

Storage Tank Floor Inspection

Current Condition

Many above ground oil storage tanks exhibit primary floor corrosion in areas close to the outside wall. The reasons for this may be that the areas near the walls are most subject to natural water leakage under the tank floor as well as more prone to structural loads due to the wall structure joint.

What makes this a particularly difficult inspection task is the combination of the typical floor condition and the proximity of the outer wall. Since the maximum corrosion area is usually within 250 mm (10 inches) of the wall, magnetic flux leakage systems do not provide a reliable level of indication. This difficulty gets more critical the closer the corrosion approaches the outer wall.

Solution

MISTRAS Software & Systems Large Structure Inspection (LSI) System is an automated, programmable, configurable ultrasonic inspection system that provides a 100% scan image of the remaining wall thickness in floor plates in distances as close as 25 mm (1 inch) from the wall.

This inspection is performed quickly (on the order of 1/2 meter per minute along the wall), with resolution averaging 3 square mm per point (2.5 x 12.5 mm scans result in 32,000 data points per square meter).* The result is a usable data "map" that is available numerically or with color-coded graphics. Location of suspect areas is straightforward and easily accomplished using either form of data presentation. Additionally, in this typically difficult ultrasonic data

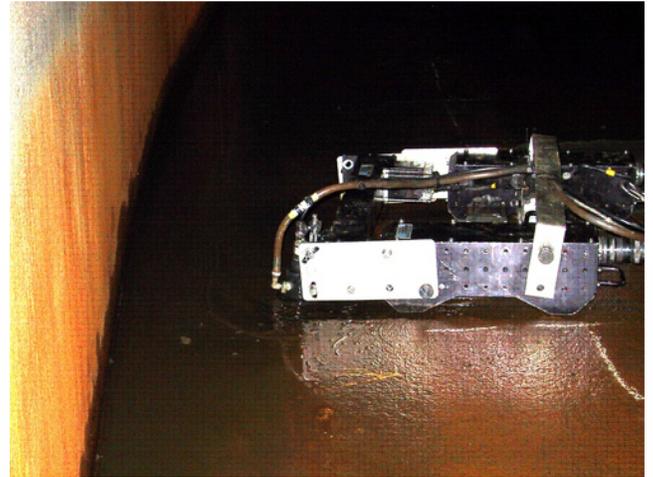


Figure 1: LSI Scanner shown on tank floor, near the outer wall.

collection environment, the use of NDT Automation LSI systems' unique integrated squirter/bubbler scanning head coupled with a highly focused transducer can significantly enhance ultrasonic performance.

Scan data is easily interpreted through color-coded thickness "maps" as shown in Figure 2. In this example showing 2 meters of scan length, nominal floor thickness is in red, while corroded areas are shown in shades of yellow and green. In addition to the thickness data, all scan location data has also been recorded as an integral part of the filing system. *These rates are for comparison purposes; higher or lower resolutions may be appropriate for differing conditions.

MISTRAS Software & Systems division, is a team of skilled researchers, engineers, technicians and manufacturing personnel dedicated to the development on practical and cost saving solutions to your challenging inspection needs.

For a demonstration or additional information, please contact our Princeton Junction headquarters at 609-716-4000.

TANK WALL

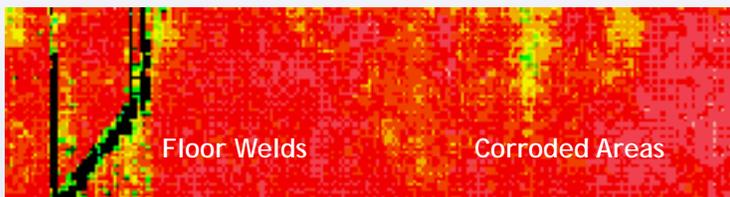


Figure 2: Floor scan showing corroded areas