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

Submitted 10/18/2019 **Approved** 10/25/2019 **KOLAR Document ID** 1476168

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 30

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	18,587	12.91	97	95	2.2	1.3	
Monthly Maximum	23,321	16.19	106	105	3.0	2.2	
Monthly Minimum	17,313	12.02	90	89	2.0	0.9	
Monthly Total	557,609						

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
119.89	86.81	10.84	0.61

Comments:

CHS Refinery #1 09/2019

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	23,320.74	16.19	102	100.4	2	1.7	9			DJ		
2	07:00	23,205.10	16.12	106	104.5	3	2.2	9			RM		
3	07:00	23,138.90	16.07	104	103.5	3	1.7	9			RM		
4	07:00	21,934.38	15.24	98	97.2	2	1.4	7			JC		
5	07:00	18,100.50	12.57	100	97.6	2	1.2	7			JC		
6	07:00	18,325.21	12.71	95	95.1	2	1.3	6			BF		
7	07:00	17,982.38	12.48	100	97.4	2	1.0	7			ZB		
8	07:00	18,027.86	12.52	102	98.7	2	1.3	7			ZB		
9	07:00	18,612.31	12.93	98	98.8	2	1.0	7			BF		
10	07:00	18,077.69	12.55	102	99.7	2	1.2	7			BF		
11	07:00	18,628.90	12.93	98	95.8	2	1.3	6			BF		
12	07:00	18,260.60	12.69	96	94.4	2	1.2	6			BF		
13	07:00	18,116.00	12.57	92	90.7	2	1.1	6			ZB		
14	07:00	17,862.21	12.40	93	91.9	2	1.1	6			ZB		
15	07:00	17,367.00	12.07	98	94.8	2	1.1	6			ZB		
16	07:00	18,005.45	12.50	98	96.4	3	0.9	6			AS		
17	07:00	17,877.55	12.40	95	94.6	3	1.7	6			AS		
18	07:00	17,790.74	12.36	95	93.6	2	1.2	6			ZB		
19	07:00	17,541.95	12.19	98	93.6	2	1.1	6			ZB		
20	07:00	17,313.24	12.02	92	93.4	2	1.4	6			AS		
21	07:00	17,557.45	12.19	90	89.2	2	1.1	5			AS		
22	07:00	17,740.93	12.31	90	89.4	2	1.1	5			DJ		
23	07:00	17,468.43	12.12	90	90.4	3	1.0	4			JC		
24	07:00	17,736.74	12.31	96	93.0	2	1.0	4			JC		
25	07:00	17,506.90	12.17	95	93.5	3	1.7	5			AS		
26	07:00	17,889.67	12.43	92	89.8	2	1.4	4			AS		
27	07:00	18,357.76	12.74	98	92.1	2	1.5	4			JC		
28	07:00	18,232.05	12.67	96	95.0	2	1.3	4			AS		
29	07:00	17,678.50	12.29	98	98.1	2	1.6	4			JC		
30	07:00	17,952.19	12.48	94	92.0	2	0.9	2			BF		
31	07:00												

CHS Refinery #1 09/2019

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	92.70	09/03/2019	7.42	09/03/2019	1,060.0	09/03/2019	09/13/2019		
2	100.00	09/10/2019	7.05	09/10/2019	1,290.0	09/10/2019	09/13/2019		
3	91.00	09/17/2019	7.01	09/17/2019	1,170.0	09/17/2019	10/01/2019		
4	73.00	09/24/2019	8.10	09/24/2019	1,250.0	09/24/2019	10/02/2019		
5									

No monthly injectate samples required.

CHS Refinery #1 09/2019

Quarterly Injectate Samples

Quarter 3
Date Sample Collected 09/17/2019
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	349.000	mg/l
Iron	5.370	mg/l
Magnesium	32.700	mg/l
Sulfate	735.000	mg/l
Total Dissolved Solids	3,850.000	mg/l
Total Suspended Solids	31.000	mg/l
Total Alkalinity as CaCO3	454.000	mg/l (as CaCO3)
Conductivity	5.000	Mmhos
Benzene	ND	mg/l
Ethylbenzene	ND	mg/l
Toluene	ND	mg/l
Xylene (Total)	ND	mg/l
Sodium	774.000	mg/l
Ammonia	6.000	mg/l
Oil & Grease	6.000	mg/l