



AI-POWERED CUI MONITORING BOOSTS INTEGRITY AT PDO COMPRESSION PLANT

SUMMARY

Petroleum Development Oman deployed CorrosionRADAR's remote monitoring system to tackle the challenge of detecting corrosion under insulation (CUI) in sweating-service pipelines. The system was installed on pipelines connecting key gas processing equipment, where operating temperatures made them prone to condensation and elevated CUI risk.

Corrosion and moisture sensors, powered by AI-driven predictive analytics, detected and confirmed the presence of both moisture and corrosive conditions beneath the insulation. This gave the integrity team the insight needed to take targeted action—helping to extend asset life and reduce future maintenance costs.



CHALLENGE

The customer could not pinpoint where moisture or corrosion was present on insulated pipelines operating under sweating-service conditions. Without accurate location data, maintenance teams faced unnecessary inspections, driving up costs and increasing the risk of missed defects.



The monitoring system, powered by AI-driven predictive analytics, detected moisture ingress at a specific location.

IMPLEMENTATION

- **CorrosionRADAR: LR** systems, powered by AI-driven predictive analytics, were installed to detect both corrosion and moisture. Using BLE connectivity, sensors were mounted in a helical configuration for full coverage along the pipelines, with scaffolding used to access the asset.
- The monitored sections were re-insulated with FOAMGLAS to maintain thermal performance post-installation, enabling the sensors to operate effectively without affecting process conditions.

RESULTS

- The monitoring system, powered by AI-driven predictive analytics, detected moisture ingress at a specific location, later confirmed by physical observation.
- The solution accurately pinpointed CUI risk areas, enabling targeted inspection and repair, reducing unnecessary maintenance, and supporting the customer's move toward predictive asset management.
- The deployment also delivered valuable baseline data on asset condition, providing a solid foundation for future monitoring strategies and informed decision-making.



Key Benefits of CorrosionRADAR: LR

Immediate:

- Insulation QA/QC
- Enabling digitalisation and Industry 4.0
- Increased safety

Medium Term:

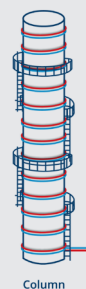
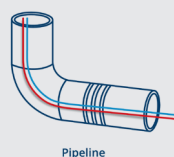
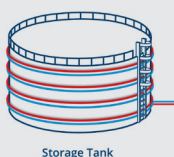
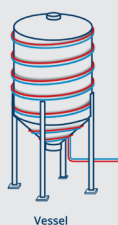
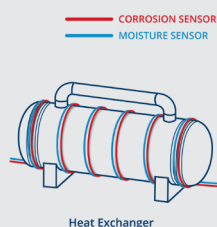
- Rapid scalability
- Reduced CUI risk - predictive maintenance
- Decrease inspection costs by up to 65%

Long Term:

- Optimised turnaround scope



ASSET AND SENSOR TYPES



Our Customers

