



Processing Facilities

Harmattan Gas Processing LP Gas Plant Fractionation Train 2 Addition

Harmattan Gas Processing LP (an AltaGas company) expanded their Natural gas liquid (NGL) fractionation capacity at the Harmattan Gas Processing Plant at LSD 09-27-031-04 W5M.

The project involved the engineering, procurement and construction management for the addition of a second fractionation train at the Harmattan Gas Plant, consisting of a Depropanizer train and Debutanizer train operating in parallel with the existing trains. A new MCC building and transformer service was added specifically for this project, and the existing propane mole sieve product treating was expanded from two (2) to three (3) towers. Additionally all control of the propane and butane mole sieve treater switching valves and cycle times were rewired back to the new control system located in the new MCC building.

The new fractionation train is designed to process 60 m³/hr (9,000 bbl/day) trucked-in NGL feed, however we provided some equipment upgrades during design, and performance tests have indicated that this plant can be easily

modified in order to process up to 80 m³/hr (12,000 bbl/day) NGL feed.

The plant consists of two (2) 60" dia x 98' s/s (nominal) tower vessels (Depropanizer and Debutanizer), with accompanying skid modules that are stacked in a 3-storey arrangement to allow for the hydraulics of the process.

A complete gas chromatograph system is housed in its own skidded building located between the towers and sampling six separate points in the system. The arrangement is designed with maintenance in mind, with easy access to the pumps, platforms where required, safety tie-offs as required, etc.

We were originally scoped to relocate a complete surplus plant for this project, but when that plant became unavailable the client then evaluated and purchased surplus used equipment (Assisted with the initial evaluation). The added scope of a major detailed equipment evaluation task for us then began.



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Although we were able to refurbish and use most of the API-610 pumps, unfortunately much of the rest of the surplus equipment was identified as non-useable for our project. Also in our scope, we engineered the entire process and performed detailed design for shop construction of all module layouts. We were able to maintain a controlled fast pace throughout the added work scope which allowed the plant start-up to occur within 11 months from our in-house project kick-off.

Our scope of work included:

- Conceptual Design (pre-FEED)
- FEED
- Surplus equipment inspection, and rating for suitability of re-use
- Process investigation scenarios
- Material and energy balances
- Detailed engineering
- Procurement and expediting
- Constructability reviews

- Field construction support
- HAZOP reviews
- DBM preparation
- Capital cost estimate (Appropriation Grade)
- 60% and 90% 3D Model reviews
- Shutdown Key Reviews

Engineering deliverables and construction drawings/documents in the different engineering/design disciplines, including Process, Mechanical, Piping, Instrumentation, Electrical, Civil and Structural, design and 3D model, sourcing of equipment and bulk items, procurement and expediting (in cooperation with Harmattan Procurement Department) were completed by our team.

In addition to the area-specific drawings, the overall plant process flow (PFD) and safe guard diagrams (SGD) were updated as part of the scope of work.