Long Term Monitoring of Cased Pipelines Using Long-Range Guided-Wave Technique DTPH56-06-T-000006

PHMSA ACCOMPLISHMENTS

Pipeline and Hazardous Materials Safety Administration

Pipeline Safety Research and Development

Technology Development for Improved Corrosion Mitigation

Project Abstract

The project validated the effectiveness of the magnetostrictive sensor (MsS)-based guided-wave technique for long-term structural health monitoring (SHM) of "cased lines" at road crossings for External Corrosion Direct Assessment (ECDA) and Internal Corrosion Direct Assessment (ICDA). The technical objectives of the proposed work were: (1) To develop the capability of defect characterization and long-term condition monitoring of the cased-section of pipelines at road crossings using the long-range guided-wave inspection, and (2) To evaluate and validate the capability in the field.

PHMSA Funding: $ 500,000

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NET Improvement

The research mustered the following improvements on this technology:

(1) Inspect inaccessible areas from a remote accessible pipeline location with or without product in the pipeline to detect erosion, corrosion.

(2) Evaluate damage severity based on signal strength and characteristics.

(3) Detect both ID/OD wall loss and circumferential cracks.

(4) Detection of 2 to 5% change of cross-sectional area using the survey mode or 1% using the monitoring mode.

(5) Defect Accuracy(2.5” per every 30 FT)

(6) Test range - varies depending on piping conditions.

US Patent under DOT Contract:

N/A

Commercial Partner

IHI Southwest Technologies, Inc.
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