Restricted access to corrosion damaged pipe supports makes conventional nondestructive evaluation (NDE) challenging. Engineers at Southwest Research Institute® (SwRI®) have developed a system using guided waves to evaluate pipe supports using a high-powered magnetostrictive transducer (MsT) probe on an extendable arm, eliminating the need for scaffolding, and allowing for a large number of pipe supports to be screened in a day. A guided wave probe can be mounted on top of the arm and coupled to the bottom of a pipe using a shear wave couplant.

The MsT probe has a solenoidal excitation coil wrapped around an iron cobalt (FeCo) strip, and a belt with built-in magnets to provide magnetization to the FeCo.

**Advantages of using MsT probes:**

- High signal amplitudes produced by a solenoidal excitation coil allows signal-to-noise ratios above 60 dB
- Stable permanent magnets provide consistent signal amplitudes over long periods of time
- Protective coatings and ruggedized transducer design allows for multiple applications or long-term use of the same transducer
- Applicable frequency range: 30-250 kHz.

This field-deployed system is effective in finding problem areas under pipe supports. Typically, low frequencies (20-50 kHz) are used to identify the presence of gradual wall thinning, and higher frequencies (above 128 kHz) are used for smaller anomalies such as pitting or cracking.

At 128 kHz, the MsT probe has a dead zone of about four inches and can be placed near (12-24 inches) the pipe support.
MsT probe is ruggedized for use in a field and can operate using fundamental torsional mode guided wave in a frequency range of 30-50 kHz

We welcome your inquiries. For more information, please contact:

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