Annulus Continuous Recorder was calibrated on 2/26/19.

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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	07:00	21,235.29	14.74	92	90.5	2	3.3	3			TB		
2	07:00	19,648.55	13.64	100	99.6	13	12.2	3			ZB		
3	07:00	21,463.64	14.90	105	105.4	2	1.0	3			ZB		
4	07:00	19,592.86	13.60	110	109.6	13	12.8	2			AS		
5	07:00	21,083.79	14.64	103	102.0	5	4.4	2			AS		
6	07:00	21,002.71	14.60	96	91.9	12	11.6	3			ZB		
7	07:00	20,578.45	14.29	99	96.6	13	12.6	3			ZB		
8	07:00	21,044.19	14.62	97	96.1	14	13.3	4			AS		
9	07:00	21,029.98	14.60	95	94.2	14	13.1	5			AS		
10	07:00	21,158.36	14.69	98	97.7	14	13.6	5			AS		
11	07:00	21,337.50	14.81	98	96.9	13	12.6	5			JC		
12	07:00	20,638.05	14.33	98	95.9	13	12.5	5			JC		
13	07:00	21,308.43	14.79	94	93.1	13	12.6	5			AS		
14	07:00	21,479.55	14.90	96	94.6	13	12.5	5			AS		
15	07:00	21,591.07	15.00	100	98.0	2	1.1	4			JC		
16	07:00	20,633.69	14.33	98	94.7	2	1.3	4			JC		
17	07:00	19,814.74	13.76	96	94.5	2	1.3	5			JC		
18	07:00	20,574.02	14.29	98	97.0	3	2.5	6			RM		
19	07:00	20,224.10	14.05	96	94.8	4	3.5	6			RM		
20	07:00	20,925.83	14.52	96	95.2	2	1.1	5			TB		
21	07:00	20,009.02	13.90	95	94.5	2	1.9	6			ZB		
22	07:00	19,118.95	13.29	98	96.7	5	4.0	5			BF		
23	07:00	20,367.36	14.14	94	93.0	4	3.7	3			RM		
24	07:00	21,040.67	14.62	92	93.7	5	4.0	2			ZB		
25	07:00	20,978.48	14.57	94	93.6	3	2.5	2			ZB		
26	07:00	19,947.14	13.86	96	94.5	4	3.0	2			TB		
27	07:00	20,986.17	14.57	94	93.1	4	3.6	2			RM		
28	07:00	20,305.12	14.10	95	93.5	3	2.5	2			RM		
29	07:00	18,646.38	12.95	94	93.0	2	0.9	2			TB		
30	07:00	18,850.21	13.10	98	94.8	4	2.8	3			ZB		
31	07:00	18,153.31	12.60	96	94.7	2	1.6	2			ZB		

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Weekly Injectate Samples

Kansas Lab Certificate Number E-10116

Week	**Temperature**		**pH**		**Chloride**				
	Degrees Fahrenheit	Date	Standard Units	Date	Cl concentration (mg/l)	Date Sample Collected	Date Sampl Analysed		
1	77.00	03/05/2019	7.06	03/05/2019	920.0	03/05/2019	03/13/2019		
2	79.00	03/15/2019	7.20	03/15/2019	911.0	03/15/2019	03/29/2019		
3	84.10	03/19/2019	6.93	03/19/2019	857.0	03/19/2019	04/10/2019		
4	77.00	03/26/2019	7.73	03/26/2019	499.0	03/26/2019	04/10/2019		
5									

No monthly injectate samples required.

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Quarterly Injectate Samples

Quarter 1
Date Sample Collected 03/15/2019
Kansas Lab Certificate Number E-10116
Lab Name Pace Analytical-Lenexa

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

Constituent	Value	Units
Calcium	269.000	mg/l
Chloride	911.000	mg/l
Iron	62.900	mg/l
Magnesium	27.900	mg/l
Sulfate	797.000	mg/l
Total Dissolved Solids	2,730.000	mg/l
Total Suspended Solids	85.000	mg/l
Total Alkalinity as CaCO3	379.000	mg/l (as CaCO3)
Conductivity	4.000	Mmhos
Benzene	0.100	mg/l
Ethylbenzene	0.007	mg/l
Toluene	0.123	mg/l
Xylene (Total)	0.066	mg/l
Sodium	613.000	mg/l
Ammonia	41.600	mg/l
Oil & Grease	12.800	mg/l