

FH Tank Storage Meets Latest Safety Requirements Using Smart Wireless Differential Pressure and Radar Transmitters

RESULTS

- Met latest environmental and safety requirements
- Estimated installation savings of €50,000 - €100,000
- Reduced delivery uncertainty
- Increased personnel safety

APPLICATION

Overspill protection of tanks at petrochemical storage terminal

CUSTOMER

FH Tank Storage AB - Kalmar, South-East Sweden

CHALLENGE

To meet the latest environmental and safety requirements, overspill protection was required on existing tanks storing solvents, petrol, and a range of chemicals. Previously there was no instrumentation in place. Level measurements were performed manually, with operators climbing on tanks roofs. There was a risk of potential injury, especially during winter when temperatures fall to -20 °C (-4 °F). FH Tank Storage wanted to automate these measurements and remove any potential human error when recording, calculating, and listing tank levels on a white board. Some tanks are over 200m from the main control room and new cable infrastructure was required. This would have involved extensive groundwork at a cost of between €50,000 - €100,000. While these works were being completed, fuel tanker traffic around the site would have been seriously disrupted. The storage tanks varied in size and a number of the larger tanks have floating roofs. Minimizing the number of types of level devices was preferred to enable easier maintenance and reduced inventory.

SOLUTION

Emerson's PlantWeb digital architecture, with a plant wide Smart Wireless network based on the IEC 62591 (WirelessHART®) standard, DeltaV™ automation system, and Rosemount® level and pressure transmitters has been installed and provides both the automated tank storage level monitoring and overspill protection.

Fourteen Rosemount 3051S wireless differential pressure transmitters have been deployed on smaller size tanks and 15 Rosemount 5402 non contacting radars on larger tanks. Smart Wireless THUM™ Adapters are connected to each of the radars to transmit the data via the wireless network. The Rosemount 5402 devices are able to cope with very large tanks and floating roofs. A Rosemount 848T wireless temperature transmitter with four inputs connecting four temperature sensors has also been installed to provide continuous temperature information for four tanks.



“As well as improving the monitoring of tank levels the new system has provided a fully approved overspill protection solution.”

Lars Ferm
Site Manager
FH Tank Storage



Wireless 3051S differential pressure transmitters automate 14 of the solvents, petrol, and chemical tanks. Both level technologies eliminate manual entry errors and improve safety.

Measurement data is transmitted back to Emerson's DeltaV digital automation system in the main control room. A large screen provides operators with visualisation of all the tanks, tank levels and any high level alarms or instrumentation failures. Emerson's AMS Suite predictive maintenance software is used to monitor the health of both the wireless network and the individual wireless transmitters. This improves the efficiency of maintenance staff by identifying faults and reducing the number of trips into the field.

FH Tank Storage has ordered 15 Rosemount radars and THUM Adapters to automate 15 more tanks. Rosemount radar devices and THUMs are also expected to provide the level measurements and overspill protection for five tanks currently under construction.

"Emerson's Rosemount level, pressure and temperature transmitters, and Smart Wireless network have enabled us to implement a cost effective automated measurement system," concluded Lars Ferm, Site Manager, FH Tank Storage.

RESOURCES

Emerson Process Management Oil and Gas Industry

<http://www2.emersonprocess.com/en-US/industries/oil-gas/Pages/OilandGas.aspx>

Rosemount Wireless Products

<http://www2.emersonprocess.com/en-US/brands/rosemount/Wireless/Pages/index.aspx>

Rosemount Non-Contacting Radar 5400 Series

<http://www2.emersonprocess.com/en-US/brands/rosemount/Level/Non-contacting-Radar/5400-Series/Pages/index.aspx>



Rosemount 5402 non-contacting radar measurement devices with Smart Wireless THUM's were placed on large tanks and over floating roofs to automate tank level measurements and overspill protection.

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