**MISTRAS**

**One Source for Asset Protection Solutions®**

Application Brief

# Building an Effective, ESG-Driven MI Program

The primary goals of a mechanical integrity (MI) program for midstream and upstream facilities are to prevent leaks, ensure safety and reliability, stay compliant with regulations, and to meet shareholder expectations. These programs are managed with an asset integrity management system (AIMS) and is intended to capitalize on areas including design, maintenance, operational management, safety, efficiency, and financials.

## MI Program at a Glance

Proactive MI programs highlight user-friendly features and equipment to help streamline your operations, and typically include:

- Process safety and baseline data information
- Develop asset integrity policy and procedures
- Damage and corrosion analysis; id all leak points
- Systemization, piping, and equipment isometrics
- Integrate AIMS data; develop inspection/ test plans

## Program Equipment

- Pressure vessels (drums, columns, heat exchangers, towers)
- Piping system (components, in-line devices, valves)
- Monitoring devices and controls
- Emergency shutdown systems

## Damage Mechanisms

- External corrosion; Corrosion Under Insulation (CUI)
- Glycol corrosion; $CO_2$ corrosion; Caustic corrosion
- Wet $H_2S$ corrosion/cracking; Amine cracking
- Chloride stress corrosion cracking

## Inspection & Testing Plans

- Damage, corrosion, RAGAGEP
- Determine UT thickness of circuit
- Safety instrumented system (SIS) inspection
- Develop control inspection and test plans

## AIMS, Inventory Tracking & Digitalization

AIMS-managed MI programs are designed to document and deliver management for equipment, piping, instruments and controls and pumps. They should also contain inspection & testing protocols, Condition Monitoring Locations (CMLs) for pressure vessel, piping, tanks, pumps, instruments and controls, and leak test points for compliance.

## AIMS Digitalization: Assets & Inspection

- Collect asset registry, baseline NDE data and field photos
- Reduce report delivery/regeneration/ manhours needed

## AIMS Digitalization: Integration & IWRs

- Digitalized natural gas field maintenance transmittal process
- Dispatched, executed, tracked electronic dynamic scheduling lists
- Automated inspection work request (IWR)