Facility Well Name CHS Refinery #3 **UIC Permit #** KS-01-113-010 **Month** December **Year** 2019

Submitted 01/21/2020 **Approved** 01/21/2020 **KOLAR Document ID** 1488916

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	5,305	3.69	96	97	10.7	9.7	
Monthly Maximum	6,991	4.86	109	111	25.0	17.9	
Monthly Minimum	3,762	2.62	87	88	1.0	0.7	
Monthly Total	164,461						

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
118.91	87.57	18.11	0.36

Comments:

CHS Refinery #3 12/2019

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	07:00	6,990.86	4.86	96	98.3	16	15.0	3			BF		
2	07:00	6,612.64	4.60	98	102.4	16	15.4	3			TB		
3	07:00	6,545.55	4.55	103	105.7	11	9.7	5			TB		
4	07:00	6,504.17	4.52	109	111.1	17	15.8	6			BF		
5	07:00	6,414.36	4.45	106	108.0	17	15.9	6			BF		
6	07:00	6,157.40	4.29	99	101.1	18	17.5	4			ZB		
7	07:00	6,500.40	4.52	96	97.8	17	17.1	4			ZB		
8	07:00	6,418.76	4.45	102	107.9	17	16.8	5			ZB		
9	07:00	6,300.02	4.38	106	108.8	16	15.8	6			MH		
10	07:00	6,287.57	4.36	96	97.3	17	16.5	5			MH		
11	07:00	5,342.14	3.71	95	94.6	16	15.8	4			ZB		
12	07:00	5,736.81	3.98	99	97.2	18	17.2	3			ZB		
13	07:00	6,077.29	4.21	98	99.5	18	16.7	4			MH		
14	07:00	6,028.21	4.19	95	97.4	17	16.4	5			MH		
15	07:00	5,953.48	4.14	96	93.9	16	15.2	4			JC		
16	07:00	5,953.64	4.14	96	93.6	17	17.0	3			JC		
17	07:00	5,573.88	3.88	90	91.4	25	15.6	4			JC		
18	07:00	5,334.00	3.71	95	94.4	2	1.1	4			MH		
19	07:00	4,713.95	3.26	92	92.8	3	2.2	3			MH		
20	07:00	4,855.14	3.38	98	96.2	18	17.9	3			JC		
21	07:00	4,480.69	3.12	90	92.7	2	1.0	3			JC		
22	07:00	4,391.62	3.05	92	91.3	1	0.7	2			JC		
23	07:00	4,148.38	2.88	92	91.5	1	0.8	3			RM		
24	07:00	3,986.88	2.76	94	94.4	2	0.9	3			RM		
25	07:00	4,249.10	2.95	96	93.6	2	0.9	6			JC		
26	07:00	3,991.88	2.76	98	97.3	2	0.8	4			JC		
27	07:00	3,814.17	2.64	89	91.1	1	0.8	3			BF		
28	07:00	3,774.67	2.62	95	96.1	2	0.7	3			BF		
29	07:00	3,776.21	2.62	89	91.7	2	0.7	3			BF		
30	07:00	3,785.38	2.62	87	88.0	2	0.8	2			ZB		
31	07:00	3,761.67	2.62	87	88.1	2	0.9	2			ZB		

CHS Refinery #3 12/2019

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	75.20	12/03/2019	6.71	12/03/2019	1,100.0	12/03/2019	12/14/2019		
2	74.30	12/10/2019	7.00	12/10/2019	1,080.0	12/10/2019	12/14/2019		
3	74.50	12/17/2019	7.25	12/17/2019	969.0	12/17/2019	12/23/2019		
4	71.50	12/27/2019	7.09	12/27/2019	989.0	12/27/2019	01/02/2020		
5	68.00	12/31/2019	7.36	12/31/2019	871.0	12/31/2019	01/02/2020		

No monthly injectate samples required.

CHS Refinery #3 12/2019

Quarterly Injectate Samples

Quarter 4
Date Sample Collected 12/27/2019
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	166.000	mg/l
Chloride	989.000	mg/l
Iron	24.500	mg/l
Magnesium	18.000	mg/l
Sulfate	576.000	mg/l
Total Dissolved Solids	2,790.000	mg/l
Total Suspended Solids	158.000	mg/l
Total Alkalinity as CaCO3	158.000	mg/l (as CaCO3)
Conductivity	4.000	Mmhos
Benzene	<0.001	mg/l
Ethylbenzene	<0.001	mg/l
Toluene	<0.001	mg/l
Xylene (Total)	<0.003	mg/l
Sodium	742.000	mg/l
Oil & Grease	31.400	mg/l
Ammonia	5.700	mg/l
1,2-Dichloroethene	<0.00100	mg/l
Trichloroethene	<0.00100	mg/l