

## CASE STUDY

# Corrosion Monitoring of Production Column, in collaboration with Sitech

### Application Benefits

Complex geometry of production columns to monitor corrosion. Ensuring plant safety while significantly reducing maintenance costs.

Client



Sitech –  
Chemelot Plant, Netherlands

### Key Benefits

- Installation during column turnaround minimises operational disruption
- Optimised maintenance, minimising the need for scaffolding by only targeting areas affected by CUI
- Early CUI detection decreases repair costs
- Data-driven RBI where **CorrosionRADAR®** data can optimise maintenance cycles

## Challenge

Current risk-based inspection (RBI) approaches in plants require vast amounts of time and money to ensure safe operation. This is particularly so when inspecting insulated columns, where significant scaffolding and safety measures are required to gain access and inspect for Corrosion Under Insulation (CUI). Currently, a partial strip of installation for spot checks and non-destructive testing is required every five years, with a full asset strip required every ten. Any test that finds as little as 5% damage may result in full stripping of the insulation. Costs for such strips can vary between £100k and £300k, depending on column height and complexity.

Sitech prides itself on using the latest technological applications. Plans to remove the insulation of the AS107 production column during turnaround for blasting and preservation, presented a perfect opportunity to move towards a data-driven RBI approach and use of smarter assets to enable Industry 4.0.



Current RBI programmes require full unpacking of the production column.

## Solution

**CorrosionRADAR's IIoT (Industrial Internet of Things)** Corrosion Monitoring System is excellently suited for this type of application. The system comprises long thin flexible sensors installed adjacent to the asset, underneath the insulation. The flexibility and long-range nature of the sensors enable them to be positioned in the most inaccessible locations while still providing full coverage of the asset.

Electromagnetic Guided Radar (EMGR) technology is used to provide regular readings from the sensors. The data enable early detection and localisation of areas of CUI, allowing time for careful planning of repairs. This vastly reduces maintenance costs while increasing asset uptime. System installation is fast and may be carried out during planned asset turnarounds, significantly reducing the cost of adoption.



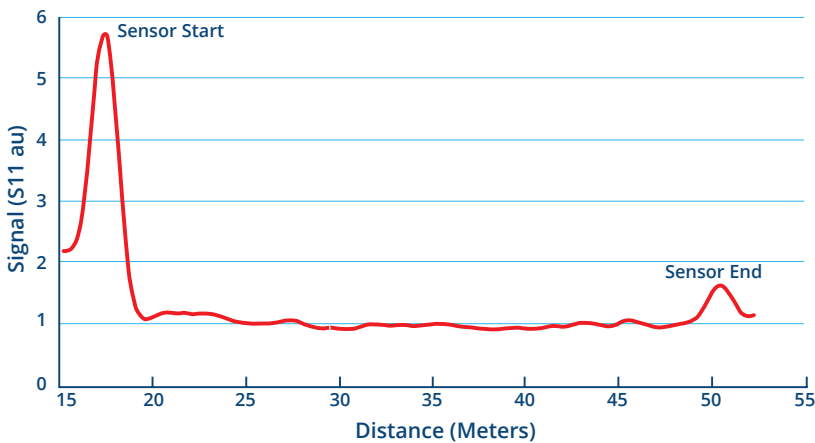
Sensors mid-installation, negotiating complex geometries to achieve full asset coverage.

**CorrosionRADAR's** distributed Corrosion Monitoring System was installed on the Sitech managed AS107 column. Installation was carried out during the tower's turnaround, avoiding unnecessary additional downtime. The system is fully ATEX-certified (Zone 1), a world-first for this type of application.



## Results

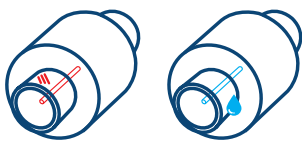
- Since installation, the column has been under constant monitoring for CUI, allowing a timely and planned response to any corrosion event detected
- As a result of using **CorrosionRADAR's IIoT Corrosion Monitoring System**, it is expected that Sitech will not need to fully strip the tower's insulation for the next 25 years. This will lead to significant reductions in both maintenance costs and asset downtime.



Reading from sensor installed on tower AS107. The peaks at the beginning and end of the curve represent the start and end of the sensor.

In the event of corrosion, there would be a third peak between the two that would highlight the location and extent of corrosion.

### Sensor Types



Corrosion

Moisture

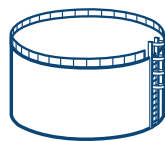
### Asset Types



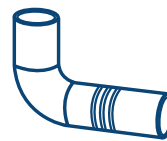
Column



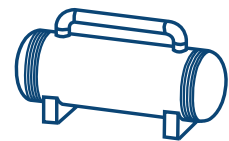
Dryer



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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