



Application note

flare.IQ pilot demonstrates emissions reduction and cost savings potential for an NGL facility

Benefits

- Easy to install and deploy
- Continuous emissions monitoring
- Optimize CE/DRE
- Reduction in CO_{2eq} emissions



Summary

Most of the national and international energy companies as well as independents have committed to reach carbon neutrality by 2050. One of the biggest sources of greenhouse gas emissions in the oil and gas industry is flaring activities.

Methane is one of the most harmful forms of emissions. It is 86 times more potent than carbon dioxide over a 20-year period.

Incomplete flaring is one of the major causes of methane slip emissions across the oil and gas industry.

Mixing the right amount of vent gas, fuel and steam at the flare tip enables the customer to optimize combustion, ensuring flares are burning efficiently, and therefore minimize emissions.

With ever more ambitious decarbonization strategies, operators are increasingly turning to advanced digital solutions to monitor, measure and drive down methane emissions.

Panametrics' revolutionary flare.IQ technology significantly reduces methane slip emissions and minimizes costs from flaring operations. By using flare.IQ and its advanced analytics platform, operators can pull critical information about their flare system, including temperature, pressure, vent gas velocities and gas composition to calculate the optimum levels of flare performance and ensure 98%+ Destruction and Removal Efficiency (DRE).

A key element in Baker Hughes' energy transition portfolio, flare.IQ is easy to deploy, cost effective and has a proven track record in optimizing flare operations and significantly reducing methane emissions.

Recognizing the opportunity to reduce emissions, a large operator located in the Middle East signed an agreement with Panametrics to pilot flare.IQ at one of its NGL trains.

Challenge

While all operators typically report their flare Destruction and Removal Efficiency as 98%, based on the flare tip design by the original equipment manufacturer, several independent studies have demonstrated that it can be much lower for so-called assisted flares, i.e., flares using steam as was the case in this pilot.

As the customer selected a steam assisted acid flare, the challenge became more complex due to the additional risks from unburned acid gas mixtures for the nearby urban area leading to potential hydrogen sulfide release and odors.

All the required flare data was investigated and analyzed and pre-programmed into flare.IQ, prior to installation and commissioning.

Applications

- Steam assisted flare

Solution

The operator's research & development team signed an agreement with Panametrics to pilot flare.IQ at one of its NGL production trains.

After extensive testing and a thorough performance review, Panametrics issued a report with several recommendations to optimize flare performance.

Specifications

The operator congratulated Panametrics for the results and took note of a needed hardware upgrade of the field instruments.

With this upgrade in place, using flare.IQ the customer can achieve the following benefits:

- Flare efficiency to improve from 66.5% to 94%
- 78% reduction in methane emissions, from 0.09 tons per hour to 0.02
- 82% reduction in CO2 equivalent emissions, from 2.21 tons per hour to 0.39
- 78% reduction in steam volume, from 1.12 tons per hour to 0.25, as well as fuel gas consumption reduction
- Smokeless operation in cascade mode
- OGMP Level 4 compliance

Panametrics is now exploring options with the operator to enable the hardware improvements and roll out flare.IQ across many of its operations.

Panametrics, a Baker Hughes business, provides solutions in the toughest applications and environments for moisture, oxygen, liquid and gas flow measurement.

Experts in flare management, Panametrics technology also reduces flare emissions and optimizes performance.

With a reach that extends across the globe, Panametrics' critical measurement solutions and flare emissions management are enabling customers to drive efficiency and achieve carbon reduction targets across critical industries including: Oil & Gas; Energy; Healthcare; Water and Wastewater; Chemical Processing; Food & Beverage and many others.

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