

Engineering Services

QPSE personnel have many years of experience working with the CHS McPherson Refinery and continue to offer knowledge and expertise to all aspects of the plant. QPSE has performed a variety of engineering projects:



Furnace Charge Pump Turbine Replacement

- **RV-0522 Relocation:** Relocation of RV-0522 to lower elevation, including redesigning the tower overhead line going to the air coolers and stress analysis.
- **Furnace Charge Pump Turbine Replacement:** Piping design to allow for replacement of pump turbine with new manufacturer.
- **8-Inch Natural Gas Line Replacement:** Piping design for upsizing of natural gas line from high-pressure Kansas Gas Service main header into plant locations feeding, propane flare, maintenance shed, laboratory, gas heater exchanger, and connect to fuel gas header inside plant.
- **Alky Mitigation Valves:** Piping design to redesign underground alky mitigation piping to include additional valves and remove excess piping.
- **TA-0041 Firewater Tank Project:** Engineering design to install new pump building and piping for new firewater tank.
- **Lube Oil Piping:** Modifying a lube oil system on "B" coker furnace charge pump.

LOCATION

Kansas

AWARD DATE

December 2018

COMPLETION DATE

August 2019

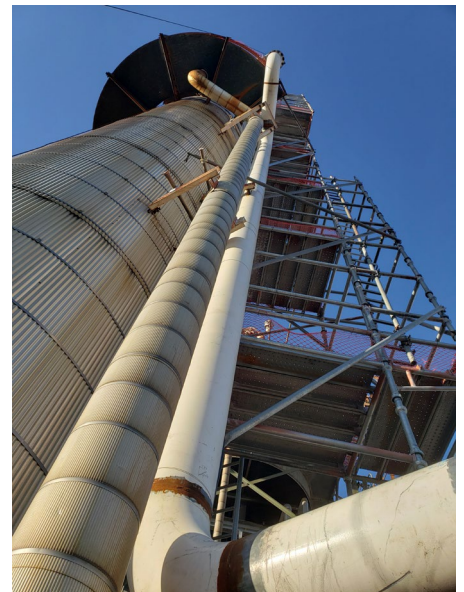
SERVICE OFFERING

Refinery engineering services

HIGHLIGHTS

Midwest refinery running at approximately 120,000 bbls/d of crude

Output includes: diesel products (including ULSD), gasoline (blended for many markets), propane, butane, coke, and various fertilizer products using sulphur



RV-022 Relocation



8-inch Natural Gas Line Replacement

Capital Project Assistance

To assist the client with their 2020 capital budgets, QPSE prepared $\pm 30\%$ cost estimates and scopes of work for the upcoming projects:

- **Sulphur Recovery Unit #1 Nitrogen Header:** EPC cost estimate for 2-inch nitrogen header to the #1 Sulphur Recovery Unit.
- **Desalter Spiral Exchanger:** EPC cost estimate to add additional spiral exchanger to allow for flow separation of desalter water piping.
- **Fuel Gas Coalescer for Platformer/CCR Heater:** Cost estimate for procurement and construction to install new FG coalescer in existing fuel gas piping going to HP-0017 platformer/CCR heater.
- **Platformer Stabilizer Caustic Wash System:** EPC cost estimate to upgrade the overhead caustic wash system for platformer/CCR unit.
- **Upgrade Finished Gasoline Tanks Piping:** EPC cost estimate to upsize piping in the east tank farm area on gasoline lines coming from three tanks.
- **Naphtha Debutanizer:** EPC cost estimate to add naphtha debutanizer unit to refinery unit train.