Smart Wireless Network Assures Bitumen Pipeline Stays Hot During Ship Unloading at Terminals Pty Ltd in Australia

BENEFITS

- Wireless was selected for its lower initial cost and minimal maintenance compared with hard wiring

- Smart Wireless instruments monitor heat-tracing on pipeline which must be hot to facilitate pumping

- Readings are sent to AMS Suite predicitive maintenance software for instrumentation configuration and performance monitoring

CHALLENGE

Terminals Pty Ltd needed a reliable solution to monitor temperatures in a 900-meter-long 8-inch (200mm) heat-traced pipeline used for unloading bitumen from ships at its Geelong Terminal in Australia. It is necessary to make certain the electric heaters are operating all along the pipeline to keep the bitumen hot (160°C) and fluid. If a heater fails, a cold spot could form causing the bitumen to solidify and plugging the line with expensive consequences.

SOLUTION

Emerson's Smart Wireless technology was selected for its lower initial cost and minimal maintenance as compared with hard wiring. Eight Rosemount® wireless temperature transmitters are evenly spaced along the pipeline, sending temperature readings on one-minute intervals to a Smart Wireless Gateway on shore that channels data to the AMS® Suite predictive maintenance software used for instrument configuration and performance monitoring. The collected data are also forwarded to a SCADA system in the terminal control center via fiber-optic cable.

> *"We needed to monitor the bitumen line to make the operators aware of cooling anywhere in the line from the ship to the storage facility, which could result in an emergency shutdown. Any delay in unloading could keep a ship at the pier longer than planned with demurrage costing up to $30,000 US per day."*
>
> **Joe Siklic**
> Bitumen Terminal Project Manager
> Terminals Pty Ltd

For more information:
www.EmersonProcess.com/SmartWireless

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RESULTS

Due to the self-organizing nature of this technology, each wireless device acts as a router for other nearby devices, passing the signals along until they reach their destination. If there is an obstruction, transmissions are simply re-routed along the mesh network until a clear path to the Smart Wireless Gateway is found. All of this happens automatically, without any involvement by the user, providing redundant communication paths and better reliability than direct, line-of-sight communications between individual devices and their gateway. This self-organizing technology optimizes data reliability while minimizing power consumption.

This is an ideal application for wireless. Since numerous paths exist to carry the transmissions, the network would easily compensate for a transmitter failure, and the operators would be warned. This wireless network has proved to be reliable, compatible with existing control equipment, and cost effective. The amount of structure on the wharf is minimal, and that is another benefit.

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