

Automatic Sampling System Reservoir Evaluation and Appraisal



Client:

Statoil

Location:

Kårstø Gas Processing Plant

Equipment:

Proserv Automatic Sampling System

Design: 19,0 Bar @ -50 +50 degrees C

Medium: Liquid Propane and Butane

Project Background

Since its start-up in 1984, Kårstø Gas Processing Plant has been processing rich gas and sampling the separated natural gas liquids (NGL) such as liquefied petroleum gas fractions propane and butane (LPG).

Sampling of LPG has had its challenges. In addition to the low temperature causing valves to freeze, chemical and mechanical incompatibility with the low temperature LPG may cause seals to absorb system fluids and swell. The lack of lubricating abilities in the LPG also generates high friction in the dynamic seals and they can get damaged or twisted in the sampling equipment. Another cause for frustration has been evaporation and phase transition in the grab sampler and sample receiver because of pressure, volume and temperature changes.

Kårstø established a LPG sampling system equivalent to the ones seen in conventional crude oil sampling, and when the old metering stations were to be replaced in 2010, a new opportunity to further develop the LPG sampling stations arose. At Kårstø up to five batches can be loaded simultaneously, manual sampling is no longer the simplest option, and therefore installation of an automatic sampling system was decided.

Solution

Proserv was presented with the opportunity to design and deliver the next generation system for sampling LPG. Familiar with the challenges, the immediate response was to seize the assignment with fresh ideas, and look past the conventional products for crude oil sampling as phase transition in the sampler were a challenge in LPG sampling.

In combining our knowledge of pneumatic driven liquid pumps and our experience in production sampling, our solution was to use a conventional pneumatic driven piston type pump in an unconventional way - as a sampler.

Benefits

Automatic retrieval of samples from multiple pipelines increases uptime

Save up to three man-year when compared to manual sampling

