Waygate Technologies
a Baker Hughes business

Case study

Predictive Corrosion Management (PCM)

Lyondellbasell's Petrochemical Plant of Berre, France

The challenge

LyondellBasell's Pôle Pétrochimique de Berre includes world-class polypropylene and polyethylene plants. It is home to third party chemical operators and logistical assets such as harbour facilities, pipelines and storage and distribution terminals. The site is one of the largest petrochemical complexes in the south of France and employs around 1,300 staff and contractors.

Currently, corrosion rates and wall loss of critical pieces of equipment and stretches of piping are measured at regular intervals by UT inspectors during planned plant shutdowns, and estimated on a continuous basis using standard intrusive electrical resistance corrosion probes.

The plant's owner was interested in confirming corrosion rates estimates provided by the probes using Waygate Technologies' PCM solution on one separator unit and two critical stretches of pipe.

The solution

In June 2018 SGS and Waygate Technologies installed a Predictive Corrosion Management (PCM) solution at LyondellBasell Berre. The system comprised 32 permanently installed ultrasonic sensors which automatically collected wall thickness measurements on a daily basis, and provided corrosion rate data that could then be correlated with other process variables. SGS used the wall thickness data to produce monthly reports on three pieces of equipment over a six month period (Photo 1).

Predictive Corrosion Management (PCM) is a permanent, sensor-based monitoring system, which combines Waygate Technologies Rightrax PM ultrasonic sensors, advanced cloud-based software, and advisory services to continuously monitor corrosion-related risk, proactively make maintenance decisions and minimize total cost of operations.

The sensors on the asset are controlled and are pulsed by a "mote". The mote forms a wireless mesh network with other motes and a "mote manager" (Figure 1). The mote manager communicates with the cloud through a cellular device, called the mini field agent (MFA), which provides data being processed from the gateway to the cloud. The MFA enables SGS to remotely access the PCM equipment without having to use the customer's network infrastructure and go through a lengthy approval process.

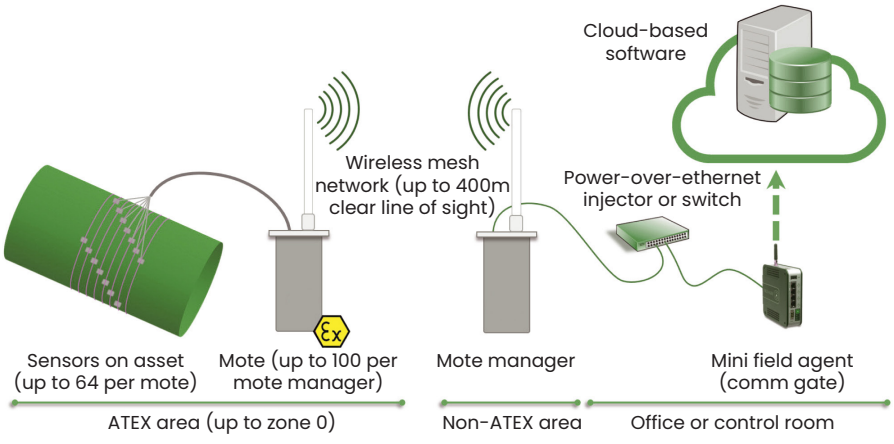

Figure 1 – Predictive Corrosion Management (PCM) elements

What are the benefits of the solution?

The solution and its results enabled the corrosion engineers and plant managers at LyondellBasell Berre to confirm that corrosion rates on the three pieces of equipment had stabilized and no longer posed a threat to the integrity of the plant.

More generally, the solution confirmed that it has the potential to:

- Decrease inspection costs for critical points with high cost-of-collection (scaffolding, insulated pipes, hazardous areas)
- Improve asset performance by optimizing maintenance planning
- Optimize operational processes, e.g. use of corrosion inhibitors or quality of processed inputs

The solution is particularly adapted to provide permanent wall-loss information to facilities where chemical or refining processes change frequently due to varying inputs.

About SGS

SGS is the world's leading inspection, verification, testing, and certification company. SGS is recognized as the global benchmark for quality and integrity. With more than 97,000 employees, SGS operates a network of over 2,600 offices and laboratories around the world. We provide the competitive advantage, drive sustainability and deliver trust. At SGS, we continue to innovate our services and solutions so that our clients can move their businesses forward.

About Waygate Technologies

Waygate Technologies, a Baker Hughes business, is an industrial inspection solutions company and a world leader in non-destructive testing (NDT). Bringing together more than 125 years of experience, we offer a broad portfolio of award-winning solutions in industrial radiography and computed tomography (CT), remote visual inspection, ultrasound and eddy current. Part of the Digital Solutions segment of Baker Hughes, we help customers drive their digital transformations, gaining advanced insights by applying data and analytics to their assets and processes. We have a rich heritage of building safety, quality and productivity into our hundreds of brands in the automotive, aerospace, electronics, energy, battery and additive industries with strong legacy names such as Krautkrämer, Phoenix|x-ray, Seifert, Everest and Agfa NDT technologies. Formerly GE Inspection Technologies (GEIT), Waygate Technologies is headquartered in Germany with offices all around the world and more than 1,700 employees. Inspection starts here: www.waygate-tech.com

Photo 1 – Installation of UT sensors under insulation (T = 130°C / 266°F)

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