Fitness for Purpose (FFP) Assessment

Maximize the benefit of repeat ILI data

Want to use industry best practice to assess ILI reported features and anomalies?

Auto IE

The Auto IE (Integrity Evaluation) Report is an entry level pipeline integrity evaluation produced direct from the MFL ILI PipeImage data (Baker Hughes MagneScan™ and VECTRA™ GEMINI ILI data only). It delivers an automatically produced Excel based report containing a full description of the ILI findings, immediate and future integrity results in the form of a combined pipeline listing and repair plan.

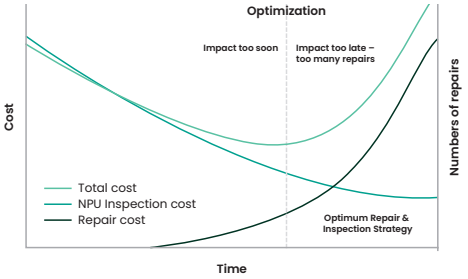
Integrity Assessment

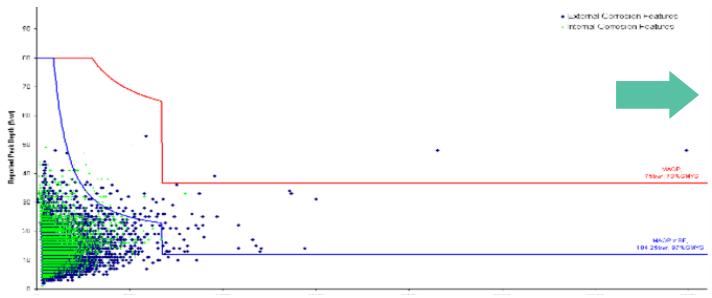
The full Integrity Assessment will evaluate the reported ILI features' expected affect on the pipeline's current and future performance. The assessment provides a future repair plan and re-inspection interval guidance, based on the pipeline's actual condition rather than on fixed intervals.

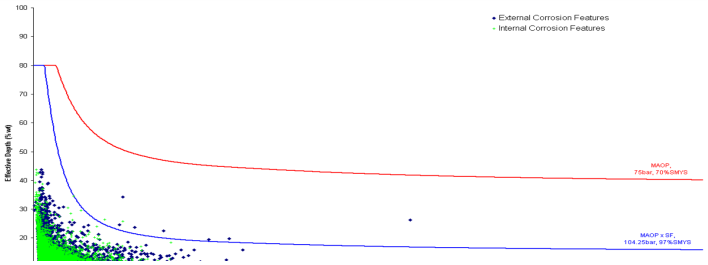
An integrity assessment can reduce your costs by eliminating unnecessary repairs, determining the future ILI interval and maintenance requirements on a demonstrable and justifiable basis.

The assessment considers the significance of metal loss features, reported dents and mill/ manufacturing defects. Pressure cycle induced fatigue, in relation to the reported dents, is also evaluated (where applicable).

Utilizing corrosion growth rate information (based on time in service, pressure history, or RunCom™), the features and their influence on the future integrity of the pipeline can be evaluated.







Features and Benefits

- Rigorous and fully documented assessment of the current and future predicted pipeline condition
- Assess the reported features and anomalies using the standard industry methodologies, tolerances and safety factors
- Avoid costly excavation and unnecessary repairs whilst maintaining safety by using more accurate assessment methods
- Determine pipeline deterioration mechanisms and provide a clear picture of future integrity issues
- Provide optimized repair and re-inspection plan based on economic and safety considerations
- Enables you to save time and resources by focusing on the excavation, repair, and remediation issues rather than data manipulation, assessment, and documentation

Baker Hughes

LAPA™ Profile Integrity Assessment (LPIA)

LPIA can also be applied to the findings of the ILI survey making optimum use of a RunCom signal matching corrosion growth assessment.

LPIA makes use of every fragment of our RunCom data. We derive the depth profile through the area of corrosion that is represented by the ILI metal loss cluster and effectively grow the depth profile incrementally by applying the individual (box) growth rates direct from RunCom. At each time increment we re-calculate the corrosion profile using the LAPA methodology and check whether the profile has breached the acceptable pressure or depth limits set for the pipeline.

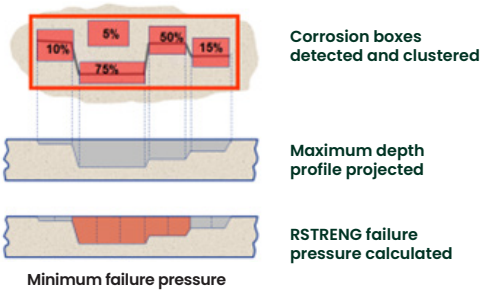
The outcome of the LPIA is an optimized response time for each reported metal loss cluster based on the specific set of measured corrosion growth rates which belong to that cluster.

RunCom Cluster Growth 3D Assessment (RCG3D)

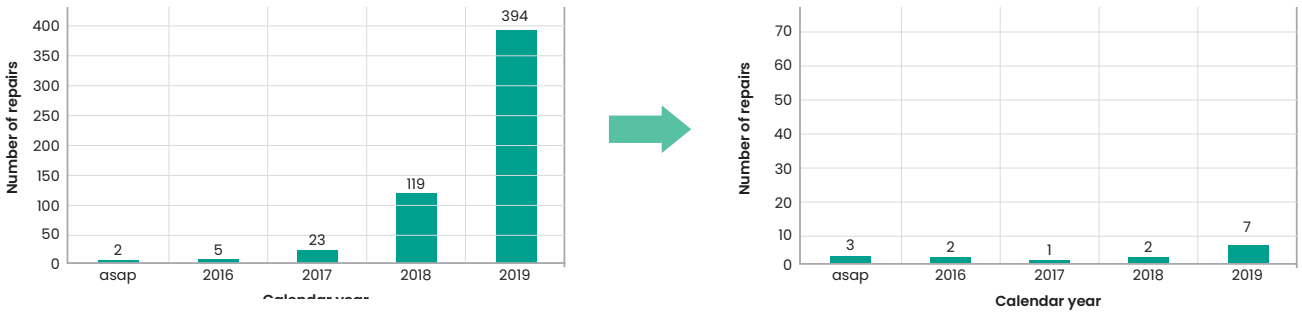
A RunCom Cluster Growth 3D assessment takes into account the growth in all three dimensions (depth, length, and width) and models the more complex interaction between nearby areas of corrosion to identify the corrosion areas that are most likely to require monitoring or intervention between inspections.

By moving away from applying a fixed corrosion rate across individual clusters, or across a group, or even a whole pipeline of clusters, we are leveraging the real benefits of the RunCom data and optimizing the response timing for each of the metal loss clusters reported by the ILI survey, which in turn informs the decision regarding when to re-inspect.

LAPA Length Adaptive Pressure Assessment



LAPA profile is grown using RunCom box rates.



Removes conservatism by applying local defect rates ➔ Less digs.

PSqr Reporting

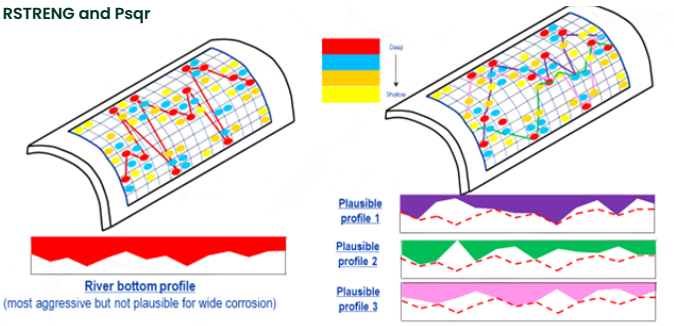
PSqr Reporting provides defect sentencing of the metal loss features reported by Baker Hughes magnetic ILI tools using a new methodology designed to provide a more accurate prediction of the burst pressure of an area of corrosion.

The PSqr model (also known as the Plausible Profiles model), developed by TC Energy in 2018/2019, removes unnecessary conservatism without compromising safety in the existing ASME B31G range of models (B31G, Modified B31G-0.85dL and Modified B31G-effective area (i.e., RSTRENG).

PSqr applies the fundamentals of RSTRENG but uses a novel approach to idealize the shape of the corrosion anomalies more accurately. RSTRENG uses a single worst-case river bottom profile to characterize the corrosion whereas PSqr uses multiple plausible profiles to characterize the corrosion profile. PSqr has been peer reviewed and validated in a 2019 PRCI project (Technical Report Plausible Profiles (PSqr) Model for Corrosion Assessment).

Applies to MagneScan and VECTRA GEMINI ILI datasets. The deliverable is calculation of burst pressure and safe operating pressure for all or selected metal loss clusters delivered in a Excel listing.

Conservatism in corrosion idealization



Difference between Psqr and RSTRENG – interacting corrosion in shape is more accurately characterized to avoid unnecessary repairs.