Corrosion Monitoring of Assets at Solvay

Application Benefits

Corrosion monitoring of four assets:
horizontal pipeline; column; vertical pipe; column manholes.

Client

Solvay –
Torrelavega Plant, Spain

Key Benefits

- **CorrosionRADAR®** technology provides support for more data-driven RBI programmes

- Continuous corrosion monitoring of asset health for CUI issues

- Strong correlation between sensor data and visual inspections

Challenge

Corrosion Under Insulation (CUI) is a major threat to industry, with the results of CUI leading to high maintenance costs, unplanned shutdowns and in extreme cases, catastrophic failures. Many of the current risk-based inspection (RBI) programmes used to tackle CUI are costly and reactive, risking missing areas of aggressive CUI.

Solvay, aware of the need for more data-driven programmes to move towards preventative maintenance and achieve the vision of Industry 4.0, partnered with **CorrosionRADAR (CR)** to implement new corrosion monitoring technology. The technology allows areas of high corrosion to be pinpointed and minimises the risk of missing CUI. Full removal of insulation is no longer required for repair of areas of concern, reducing maintenance costs.

Current RBI programmes lead to high maintenance costs and unnecessary system downtime.

Solution

CR's patented Electromagnetic Guided Radar (EMGR) system comprises long thin flexible sensors, installed permanently underneath the asset's insulation. EMGR waves are sent through the sensor, with reflections enabling points of corrosion to be found. Sensor data is transmitted wirelessly, with the choice of communications protocols including 3G, 4G, LoRa, WirelessHART and WiFi. Data can then be held on local servers or a cloud platform allowing for remote assessment of IIoT (Industrial Internet of Things) sensors.

Solvay and CR collaborated in the deployment of CR technology in Torrelavega, Spain. The Corrosion Monitoring System was installed on four assets: a horizontal pipeline; the base of a column; a vertical pipe; and around column manholes.

CR corrosion sensor mounted along a horizontal pipeline.

corrosion® RADAR

www.corrosionradar.com

CR engineers oversaw the smooth installation of corrosion monitoring systems on all four assets. The installations were carried out during planned insulation removals, causing minimal unnecessary downtime.

Results

- All four systems have achieved 100% uptime, transmitting information on asset health and CUI levels for analysis
- Corrosion has been detected on two of the four assets and, after consultation with Solvay, visual inspections carried out. Results of these inspections strongly supported sensor data and necessary repairs were undertaken in areas of corrosion
- The ability to remotely detect corrosion paves the way for more data-driven RBI, enabling preventative rather than reactive maintenance. This is made possible through the use of CR's Industrial Internet of Things (IIoT) systems, supporting the move towards Industry 4.0.

2D amplitude plot of data from when corrosion was first detected. The first peak represents the transition from bridge cable to sensor while the second indicates the presence of corrosion.
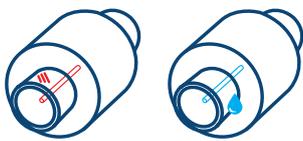
Sensor data pinpointed corrosion at 0.6m on the vertical pipeline. The steady decrease in signal strength from the first point of detection indicates propagation of corrosion. These results were confirmed by visual inspections performed by Solvay.
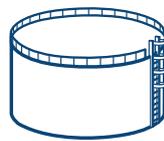
Sensor Types
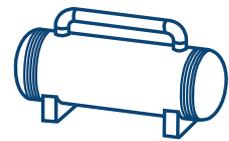
Corrosion   Moisture

Asset Types

Column   Dryer   Storage Tank   Pipeline   Heat Exchanger

You have been reading about **CorrosionRADAR's Moisture Monitoring System** as applied to a pipeline. To find out about Corrosion Monitoring Systems or the application of our technology on other assets, **please visit our website.**

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