

NDT Method Comparison

Examining the Non-Destructive Testing (NDT) options for pipe testing will ensure you are able to select the best technology for your needs. The details below compare the capabilities of common NDT methods.

Capable
 Capable with Exception
 Not Capable

	Radiometric Profiling (RP)	Ultrasonic Thickness (UTT)	Long-Range Ultrasonic Thickness (LRUT)	Industrial Radiography (RT)	Real-Time Radiography (RTR)	Pulsed Eddy Current (PEC)
Zero holes in piping insulation	Jacketing and insulation remains intact	Requires holes / removal of insulation, and surface prep	Insulation removed for collar, not for remaining pipe tested	Jacketing and insulation remain intact	Jacketing and insulation remains intact	Removal of insulation above 8" thick is required
Zero radiation exposure risk	Testing can occur without operations interruption	Testing can occur without operations interruption	Testing can occur without operations interruption	Radiation field present, requires secured area	Radiation field present, requires secured area	Testing can occur without operations interruption
All piping can be tested	Less than >24" diameter; elbows, tees, nested and suspended piping	Can test all piping including nested and suspended	4"< diameter min; only long runs can be tested	6"< diameter min; elbows, nested, and suspended cannot be tested	2"-24" diameter; elbows, nested, and suspended cannot be tested	Less than >6" diameter; suitable for magnetic steels only
Examine entire pipe profile	Measures entire circumference of pipe	Measures where transducer is in contact with pipe, ~1" on single side	Captures data on circumference of pipe	Captures image of 1 or 2 walls	Image of 1 wall; full circumference requires 4 scans	Measures single wall
Fast evaluation	Average rate is 150+ test locations per day	Average rate is 50 test locations per day	Average rate is 2-5 300'pipe runs per day	Average rate is 30 test locations per day	Average rate is 30 test locations per day	Average rate is 100 test locations per day
Pipe wall thickness	Measured on bare and insulated piping	Estimated results; prone to erroneous results on pitted or frozen pipe	Does not measure thickness; flags changes in metal loss	Accuracy sensitive to film/source orientation	Does not measure thickness; flags changes in metal loss	Erroneous results if isolated pitting is present
Water or ice in insulation	Detected and measured (volume)	Detected with visual after insulation removed	Cannot detect or measure moisture in insulation	Evidence may or may not be detected	Evidence may or may not be detected	Cannot detect or measure moisture in insulation
Corrosion	Identified on bare and insulated piping	Detected with visual after removed	Flags changes in metal loss	Accuracy sensitive to film/source orientation	Flags changes in metal loss	Erroneous results if pitting is isolated
Erosion	Identified on bare and insulated piping	Estimated results; prone to erroneous results on pitted or frozen pipe	Flags changes in metal loss	Accuracy sensitive to film/source orientation	Flags changes in metal loss	Erroneous results if pitting is isolated