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COMBINED INSPECTION (MFL-A, MFL-C AND IEC) OF AN OIL TRANSMISSION PIPELINE FOR AN OPERATOR IN BRAZIL

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Abstract

Pipeline integrity is negatively affected by a multitude of anomalies, flaws and threats, which sometimes may even interact. Trying to assess multiple threats with only a single inspection technology often falls short, as each technology has its distinct strength.

To increase the reliability of integrity assessments, combining the evaluation of two or more different in-line inspection (ILI) data sets is possible. While these data sets may stem from consecutive runs with different ILI tools, there is also the possibility to merge different inspection technologies on one in-line inspection tool. Performing several inspection tasks in one ILI run significantly reduces the risks and efforts involved.

This paper describes a failure of one pipeline by an operator in Brazil caused by the above-mentioned combination of complex anomalies, which could not be detected by one single inspection technology alone. It describes the failure cause, ROSEN-proposed combined technology to ensure threats affecting the safe operation of the pipeline are being detected and reported, the findings of the combined inspection, and the benefits of implementing integrity solutions in such a critical asset.

Keywords: Combined ILI. MFL-A. MFL-C. IEC. corrosion.

Abbreviations

- EC – Eddy Current, •HD – Basic Geometry Tool, •IEC – Internal Eddy Current Tool
- ILI – In-line Inspection, •ID – Internal Diameter, •MFL-A – Axially oriented magnetic flux leakage tool, •MFL-C – Circumferentially oriented magnetic flux leakage tool
- POD – Probability of Detection, •POF – Pipeline Operators Forum
- POI – Probability of Identification, •RCA – Root Cause Analysis
- XT – Mechatronic Caliper High Resolution Tool