The Benefits of ILI Signal Review Analyses in ILI Run-to-Run Comparisons – A Case Study

Matt Ellinger[1], Andy (Hao) Li[2], Stacy Hickey[2], Adriana Nenciu[2], Pam Moreno[1], Ben Ross[1], Shanshan Wu[1]

[1]DNV, [2]Plains Midstream Canada

PPIM 2025
PIPELINE PIGGING & INTEGRITY MANAGEMENT
JANUARY 27-31 • HOUSTON

Organized by

CLARION
TECHNICAL CONFERENCES

In-line inspection (ILI) run-to-run comparisons can provide valuable insights into the integrity of a pipeline asset. Results from an ILI run-to-run comparison can be utilized to identify anomalies that might become critical prior to the next planned integrity assessment. Alternatively, or in addition to, ILI run-to-run comparison results may indicate that an anomaly that is part of existing excavation plans may not be predicted to reach criticality prior to the next planned integrity assessment. In these cases, such anomalies are perhaps removed from existing excavation plans and replaced with anomalies that are more likely to reach criticality. This allows for more efficient and effective use of limited resources while decreasing overall risk.

Often, corrosion growth rates are established by comparing ILI spreadsheet listings between subsequent inspections. Examples of how to derive spreadsheet-based corrosion growth rates include, but are not limited to:

- Average change in metal loss depth within a given joint or segment,
- Maximum change in metal loss depth within a given joint or segment, and
- Anomaly-based corrosion growth rates.

Relying only on ILI spreadsheet listings to derive corrosion growth rates may result in a misrepresentation of the actual corrosion growth (or lack of growth) that may be occurring in a pipeline segment. By incorporating ILI signal review comparisons between the subsequent surveys, definitive evidence of corrosion growth (or lack of growth) can be established, and more realistic corrosion growth rates can be derived.

In this case study, the authors applied the spreadsheet-based corrosion growth rates (described above) to identify anomalies calculated to reach criticality prior to the next planned integrity assessment. The authors then performed ILI signal review comparisons at this subset of anomalies to establish more realistic corrosion growth rates. Upon applying the signal review-based corrosion growth rates, the number of anomalies calculated to reach criticality prior to the next planned ILI survey was reduced.

Additionally, several anomalies which spreadsheet comparisons indicated were growing minimally were found to be growing at higher than spreadsheet calculated rates. This resulted in the addition of some anomalies to the excavation plan that were previously considered lower criticality.

The reduction in anomalies calculated to reach criticality and the addition of a few anomalies previously considered non-critical prior to the next planned ILI survey will be utilized by the pipeline operator to optimize their excavation program. The result is less overall repair cost coupled with a reduction in risk.

Key words: ILI analysis, ILI run comparison, Corrosion growth assessment, ILI signal data

#279 is an abstract only. No paper.

.