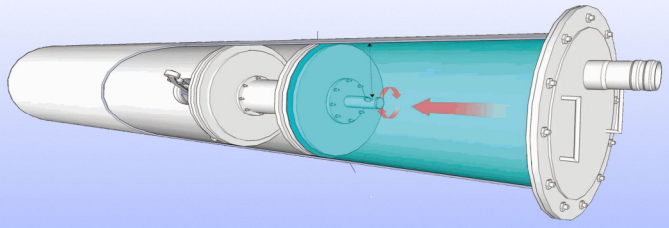
Ultrasonic Pipeline Inspection Services

Introduction

Ultrasonic In-Line Inspection (UT-ILI) is a well-established inspection technology proven to provide high-resolution wall thickness measurements in pipelines. What sets the ultrasonic inspection service offered by Russell NDE Systems apart from conventional UT tools is the unique ability to inspect both metallic and non-metallic pipes, small diameter lines, as well as very large diameter lines, even lines with multiple diameters or tight elbow fittings.

How it Works

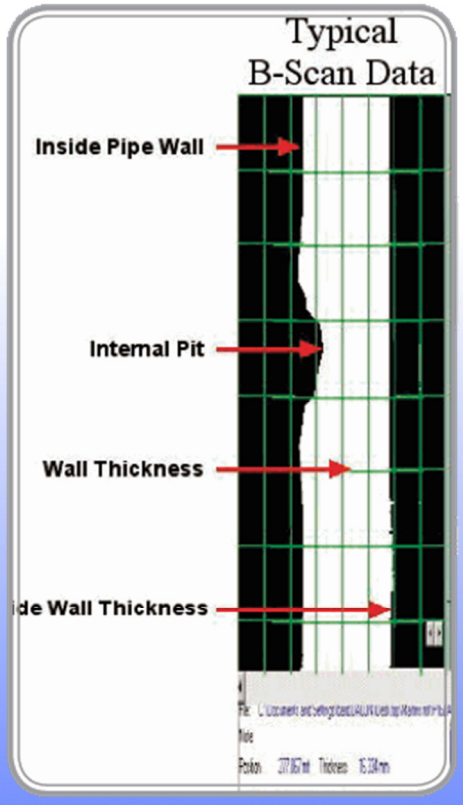
The inspection principle is based on the original IRIS system developed under Shell in 1979. The system consists of a horizontally placed ultrasonic transducer contained within the centre body of the ILI tool. The transducer sends its sound waves out parallel with the pipe wall until the waves hit a 45° rotating mirror, which then directs the sound waves perpendicular towards the pipe wall.



Every time the sound wave hits a surface a proportion of it will reflect back to the transducer the same way it came. The difference in time between the sent and received signal allows the processor to calculate the time of travel which can be converted to distance. The system samples the wall thickness 400 times around the circumference of the pipe in a single revolution.

UT-ILI Advantage

- Accurate detailed wall thickness measurements.
- Inspects both metallic and non-metallic pipes (like HDPE).
- Can handle any pipe size from 6-inch up to 64-inch, even dual size lines.
- Immediate results
- Deployable without launch and receive facilities (tools are bi-directional and can be tethered).
- Immediate Inspection results.
- Can inspect heavy walled pipe (schedule 80 and above).



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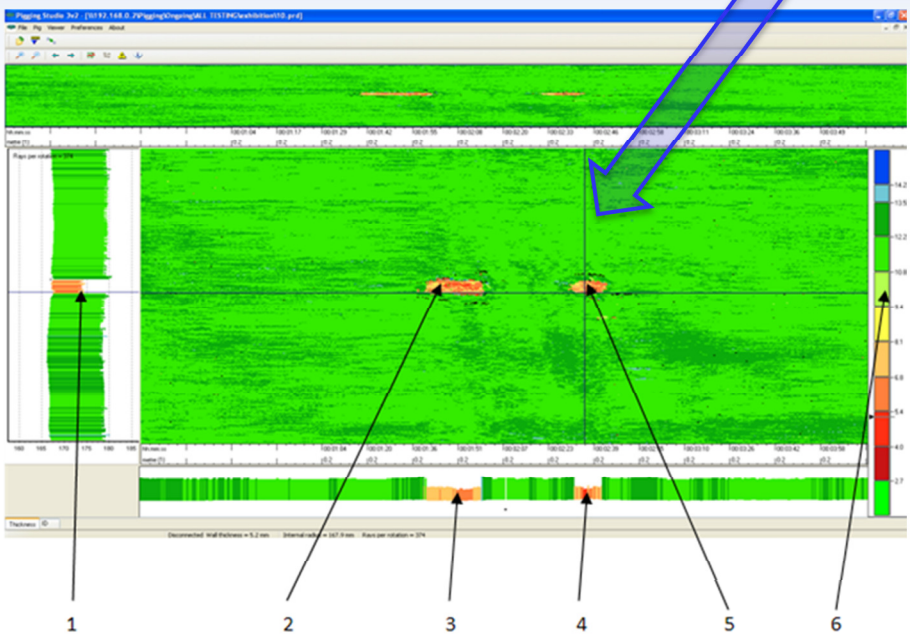
High Resolution Instant Results

Following an inspection, data can be downloaded and analyzed in minutes. Using advanced analysis software an instant overview of the condition of the pipe is obtained. The software is designed to highlight localized defects using the traffic light color coding scheme. Areas of normal thickness are shown as green with thinner areas highlighted in yellow, orange or red depending on the severity.

The screen capture below shows two manufactured defects from a calibration pipe.



1. B-Scan Cross Section of pipe wall showing 50% external metal loss.
2. Square Defect.
3. Longitudinal cross section showing 50% external wall loss (square defect).
4. Longitudinal cross section showing 50% external wall loss (round defect).
5. Round Defect.
6. Color Legend.

The client is provided with a COMPLIMENTARY copy of the analysis software included with the inspection data. After just 20 minutes of training, clients are able to analyse data and verify the inspection findings.

HDPE Pipe Inspection

A unique feature of the UT-ILI tools is that they allow inspections of HDPE pipes. In fact, the tools are specifically designed to find erosion in HDPE pipe with unequalled accuracy and inspection coverage. The tools' ability to inspect HDPE pipe is underlined by the more than 150 commercial inspection runs in large diameter HDPE pipelines completed since 2004.

Please contact us at one of the links below for more information on both metallic and non-metallic pipeline inspection.

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