

Wireless Corrosion Monitoring Solution Enables Faster Refinery Startup, Avoiding Production Loss of 200,000 Barrels per Day

Results

- 200,000 barrels and £1,000,000 saved in lost production per day
- Real-time monitoring of Fluid Catalytic Cracking unit
- Avoided unit shutdown for manual inspection
- Prompt refinery startup with no additional loss of production



Application

Monitoring of Fluidic Catalytic Cracking (FCC) unit.

Customer

A large European refinery.

Challenge

The FCC unit is a key process within the refinery that is used to convert high molecular weight hydrocarbon fractions of petroleum crude oils into more valuable gasoline, olefinic gases, and other products.

During the facility's major shutdown of the FCC unit the customer planned to install specialized erosion-resistant material on the secondary regeneration cyclones. Due to constraints resulting from the global pandemic, contractors were unable to travel to the refinery to complete the lining installation process.

Without the lining, the cyclones would be at risk of internal erosion caused by the catalyst. The FCC unit is fundamental to refinery operation and without a solution the refinery could not be restarted. The customer required a technology that would continuously monitor the vessel wall thickness with confidence to ensure FCC unit cyclone reliability. It was critical that the solution be scoped, designed, installed, and commissioned within a 14-day time frame from first customer contact.

Solutions

Emerson mobilized in three days and carried out an initial site survey to ensure sensor locations could be monitored from a location where the wireless gateway would connect to the local network. Sixty-four Rosemount™ Wireless Permasense WT210 Corrosion and Erosion Monitoring Systems and 30 Rosemount Wireless Pressure Gauges were fitted in eight locations radially around the four cyclones. Repeaters were installed to provide a reliable wireless network design.

The entire corrosion monitoring system was commissioned within ten days of initial customer contact, allowing the refinery to startup quicker and avoid a potential production loss of 200,000 barrels per day.



Rosemount Wireless Permasense WT210 Corrosion and Erosion Monitoring System

REFINING

Battery-powered Rosemount Wireless Permasense WT210 ultrasonic sensors continuously measure pipe wall thickness. The wireless, non-intrusive design enabled quick and straightforward installation without the cost of wiring. Reliable and accurate wall thickness data is delivered via a *WirelessHART*® network from the sensor system to the accompanying software, which allows the customer to make better decisions regarding pipe maintenance and replacement.

The customer now has ongoing visibility of corrosion and erosion trends in real-time using unique ultrasonic sensors that continuously measure pipe thickness. The entire system was commissioned ten days from first customer contact, increasing plant availability and helping the facility to avoid any additional loss of production.

Resources

Emerson Automation Solutions Industries
[Emerson.com/Refining](https://www.emerson.com/Refining)

Rosemount Wireless Permasense Corrosion & Erosion Monitoring
[Emerson.com/RosemountCorrosion](https://www.emerson.com/RosemountCorrosion)

Rosemount Wireless Pressure Gauge
[Emerson.com/RosemountWirelessPressureGauge](https://www.emerson.com/RosemountWirelessPressureGauge)



The customer installed 64 Rosemount Wireless Permasense WT210 Corrosion and Erosion Monitoring Systems, one Emerson Wireless 1410H Gateway, and 30 Rosemount Wireless Pressure Gauges across eight locations in the facility

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