

Processing Facilities

Harmattan Gas Processing LP Plant Capacity Expansion, Steam Pre-Heat Exchanger and Acid Gas Enrichment Projects

Harmattan Gas Processing LP (an AltaGas company) expanded their gas processing capacity and CO2 recovery process at the Harmattan Gas Processing Plant at LSD 09-27-031-04 W5M.

These projects involved the engineering, procurement, construction management, tie-ins and associated control devices for the addition of three new sour gas inlet compressors, one high pressure inlet separator, one new MCC building, and one new acid gas blower.

Risers, piping tie-ins, pipe racks and plot plan design for the new plant inlet area. Design of instruments and controls and the addition of the following major equipment.

(1) Low pressure sour gas compressor, capacity of 10 MMSCFD

- One new 1450 hp natural gas engine driven two stage compressor package, PLC control panel, H2S, LEL and Fire detection, building and heaters. Fully modularized and self-contained with a skid-mounted self-framing steel building.

(2) Medium pressure sour gas compressor, capacity of 10 MMSCFD

- One new 1450 hp natural gas engine driven two stage compressor package, PLC control panel, H2S, LEL and Fire detection, building and heaters. Fully modularized and self-contained with a skid-mounted self-framing steel building.

(3) High pressure inlet sour gas compressor separator and compressor, normal capacity of 35 MMSCFD (maximum capacity up to 75 MMSCFD).

- One 96" ID x 30' S/S Horizontal Sour Inlet Separator, three phase design with inlet and outlet pressure control valves and senior meter run, fully modularized and self-contained with a skid-mounted self-framing steel building.

- One new 1450 hp natural gas engine driven single stage (convertible to two stage via spectacle blinds) compressor





Processing Facilities

Harmattan Gas Processing LP Plant Capacity Expansion, Steam Pre-Heat Exchanger and Acid Gas Enrichment Projects

package, PLC control panel, H2S, LEL and Fire detection, building and heaters. Fully modularized and self-contained with a skid-mounted self-framing steel building.

- One (1) MCC building installed for the new inlet area, sized to accommodate all new equipment and future addition of one new compressor package.

(4) Preheat exchanger addition to the hot oil heat medium system, to heat the oil medium (using surplus plant utility steam) prior to its entering the main direct-fired oil heater.

The purpose is to reduce the load duty on the oil heater by offering an additional heat source and to allow future flexibility for the plant hot oil heat medium system. The equipment design was for sweet service, utility commodities of steam (tube side) and hot oil heat medium (shell side).

- One (1) hot oil / steam shell & tube heat exchanger, 250 psig MAWP @ 600 oF shell side, 500 psig MAWP @ 500 oF tube side.

(5) Low pressure acid gas blower, to allow recycling of acid gas from the sulphur plant inlet feed back to the CO2 reconcentrator in the amine system, with the net effect being to increase the pure CO2 product stream to sales, with additional benefit of increasing H2S concentration of the inlet feed for better operation of the sulphur plant.

- One (1) 40 hp electric motor driven blower package with stainless steel aerial process cooler, control devices, H2S, LEL and Fire detection, building and heaters.

Our scope of work included:

- -Conceptual Design (pre-FEED) -FEED
- -Process investigation scenarios
- -Detailed engineering
- -Procurement and expediting
- -Constructability reviews
- -Field construction support
- -HAZOP reviews





Processing Facilities

Harmattan Gas Processing LP Plant Capacity Expansion, Steam Pre-Heat Exchanger and Acid Gas Enrichment Projects

-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.

