**Facility Well Name** CHS Refinery #3 **UIC Permit #** KS-01-113-010 **Month** March **Year** 2023

**Submitted** 04/12/2023 **Approved** 04/25/2023 **KOLAR Document ID** 1709076

# 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** | 4,741 | 3.29 | 92 | 91 | 4.2 | 3.9 | |
| **Monthly Maximum** | 6,097 | 4.24 | 102 | 101 | 18.0 | 17.0 | |
| **Monthly Minimum** | 4,265 | 2.95 | 83 | 83 | 2.0 | 2.6 | |
| **Monthly Total** | 146,960 | | | | | | |

## Summary of Continuous Recorder Data

| Maximum Annulus Pressure psig | Minimum Annulus Pressure psig | Maximum Injection Pressure psig | Minimum Injection Pressure psig |
|---|---|---|---|
| 110.15 | 81.02 | 17.11 | 1.39 |

**Comments:**

CHS Refinery #3 03/2023

# Daily Recorder Data

| Day | Time<br>24 hr | Injection Volume<br>Barrels Per Day | Injection Rate<br>Barrels Per Minute | Annulus Pressure (Gauge)<br>psig | Annulus Pressure (Continuous Recorder)<br>psig | Injection Pressure (Gauge)<br>+ / - | Injection Pressure (Continuous Recorder)<br>+ / - | Seal Pot Fluid Level<br>inches | Type of Fluid Added to Seal Pot | Amount of Fluid Added to Seal Pot<br>gallons | Initials of Collector of Field Recordings | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 07:00 | 5,250.17 | 3.64 | 95 | 94.0 | 2 | 2.7 | 7 | | | MD | | |
| 2 | 07:00 | 5,240.24 | 3.64 | 90 | 90.9 | 2 | 2.7 | 6 | | | TP | | |
| 3 | 07:00 | 5,207.31 | 3.62 | 90 | 89.3 | 3 | 3.0 | 6 | | | MH | | |
| 4 | 07:00 | 5,205.26 | 3.62 | 96 | 96.1 | 4 | 3.3 | 6 | | | MH | | |
| 5 | 07:00 | 5,158.29 | 3.57 | 96 | 95.6 | 3 | 3.0 | 7 | | | CG | | |
| 6 | 07:00 | 5,093.48 | 3.55 | 100 | 98.3 | 3 | 2.7 | 8 | | | JC | | |
| 7 | 07:00 | 5,093.48 | 3.55 | 98 | 91.5 | 4 | 2.9 | 7 | | | JC | | |
| 8 | 07:00 | 5,069.14 | 3.52 | 90 | 93.4 | 2 | 2.7 | 6 | | | CG | | |
| 9 | 07:00 | 4,803.10 | 3.33 | 92 | 91.8 | 2 | 2.8 | 6 | | | CG | | |
| 10 | 07:00 | 4,313.14 | 3.00 | 92 | 90.2 | 3 | 3.0 | 6 | | | TY | | |
| 11 | 07:00 | 4,301.83 | 2.98 | 98 | 93.7 | 3 | 2.8 | 7 | | | JC | | |
| 12 | 07:00 | 4,264.81 | 2.95 | 96 | 90.8 | 2 | 2.7 | 7 | | | TY | | |
| 13 | 07:00 | 4,701.95 | 3.26 | 86 | 85.9 | 3 | 2.9 | 6 | | | NB | | |
| 14 | 07:00 | 4,681.38 | 3.26 | 90 | 89.4 | 3 | 2.8 | 6 | | | NB | | |
| 15 | 07:00 | 4,621.38 | 3.21 | 90 | 88.0 | 4 | 3.1 | 6 | | | TY | | |
| 16 | 07:00 | 4,747.88 | 3.29 | 90 | 92.7 | 4 | 2.8 | 5 | | | TY | | |
| 17 | 07:00 | 4,860.69 | 3.38 | 83 | 84.3 | 17 | 16.1 | 5 | | | NB | | |
| 18 | 07:00 | 6,097.02 | 4.24 | 90 | 87.1 | 18 | 17.0 | 7 | | | NB | | |
| 19 | 07:00 | 5,486.74 | 3.81 | 85 | 85.5 | 4 | 3.1 | 6 | | | NB | | |
| 20 | 07:00 | 4,796.57 | 3.33 | 90 | 87.9 | 4 | 3.3 | 6 | | | MB | | |
| 21 | 07:00 | 4,505.14 | 3.12 | 90 | 91.6 | 3 | 2.6 | 6 | | | MB | | |
| 22 | 07:00 | 4,343.67 | 3.02 | 94 | 95.4 | 3 | 3.1 | 6 | | | NB | | |
| 23 | 07:00 | 4,339.55 | 3.02 | 90 | 92.8 | 3 | 2.7 | 8 | | | NB | | |
| 24 | 07:00 | 4,333.02 | 3.00 | 90 | 90.0 | 4 | 3.7 | 6 | | | MB | | |
| 25 | 07:00 | 4,333.02 | 3.00 | 90 | 93.6 | 3 | 2.8 | 7 | | | MB | | |
| 26 | 07:00 | 4,333.71 | 3.00 | 91 | 90.7 | 4 | 2.7 | 7 | | | MB | | |
| 27 | 07:00 | 4,342.29 | 3.02 | 95 | 89.0 | 3 | 2.8 | 7 | | | CG | | |
| 28 | 07:00 | 4,387.88 | 3.05 | 84 | 83.4 | 4 | 3.6 | 6 | | | CG | | |
| 29 | 07:00 | 4,398.52 | 3.05 | 90 | 91.7 | 5 | 4.6 | 7 | | | BD | | |
| 30 | 07:00 | 4,347.76 | 3.02 | 96 | 95.4 | 4 | 2.9 | 8 | | | BD | | |
| 31 | 07:00 | 4,301.14 | 2.98 | 102 | 100.9 | 5 | 4.2 | 8 | | | MH | | |

CHS Refinery #3 03/2023

# 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 | 72.00 | 03/07/2023 | 7.23 | 03/07/2023 | 779.0 | 03/07/2023 | 03/20/2023 | | |
| 2 | 80.50 | 03/14/2023 | 7.36 | 03/14/2023 | 812.0 | 03/14/2023 | 03/27/2023 | | |
| 3 | 79.10 | 03/21/2023 | 7.90 | 03/21/2023 | 1,050.0 | 03/21/2023 | 03/27/2023 | | |
| 4 | 74.20 | 03/28/2023 | 7.65 | 03/28/2023 | 957.0 | 03/28/2023 | 04/03/2023 | | |
| 5 | | | | | | | | | |

## No monthly injectate samples required.

CHS Refinery #3 03/2023

# Quarterly Injectate Samples

**Quarter** 1
**Date Sample Collected** 03/07/2023
**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 |
|---|---|---|
| 1,2 Dichloroethene | ND | mg/l |
| Ammonia | 7.200 | mg/l |
| Benzene | 0.077 | mg/l |
| Calcium | 144.000 | mg/l |
| Conductivity | 3.600 | Mmhos |
| Ethylbenzene | 0.011 | mg/l |
| Iron | 3.270 | mg/l |
| Magnesium | 17.000 | mg/l |
| Oil & Grease | 6.400 | mg/l |
| Sodium | 517.000 | mg/l |
| Sulfate | 612.000 | mg/l |
| Toluene | 0.094 | mg/l |
| Total Alkalinity as CaCO3 | 459.000 | mg/l |
| Total Dissolved Solids | 2,170.000 | mg/l |
| Total Suspended Solids | 33.600 | mg/l |
| Trichloroethene | ND | mg/l |
| Xylene | 170.000 | mg/l |
| | | |
| | | |
| | | |
| | | |
| | | |
| | | |