



Conventional Non-Destructive Examination (NDE)

Capabilities:

- Ultrasonic Testing & Shear Wave
- Magnetic Particle
- Dye Penetrant Testing
- Pipe to Soil, Soil Resistivity & pH
- Pit Depth Gauging
- MIC and Coating Inspection

Ultrasonic Testing (UT Thickness & Shear Wave):

Conventional UT is widely considered the workhorse of the NDE industry. The most common applications of conventional UT include: UT Thickness and Shear Wave.

In UT Thickness applications, a single transducer (single or dual element) is used to measure remaining wall thickness. Shear Wave is used to identify mid-wall defects, size internal defects, and characterize subsurface discontinuities.

Our technicians are trained to locate, size and evaluate volumetric discontinuities in welds, base metal, castings and forging. Test results are highly repeatable and reliable.

The minimum detectable flaw size is dependent upon the type of material being tested and the type of flaw under consideration.



Ultrasonic Testing

Magnetic Particle Inspection (MPI):

MPI is a process for detecting surface and slightly subsurface discontinuities in ferromagnetic materials such as iron, nickel, cobalt, and some of their alloys.

The process puts a magnetic field into the test object. When the part is magnetized, flaws perpendicular to the magnetic field direction cause flux leakage. If a lapse or a crack is present the magnetic particles will be attracted to the flawed area, a term known as indication.

Our experienced technicians will then evaluate the indication to assess the location, size, shape and extent of these imperfections.



Magnetic Particle Inspection



Dye Penetrant Testing

Dye Penetrant Testing:

Inspection utilizes the application of dyes under visible light or under ultraviolet light conditions. Under application, the dye penetrates into surface discontinuities via capillary action. After the excess material is removed from the work piece, indications will appear.

Evaluation and classification of material is based on code or customer requirements.

Direct Assessment

Our technicians are trained to perform Internal Corrosion Direct Assessment (ICDA) and External Corrosion Direct Assessment (ECDA) in conjunction with other NDE anomaly evaluations.

Technicians are fully equipped with pipe to soil instruments, soil resistivity, and pH testers as part of a comprehensive corrosion assessment. The technician records all measurements and captures high resolution images of corrosion of found, coating condition, and soil information.

In addition, a GPS coordinate can be collected to better document the excavation location as part of an overall Integrity Management Plan.



Integrity Dig

Pit Depth Gauging

Pit gauges are a technique used to measure surface variations and can be used to conveniently measure pit depth or material loss.

There are pit gauge instruments and techniques available to ensure compliance with corrosion allowances.



Pipe to Soil Resistivity

Soil resistivity influences the corrosion of metals installed underground and can serve as an indicator of corrosiveness.

From corrosion engineering perspective, the lower the resistivity, the higher the corrosivity and vice versa. The Wenner method requires the use of four metal probes or electrodes, driven into the ground along a straight line, equidistant from each other. Soil resistivity measures are derived from the voltage drop between the center pair of pins, with current flowing between the two outside pins.



Soil Resistivity Measurement

MIC and Coating Inspection

Even a small amount of oxidation corrosion can be sufficient to allow several different types of bacteria to come together to create a colony and start the Microbiologically Influenced Corrosion (MIC) cycle.

The process utilized tests for two common types of bacteria using the PIPELINE PIT, FILM, & MIC BACTERIA KIT.

APBs - Acid Producing Bacteria
SRBs - Sulfate Reducing Bacteria
pH of Pit, Film, and MIC Areas



Pipeline Pitting

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