SELECTIVE SEAM WELD CORROSION
MANAGING THE THREAT

Selective Seam Weld Corrosion (SSWC) is an environmentally assisted time-dependent threat, described as an axially orientated pattern of linear corrosion that is centered on the longitudinal weld seam of welded pipe. SSWC is most commonly observed in the bond line of autogenously welded pipe, namely electric resistance welded (ERW) or electric flash welded (EFW) pipe. Literature suggests that a number of factors can be responsible for promoting SSWC. Many of the factors are commensurate with ‘vintage’ pipe manufacturing and steels, which consequently tend to be more susceptible to SSWC than ‘modern’ pipe.

SSWC creates a significant risk for operators and defining an appropriate integrity assessment and response plan is challenging.

THE SOLUTION
By equipping the RoCorr MFL-C system with the latest generation of high-resolution sensors, ROSEN offers the highest possible data quality for the detection and identification of Selective Seam Weld Corrosion (SSWC). When combined with SSWC susceptibility analysis based on material properties and environmental conditions, this enables the differentiation of SSWC from ‘general’ corrosion that happens to be coincident with the longitudinal weld seam. The approach relies on an advanced evaluation review of the in-line inspection (ILI) signal data to give a thorough understanding of the different signal characteristics and feature classifications. The reported features are differentiated based on ‘likelihood’ of SSWC and prioritized using a categorization of ‘likely’, ‘possible’ or ‘unlikely’ SSWC. The prioritized listing acts as the basis for a structured verification process (through digs) to validate the approach and iteratively optimize the process. The deliverable is a robust process that can be used to manage the threat as part of an existing Integrity Management Plan.

For a comprehensive approach, ROSEN also supports in the following areas:

- A senior engineer as a single point of contact for upfront engagement to understand the specific nature of the threat and expectations, through the inspection activities, verification and delivery of the results.
- Additional ILI services to support integrity management activities, in particular crack detection. Multiple ILI data sets can then be used to manage seam weld integrity threats in a holistic manner.
- On site during dig verification, with qualified NDT technicians and pipeline materials subject matter experts.
- Implementation of the results into existing Integrity Management Plans or the development of new procedures for the management of SSWC. Further support can be provided to create documentation for submission to regulatory authorities.

KEY ADVANTAGES
- Enhanced detection and classification of SSWC
- Differentiation of SSWC from ‘general corrosion’
- Accurate and precise characterization of complex corrosion features, axial slotting and pitting
- Support from ROSEN Integrity Engineers and SMEs throughout the service delivery