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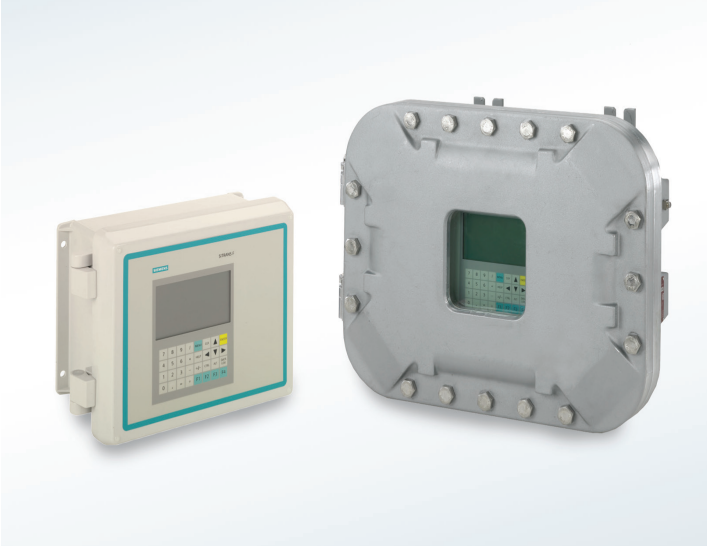
SITRANS FUG1010 provides safe flash gas measurement solution

Overview

Once oil leaves a three-phase separator and passes through the heater treater process, it arrives in the production storage tanks. The gas that separates itself from the oil while being stored in the tanks is known as flash gas. Flash gas emissions from storage tanks include hazardous air pollutants and toxic air contaminants, both of which the Environmental Protection Agency (EPA) has issued regulations to reduce. With 40 CFR 60 Subpart OOOO regulations commonly referred to as Quad O, accurate flash gas monitoring and data gathering has been a challenge and must be addressed.



There are two solutions for flash gas: capture the flare gas in a vapor recovery unit or send the gas to a flare if the cost of a VRU is not feasible. Either way, accurate gas flow measurement is necessary to determine how much gas is being flared, due both to EPA regulations and because the lease owner is paid based on the amount of product exiting the well, regardless of whether the production company is selling or flaring the product. In the following section we will discuss the flare solution.

Challenges

The main obstacle that comes into play when discussing the flaring of flash gas is the fact that the production tanks are not designed to handle high pressures. The pressure for which a relief valve is designed in this application is very low, ranging anywhere from .15 PSI to 1 PSI.

Any pressure inside of these tanks could harm the vessel. Hatches on top of the tanks can be damaged or, even worse, the seams of the tanks can be compromised and eventually cause a leak. Most gas flow monitoring typically causes some back pressure in the line, which is unacceptable in this application due to the fact that the tanks cannot handle the pressure.

This eliminates technologies such as Coriolis and differential pressure. Another obstacle is that the line pressure inside the pipe is very low. The inability to increase flow velocity without creating back pressure makes it very challenging to find appropriate flow measurement instrumentation for flare gas.

Solution

The best solution for this application is to use a polypropylene spool piece with flanged ends mounted in the flare line. Accompanying this spool piece is a Siemens SITRANS FUG1010 clamp-on ultrasonic flow meter. The Siemens clamp-on meter provides flow measurement without the risk of creating back pressure and damaging the production tanks. Paired with the spool piece, the SITRANS FUG1010 makes the ultrasonic signal readable at low pressures and generates data that is accurate enough to report to the EPA as well as the leaseholder.

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