Elevated Flare Systems for Burn Pit Replacements

In September 2013, Escher Process Modules (Escher) was awarded a contract from Petroserv Limited for the (EPIC) delivery of eight flare systems to Qatar Petroleum – for "mitigation of burn pits in Dukhan Project". The flares will replace the eight burn pits of the Dukhan gas fields of Qatar Petroleum. Currently, the main flare components are manufactured in the Netherlands and shipped to Qatar. The local production of the flare stacks started December 2014. The installation followed by commissioning and start-up of the first flare systems is planned for mid-March 2015. By the end of 2015, all the burn pits will be replaced.

Replacement of Dukhan Burn Pits

A burn pit is an area devoted to open-air combustion of hydrocarbons. In Qatar, there are many gas fields with several burn pits to combust the excess gas released during start-up, shut down and emergency situations. The Dukhan gas fields in Qatar comprise eight burn pits. To adhere to the environmental and safety objectives set in place, the burn pits are replaced by elevated flare systems (60 metres tall) with a smokeless combustion.

Elevated Flare Systems

Each flare system consists of a flare stack of 20 or 18 inches in diameter and 60 metres tall. The stack is supported by a guy wired system. A molecular seal (purge gas reduction device) will be installed on the flare stack. On top of this, there will be an open pipe type flare tip with pilot burners.

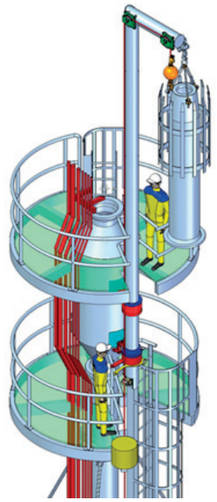
Excess gas released during start-up, shut down and emergency situations will be combusted at the flare tip. This is done at a height of 60 metres. The height is needed to keep the radiation levels on the ground within acceptable safety levels.

The molecular seal between the flare stack and the flare tip is required to delay ingress of air to avoid internal combustion in the stack and minimise the amount of purge gas.

On the ground level (but outside the heat affected zone or 'sterile area'), an ignition and control panel will be installed that ignites and feeds the pilot burners on the flare tip. The pilot burners will always be burning so that if there is a release of excess gas, the gas will be ignited.

Maintenance

The flare tip of the flare systems is the part that needs regular inspection and maintenance. Because the flare stacks will be installed in the desert gas fields, the systems need to be easy to maintain. Therefore a retractable davit arm will be installed on the molecular seal to lift the flare tip on and off the flare stack. This allows for the retraction of the davit (when not in service) below the platform and out of the heat effective zone around the flare tip.



Current Project Status

Escher is responsible for the overall design of the complete flare systems and delivered the designs, flare tips, molecular seals, guyed wires and ignition panels. Escher's partner in Qatar is currently manufacturing the flare stacks under Escher's supervision.

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