

SECTION 4: DESIGN DESCRIPTION

The design basis of this stabilizer package is to process a Condensate flow of 5953 barrel/day at Inlet Pressure of 159 psig and temperature 39 °F to produce a stabilized liquid product with RVP equal or less than 14.9 psia at 100 °F when provided with sufficient heat medium.

The inlet liquid feed is preheated in the Feed Preheater (H-700) using heat medium. The liquid feed is then flow controlled (with level override) before being fed to the Inlet Feed Drum (V-710). The feed drum pressure is maintained at 101 psig (700 kPag) using a back pressure control valve (PCV-710). Since the back pressure control valve (PCV-710) is a fail close (FC) valve, a blowdown valve (PCV-720) is provided to blow down the gas in case of process upset or if pressure in the feed drum exceeds 130 psig (900 kPag). A pressure regulator (PRV-710) is also provided to supply the blanket gas if pressure gets below 72 psig (500 kPag). The water is separated from the inlet liquid, collected in the boot and then level controlled (LCV-710) to the skid edge.

A split stream of Hydrocarbon liquids from the Feed Drum is preheated to 150 °F in a Feed Bottoms Exchanger (E-720) using the hot bottoms product from Stabilizer (T-730). This preheated hydrocarbon is then flow controlled (FCV-711) and fed to the stabilizer column's (T-730) mid section. A 5% split of the Feed Drum's hydrocarbon liquids is temperature controlled (TCV-730) with either level or flow override and fed into the top of the Stabilizer tower.

The stabilizer is a non-refluxed type tower complete with 20 valve trays. The liquid from the bottom of the tower flows to the Stabilizer reboiler (E-740), where it is reboiled at 280 °F using heat medium. The stabilizer tower pressure is maintained at 75 psig (515 kPag) using a back pressure control valve (PCV-733). Since this valve is a fail close (FC) valve, a blowdown valve (PCV-732) is provided to blow down the gas in case of process upset or if pressure in the stabilizer tower exceeds 95 psig (650 kPag). The vapour from the Stabilizer Feed Drum and Stabilizer Tower overhead combined and delivered at the skid edge.

The stabilized condensate is first cooled in the feed/bottom exchanger (E-720) and then further cooled to 105 °F in the C5+ Product Air Cooler (E-725). It is then level controlled (LCV-730) before delivering to the skid edge for storage.