CASE STUDY I DIGITALISATION

aramco

SCALING AI-DRIVEN CUI MONITORING ACROSS ARAMCO JNGLF

Technology Value Realized by $12m

Since 2023, Aramco has partnered with CorrosionRADAR to transform how Corrosion Under Insulation (CUI) is managed at the global energy company.

The energy major was seeking a solution that would reduce CUI-associated risks and costs, address insulation and vapour-barrier defects early, and streamline future inspection planning.

Following implementation in early 2023, the impact was immediate. With more precise insights available, asset management processes became more targeted, and CUI hotspots were easier to identify.

What started as a small-scale project rapidly scaled, with CorrosionRADAR's solution now delivering continuous CUI monitoring across 50% of the Ju'aymah site—supporting Aramco's digitalisation strategy. The scale-up was driven by clear value: reducing CUI risk between inspection cycles and enabling more targeted, efficient scheduled inspections.

SCALING ACROSS THE SITE

Asset type: Network of columns, refrigeration units and pipelines

CUI Monitoring Systems Deployed:

Since 2023,

50%

of the site is now covered by **CUI Monitoring**

Asset coverage growth YoY:

2025:	2,240m **+307%**
2024:	550m **+171%**
2023:	203m

PERFORMANCE OUTCOMES FROM SITE-WIDE SCALING:

Phase 1 – Establishing Integrity & Ensuring Quality (First 90 days)

- Early identification of moisture ingress sources
- Immediate Insulation Quality Assurance and Quality Control
- Sets the foundation for reliable long-term monitoring

Phase 2 – Continuous Monitoring & Insight Generation

- Persistent moisture detection
- Defect notifications raised
- Insulation deficiencies rectified

Phase 3 – Pre-T&I Optimisation (1 Year Before Turnaround)

- Data available for optimisation and prioritisation of inspection scope and planning – saving millions
- Supports safer, and more efficient operations

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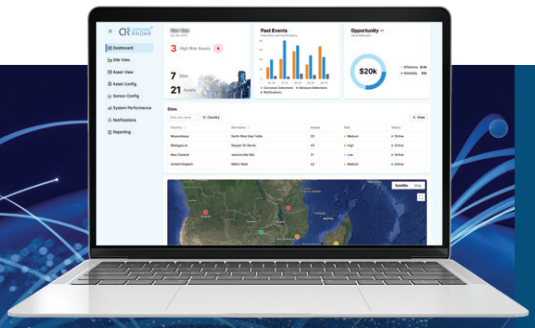

DIGITALISATION IN ACTION

CorrosionRADAR is the industry leader in data intelligence for CUI Monitoring.

Smart Site Enablement | Scalable Network of Data | Virtual Sensors

> CorrosionRADAR's technology is already delivering huge value to Aramco through inspection cost reduction, improved uptime, and optimised turnaround planning.

Ahmad O. Al-Khowaiter
Executive Vice President of Technology & Innovation, Aramco

OPERATIONAL

- Predict and detect future CUI threat more accurately
- Immediate Insulation Quality Assurance and Quality Control
- Faster and more targeted interventions – knowing when and where to act
- Reduces unplanned maintenance

SAFETY

- Early leak detection
- Supporting sustainability goals
- Ensuring personnel safety

FINANCIAL

More than
$12m
of cost savings
across the project lifetime to date relating to:

- Inspection cost reduction
- Increased asset uptime
- Optimised turnaround planning
- Extended asset life

DELIVERING VALUE GLOBALLY:

Sector	Location	Asset Type	Value Delivered
Energy Major	North America	Pipes & Vessels	**Total value realised to date: $1.4M** • $1M in daily production value protected through sustained uptime • Postponed/Deferred a thorough CUI inspection for a Class I Pipeline • Immediate identification of cladding breach – led to a maintenance work order
Chemicals Producer	North America and Europe	Vessels, Pipes & Columns	**Total value realised to date: $4.3M** • $3M in daily production value protected through sustained uptime • Provided continuous corrosivity rates for RBI processes • Identification of icing and thawing on a gas dryer due to inadequate protrusions • Corrective action taken from CR Data to prevent the CUI induced phenomenon
Energy & Petrochemical Major	Europe	Tanks	**Total value realised to date: $1.5M** • $3M in daily production value protected through sustained uptime • Identified locations in tank roof structure that were susceptible to moisture ingress • Identified a hatch in the roof causing significant moisture ingress leading a maintenance work order • Provided continuous corrosivity rates for RBI processes • Recommended an inspection scope reducing the requirements for crane usage in a hazardous environment for increased operational safety