Facility Well Name CHS Refinery #4 **UIC Permit #** KS-01-113-011 **Month** September **Year** 2022

Submitted 10/19/2022 **Approved** 10/28/2022 **KOLAR Document ID** 1670061

Class I-V Injection Well Monthly Monitoring

Summary of Monthly Report

Number of days injection occurred: 28

Barrels per Day Maximum: 34,286

	Injection Volume Barrels per Day	Injection Rate Barrels per Minute	Annulus Pressure psig min 60 Gauge psig	Annulus Pressure Cont. Record psig	Injection Pressure Gauge psig	Injection Pressure Cont. Record psig	Amount Added to Seal Pot
Monthly Average	10,689	7.42	100	99	4.4	0.5	2
Monthly Maximum	12,963	9.00	179	151	15.0	11.4	2
Monthly Minimum	0	0.00	0	2	4.0	0.1	2
Monthly Total	320,675						4

Summary of Continuous Recorder Data

Maximum Annulus Pressure psig	Minimum Annulus Pressure psig	Maximum Injection Pressure psig	Minimum Injection Pressure psig
157.53	0.04	13.59	0.00

Comments:

The well was offline to fix a relief valve associated with annulus seal pot on 9/1/2022. No wastewater was directed to the well while the annulus pressure was below 60 psig.

The annulus pressure and injection pressure continuous recorders were calibrated on 9/2/2022.

CHS Refinery #4 09/2022

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	4.12	0.00	0	2.4	15	11.4	5			JC		
2	07:00	2,414.40	1.67	98	95.4	4	0.1	1			AF		
3	07:00	9,925.38	6.88	90	87.0	4	0.1	1			MW		
4	07:00	4,994.74	3.48	115	114.7	4	0.1	1			MW		
5	07:00	0.00	0.00	140	141.6	4	0.2	0			MB		
6	07:00	0.00	0.00	150	150.6	4	0.2	0	Mineral Oil	2	MB		
7	07:00	8,059.55	5.60	179	117.0	4	0.2	1			AF		
8	07:00	12,717.95	8.83	100	97.5	4	0.2	1			AF		
9	07:00	12,723.76	8.83	90	92.5	4	0.2	2			MB		
10	07:00	12,717.26	8.83	96	92.0	4	0.2	2			BD		
11	07:00	12,759.43	8.86	98	96.8	4	0.2	6	Mineral Oil	2	BD		
12	07:00	12,800.90	8.88	105	106.7	4	0.2	11			CG		
13	07:00	12,835.88	8.90	104	107.2	4	0.2	12			CG		
14	07:00	12,881.48	8.95	102	107.7	4	0.1	12			BD		
15	07:00	12,910.98	8.98	108	114.2	4	0.1	8			BD		
16	07:00	12,895.19	8.95	116	116.1	4	0.1	8			MH		
17	07:00	12,289.38	8.52	118	117.6	4	0.1	10			MH		
18	07:00	12,872.57	8.93	118	118.3	4	0.1	5			CG		
19	07:00	12,904.12	8.95	118	115.1	5	0.1	5			TY		
20	07:00	12,902.40	8.95	104	107.0	5	0.1	5			TY		
21	07:00	12,909.26	8.98	105	104.1	4	0.2	5			CG		
22	07:00	12,919.19	8.98	86	86.5	4	0.3	4			CG		
23	07:00	12,940.12	8.98	80	78.1	4	0.1	4			TY		
24	07:00	12,936.33	8.98	84	82.4	4	0.2	7			TY		
25	07:00	12,928.81	8.98	80	81.7	4	0.1	7			TY		
26	07:00	12,941.83	8.98	85	84.9	4	0.2	9			MW		
27	07:00	12,950.74	9.00	85	85.8	4	0.2	10			MW		
28	07:00	12,957.60	9.00	84	83.6	4	0.1	11			TY		
29	07:00	12,962.74	9.00	74	77.3	4	0.1	9			TY		
30	07:00	12,618.52	8.76	96	94.1	4	0.1	9			MW		
31													

CHS Refinery #4 09/2022

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	72.20	09/06/2022	7.33	09/06/2022	1,080.0	09/06/2022	09/29/2022		
2	86.50	09/13/2022	7.16	09/13/2022	651.0	09/13/2022	09/29/2022		
3	84.00	09/19/2022	7.27	09/19/2022	1,060.0	09/19/2022	10/04/2022		
4	84.00	09/27/2022	7.16	09/27/2022	1,040.0	09/27/2022	10/06/2022		
5									

No monthly injectate samples required.

CHS Refinery #4 09/2022

Quarterly Injectate Samples

Quarter 3
Date Sample Collected 09/19/2022
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
Ammonia	39.800	mg/l
Benzene	ND	mg/l
Calcium	415.000	mg/l
Conductivity	5.410	Mmhos
Ethylbenzene	ND	mg/l
Iron	5.730	mg/l
Magnesium	38.700	mg/l
Oil & Grease	7.000	mg/l
Sodium	517.000	mg/l
Sulfate	896.000	mg/l
Toluene	ND	mg/l
Total Alkalinity as CaCO3	629.000	mg/l
Total Dissolved Solids	4,150.000	mg/l
Total Hardness as CaCO3	1,200.000	mg/l
Total Suspended Solids	44.500	mg/l
Xylene	0.031	mg/l