

Innovation Award Nominee: T.D. Williamson

Validated Selective Seam Weld Corrosion Performance Specification

Selective seam weld corrosion (SSWC) occurs when a susceptible long seam weld, such as low-frequency electric resistance welding (LF-ERW) manufactured prior to 1970, is subjected to an active corrosion environment. The pipeline industry has struggled to consistently distinguish between SSWC and coincidental corrosion crossing the long seam weld (CCLS) anomalies. To overcome this gap, T.D. Williamson (TDW) participated in several industry projects and recently validated the performance of the unique SSWC classifier.

In many cases, the SSWC features are embedded in a field of general corrosion. Further, SSWC anomalies in the long seam weld can demonstrate similar characteristics to lesser integrity threats such as benign trim defects or stable manufacturing anomalies. As a result, a very complex classification algorithm is needed. The recently validated SSWC classifier specification, a first in the industry, represents the culmination of years of collaboration between TDW and the industry.

The validated performance specification leverages the data from the comprehensive multiple dataset (MDS) platform. The MDS platform's unique ability to gather geometry and metal loss signals across the long seam weld, generally with minimal lift off, allows for the complete assessment of long seam weld anomalies. The application of the SSWC specialized classifier delivers an enhanced, accurate classification and sizing of the corrosion and long seam weld interacting features.

While R&D classifiers have been in existence in the industry for several years, the validation and release of a statistically back performance specification reduces the risk for operators who use the classifier. Operators use the classifier results to identify, prioritize and ultimately mitigate integrity threats. The stated performance quantifies the classifier accuracy and reliability, providing a defensible position of remaining SSWC risk to the pipeline system.

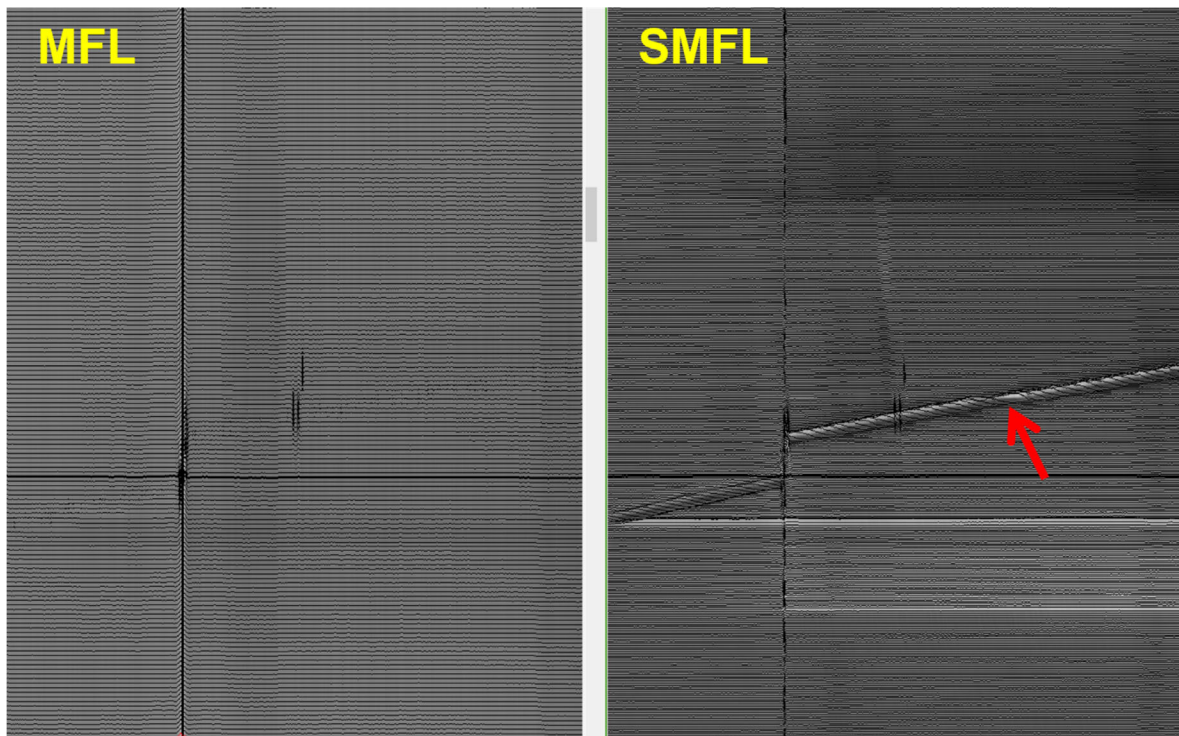


FIGURE 1: AXIAL MFL AND SpirALL® MFL DATA SHOWING THE LONG SEAM WELD DETECTION CAPABILITY FOR SMFL DATA.

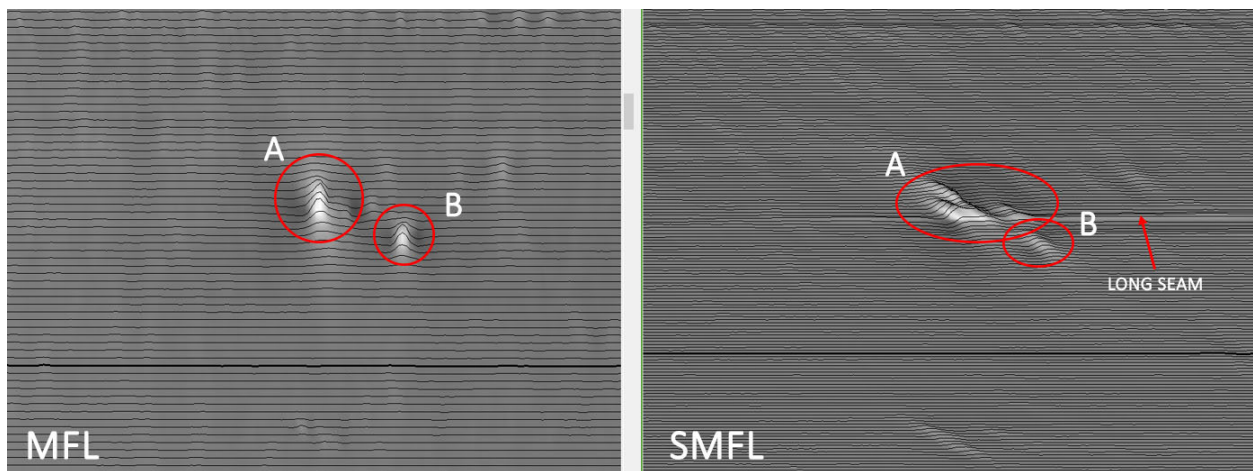


FIGURE 2: AXIAL MFL AND SpirALL® MFL DATA SHOWING THE DIFFERING RESPONSE OF AN SSWC ANOMALY. MFL INDICATED UNIFORM RESPONSE, SMFL INDICATES NARROW AXIAL PLANAR FEATURE PRESENT.

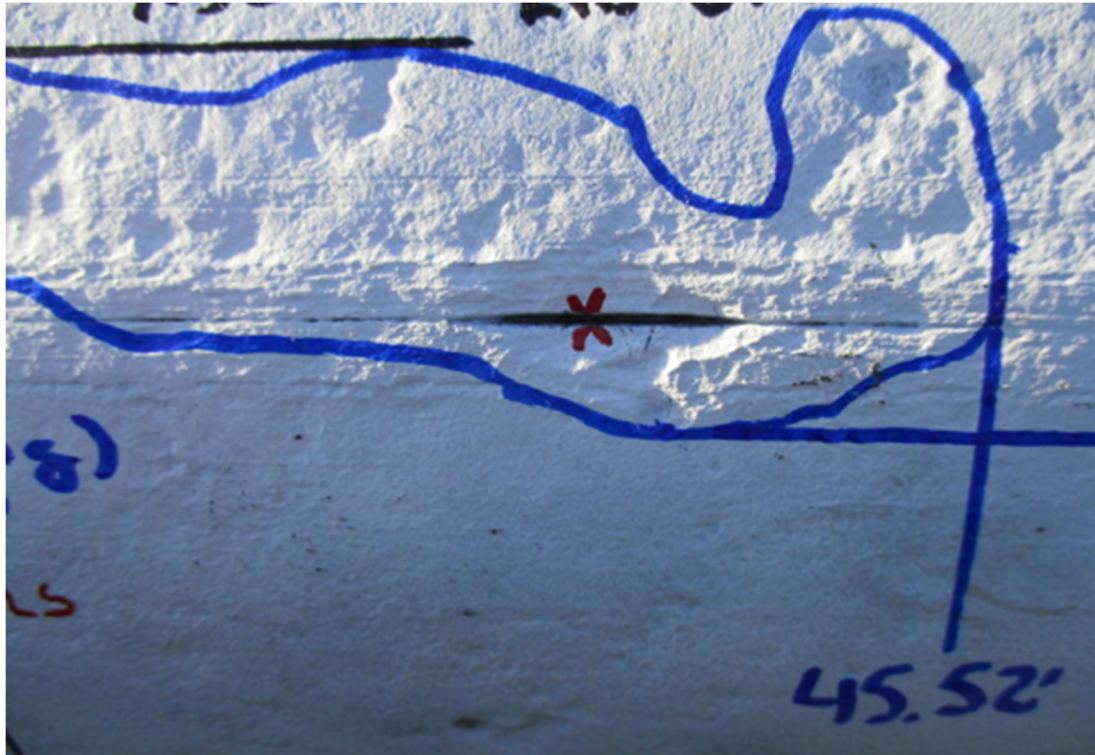


FIGURE 3: EXAMPLE OF SSWC ANOMALY



FIGURE 4: ILI FIELD TECH. WITH THE MULTIPLE DATASET (MDS) TOOL