

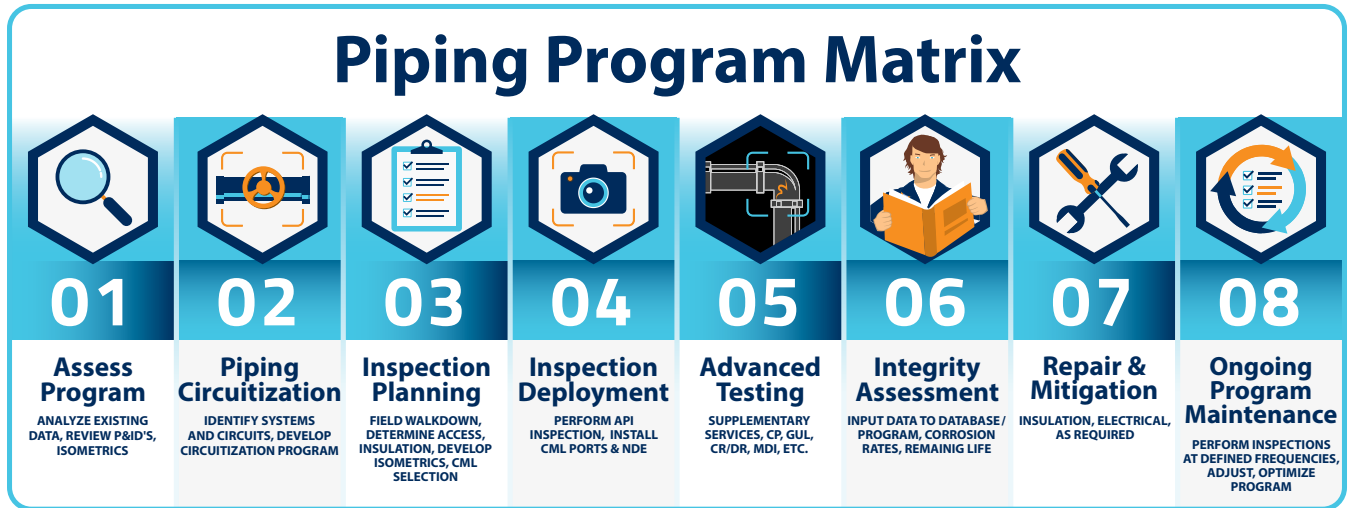
# Facilities Piping Management Programs



A HIGHER LEVEL  
OF RELIABILITY®

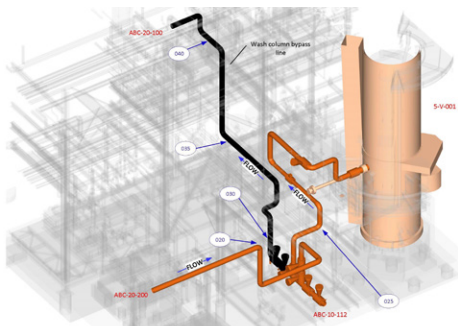


**WHY PIPING PROGRAMS?** Piping Leaks? Piping Failures? Losing Revenue and Time? Acuren has piping programs specifically tailored to address **your** above-ground facility piping program needs.



## FACILITY PIPING MANAGEMENT PROGRAMS

- Experienced Engineers and API inspectors develop piping management programs to ensure regulatory and insurance compliance
- Obtain missing key information (Isometrics, P&ID's, PFD's) that prevents you from executing your piping program
- Assess as standalone or integrated program:
  - Small bore piping
  - Dead Legs
  - Structural supports
  - Flange inspections
  - High Energy Piping
  - Corrosion Under Insulation
  - Corrosion Under Pipe Supports
  - Buried piping systems



Sample Piping 3D Circuit

## WHY ACUREN?

- We bring an understanding of processes (flow regimes, process upset conditions, precursors of current condition issues, etc.) and aid in the elimination/reduction of failures
- Turnkey provider for NDE, Engineering, Inspection, Rope Access, Drones, Industrial Services, Advanced NDE, and more
- Provide innovative solutions that result in significant cost savings
- Help reduce unnecessary mechanical scopes (insulation stripping where not required) saving precious time, material waste while reducing exposure to potential hazards
- Specialize in finding a needle in a haystack to remediate your piping deficiencies
- Diagnose the root-cause, as opposed to treating the symptoms
- Shift from a reactive to a proactive approach



## PIPING STATISTICS

- Acuren has found **25%** of all of the failures we see are result of process piping failures
- The average refining facility has **2-10** process piping failures annually
- An effective piping program will reduce your likelihood and incidence of piping failures

## NDE METHODS FOR PIPING INSPECTION

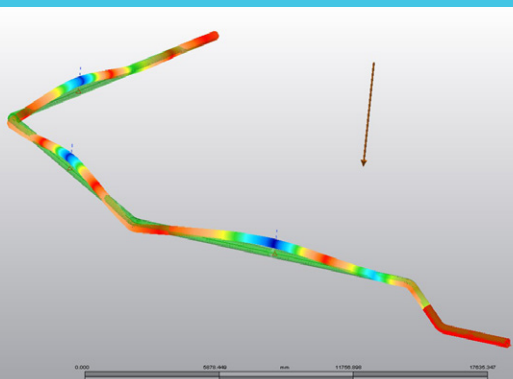
Acuren knows where to look for the relevant damage mechanisms utilizing the latest technologies:

- Moisture Detection Imaging (MDI) - Compton Backscatter
- Radiographic methods: Real Time Radiography (RTR), Computed Radiography (CR), Digital Radiography (DR), traditional
- Advanced Ultrasonic Inspections (PAUT, TOFD, AUT, Guided Wave (GUL), Flange scanning)
- Infrared Thermography (IR)
- Laser Scanning and Mapping
- Ultrasonic Thickness (UT) Measurements
- Pulsed Eddy Current (PEC)
- Ground Penetrating Radar (GPR)

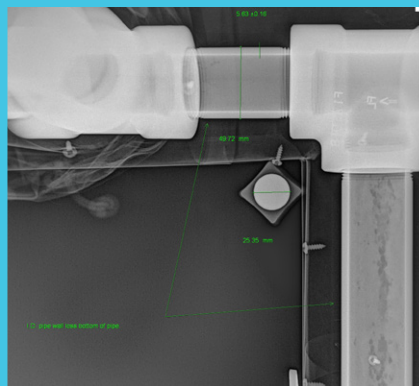
- HawkEye External Corrosion Screening Tool
  - ◊ Indirect inspections of facility piping (CIPS, ACVG, DCVG, ACCA)
  - ◊ Locate areas with coating anomalies & deficient CP
- Other traditional NDE methods

## ENGINEERING

- Perform failure modes and effects analysis (FMEA)
- Develop integrity operating windows (IOW's)
- Create and implement Risk Based Inspection (RBI) programs
- Perform equipment failure analysis
- Fitness for service assessments (API 579)
- Piping Stress and finite elemental analysis (FEA)
- Pipeline Integrity Engineering Services



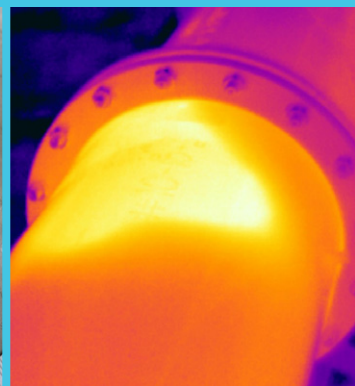
*Piping stress analysis image*



*Wall loss on bottom of pipe from CR*



*Fatigue crack at toe of weld*



*Localized piping hot spot from IR*

## ROPE ACCESS & INDUSTRIAL SOLUTIONS

### Rope Access Methods:

- Where scaffold or other means of access are not practical, Acuren can utilize rope access means to assess CUI (eg. modular piping, towers, stacks)
- All inspection and NDE and industrial services can be provided from ropes

### Industrial Services:

- Journeyman Insulators
  - ◊ Insulation removal/repairs
  - ◊ Insulation installation
  - ◊ Asbestos abatement
  - ◊ CML ports installed
  - ◊ Fireproofing
- Repairs / Replacement
  - ◊ Welding and Fabrication
  - ◊ Pipefitting
- Pressure cleaning and blasting
- Coatings: NACE Inspectors, coating removal and recoating
- Electrical and instrumentation

## DRONES/ROBOTIC SOLUTIONS

Acuren utilizes remotely piloted aerial systems and robotic inspection cameras to aid in piping programs.

- Perform internal and external API inspections
- Ultrasonic thickness testing with robotics and drones
- Perform pipe hanger surveys
- Thermal imaging / infrared scanning
- Emission detection
- 3D Lidar scanning and photogrammetry
- Create a "Digital Twin" of your facility



*RVI inside piping using an explosion-proof robotic crawler*



*RVI of piping with collision-tolerant drone*



BEYOND INSPECTION



CONTACT OUR PIPING EXPERTS TODAY

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