World class metering solution for LNG terminal

Total energy metering concept proves to be highly suitable for LNG regasification terminals

Elster-Instromet in Essen, Belgium, is renowned for building highly accurate ultrasonic meters, as well as gas regulating and metering stations of every size. Various Elster-Instromet and third party equipment is integrated into highly accurate quantity and quality turn-key solutions as per individual client specifications.

In 2005, Elster-Instromet was selected by Tractebel Engineering GmbH for the supply of a total energy metering system for the Reganosa LNG terminal in La Coruna, Spain. Spain is the biggest European LNG importer, and the third globally (after Japan and Korea). The Reganosa LNG terminal makes up 9% of the Spanish LNG imports.

This terminal provides berths for 145,000 m^3 LNG carriers, initially 2 x 150,000 m^3 full containment LNG storage tanks (with room for two more). Installed send-out capacity is 619,200 Nm^3/h. The project was realised on a compact site of only 9 ha forcing the engineering team to optimise and compromise between safety criteria as per EN 1473 and plant maintenance and operability.

Reganosa LNG terminal on only 9 ha with the two eye-catching 150,000 m^3 full containment LNG storage tanks

LNG (Liquefied Natural Gas) is a method for transporting methane gas over long distances. The gas is liquefied on the gas production site prior to transportation and is then transported as a cooled liquid in LNG carriers. The tankers deliver the LNG to a LNG regasification terminal comprising LNG tanker unloading facilities, LNG storage tanks, regasification units and gas export pipeline(s). The LNG has to be regasified before it can be transmitted through a pipeline distribution network. The vaporisation takes place in the regasification unit.

At the Reganosa LNG terminal, seawater is used for vaporisation of the LNG, a battery of vertical radiators above a sump, where seawater flows continuously down the external faces of the radiators by gravity, as high pressure LNG boils inside. The amount of seawater necessary is dependent on the available (or allowable) temperature drop of the heating water discharge. A submerged combustion vaporiser is installed as a back-up.

After regasification and before the gas enters Spain's gas distribution network, quantity and quality measurement is performed by the Elster-Instromet metering system including gas filtering and high pressure odorant injection.

The complete metering system is a typical example of Elster-Instromet's total energy metering concept integrating high-accuracy Elster-Instromet products such as two 16" Q-SONIC 4C ultrasonic meters, FC 2000 flow computers and an EnCal 3000 gas analyser. The supervisory system constantly monitors all accuracy-related equipment using the velocity of sound diagnostics software, generates measurement reports and communicates with the DCS system of the Reganosa LNG plant.

A high pressure odorant injection skid was designed by Elster-Instromet which is able to inject odorant up to a pressure of 100 barg into the gas distribution line. The amount of odorant injected is controlled by a PLC depending on the normalised volume.

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