

Emerson's Smart Wireless Technology Validates Crude Oil Temperature Monitoring in Storage Tank Protection Systems at BP Dalmeny Terminal, UK

BENEFITS

- Temperature measurements obtained from remote storage tank roof
- Validation of existing protection system
- £15,000 (23,000 USD) recoil system not required
- Wireless infrastructure enables future expansion



CHALLENGE

Eight interconnecting storage tanks between 40-50m in diameter are used to regulate the flow of stabilised crude oil between production wells and the tankers or pipeline that will transport it to the refinery.

BP records and monitors the temperature of the crude within the tanks via temperature probes mounted on the side of the tank. However it was not known if there was a temperature gradient across the large tanks. Without this knowledge it was impossible to say if the protection system was adequate. A number of measurements were therefore required to confirm any differences in temperature. This presented a challenge because the tanks needed to remain in use, making installation of temperature probes impossible.

An out of service tank with no existing temperature measurement in place presented the perfect opportunity to install the necessary instrumentation. However, there was no cabling infrastructure in place for this specific tank so if BP had installed wired transmitters they would have also had to install a cable recoil system to cope with the floating roof. This would have cost over £15,000 (23,000 USD).

SOLUTION

Two Rosemount® wireless temperature transmitters were installed, one in the centre and one two thirds across to determine if there was a difference in temperatures throughout the tank. A further transmitter was installed on the main inlet feed. The transmitters are located roughly 300m from a Smart Wireless Gateway positioned on the outside wall of the control room. Using a serial connection, data is fed from the gateway into the existing SCADA system.

“We have been very impressed with the Smart Wireless technology. This site experiences extreme weather conditions, but this has not affected reliability at all.”

Robin Hamill

Electrical Instrumentation Engineer
BP Exploration Operating Company

Installing the Smart Wireless devices was very easy and it took a day to complete the entire project including configuring the serial link to the SCADA system. Emerson's AMS® suite of predictive maintenance software is used to manage the wireless network. Since the wireless network was installed it has been extremely reliable with no data lost.

RESULTS

Using the data from the Smart Wireless transmitters BP discovered that there was not a significant difference in temperature at different points in the tank. They were therefore able to confirm that their existing method of monitoring temperature in the tanks was both accurate and reliable.

BP continues to measure crude oil temperatures in the tank using the Smart Wireless devices. This wireless infrastructure will enable additional wireless instruments to be added quickly and easily in the future.

“The Smart Wireless infrastructure enables us to expand and add additional devices beyond this application without the need for additional cabling infrastructure and the cost associated with it.”

Robin Hamill

Electrical Instrumentation Engineer
BP Exploration Operating Company

©2010 Emerson Process Management. All rights reserved.

The Emerson logo is a trademark and service mark of Emerson Electric Co. Rosemount and AMS are marks of one of the Emerson Process Management family of companies. All other marks are property of their respective owners.

The contents of this publication are presented for information purposes only, and while effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or service described wherein or their use or applicability. All sales are governed by our terms and conditions, which are available on request. We reserve the right to modify or improve the designs or specifications of our products at any time without notice.

Emerson Process Management

12301 Research Blvd.
Research Park Plaza, Building III
Austin, TX 78759
USA

www.EmersonProcess.com