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CUSTOMER CASE STUDY

Automated Pipeline Corrosion Assessments and Fitness-for-Service Screening

Optimizing ILI inspection analysis using ASME B31G and DNV-RP-F101 standards

Solution: Automated Fitness-for-Service Assessment **Industry:** Oil and Gas **Use Case Focus:** Pipeline Integrity Management

GOALS

- Streamline pipeline fitness-for-service compliance assessments.
- Reduce manual engineering hours spent screening smart pigging data.
- Prioritize critical remediation efforts quickly across the network.
- Integrate real-time field measurements to update inspection intervals.

CHALLENGES

- High volumes of pipeline corrosion indications from ILI smart pigging.
- Unsustainable manual engineering efforts required to evaluate every anomaly.
- Delayed maintenance decisions due to slow data analysis workflows.
- Inefficient resource allocation and repair budget optimization across networks.

SOLUTIONS

- Deployed automated screening tools aligned with ASME and DNV standards.
- Integrated first-pass automated assessments of raw ILI inspection reports.
- Programmed logic to account for inherent tool measurement errors during screening.
- Built a digital system for field crews to input actual in-trench measurements.

RESULTS

- Screened and processed over 90 percent of incoming corrosion indications.
- Significant reduction in engineering hours required for manual defect reviews.
- Enabled real-time recalibration of inspection intervals using field measurements.
- Optimized the physical repair budget by focusing on high-risk anomalies.

EXECUTIVE SUMMARY

Oil and gas operators face the critical challenge of analyzing thousands of pipeline corrosion anomalies detected by In-Line Inspection technologies. To address this, an automated fitness-for-service assessment tool was developed using ASME B31G and DNV-RP-F101 standards. The solution automatically screens over 90% of low-risk indications, allowing integrity engineers to focus on high-risk defects. By integrating real-time field measurements directly from the trench, the platform dynamically recalibrates assessments to optimize safe inspection intervals and maintenance spend.

The Burden of Manual Indication Analysis

Modern pipeline networks rely on sophisticated In-Line Inspection (ILI) or smart pigging technologies to identify localized corrosion. While these inspections generate critical safety data, they also yield thousands of individual defect indications across the network. Historically, pipeline operators have struggled to manually evaluate this massive volume of data to determine fitness-for-service compliance. The sheer scale of manual engineering screening required for each indication led to unsustainable workloads, delayed maintenance scheduling, and inefficient resource allocation. Operators required a streamlined, automated method to quickly prioritize high-risk anomalies.

Automated Fitness-for-Service Screening

To resolve this operational bottleneck, the engineering team built automated screening applications aligned with ASME B31G and DNV-RP-F101 industry standards. These systems ingest raw ILI data to perform automated first-pass assessments tailored to specific operating loads and pipeline designs. The software automatically filters out low-risk anomalies while accounting for inherent tool measurement errors. By screening over ninety percent of incoming indications without manual intervention, the technology enables integrity engineers to focus exclusively on the critical defects requiring immediate engineering attention.

Bridging Back-Office Engineering and Field Crews

The platform also establishes a digital connection between back-office engineering and field operations. When field crews excavate pipeline segments, they enter actual, in-trench physical measurements directly into the mobile application. The system instantly recalibrates the initial ILI assessments to calculate updated, safe inspection intervals in real-time. This dynamic feedback loop resolves measurement uncertainties on-site, guarantees robust safety margins, and empowers maintenance teams to make highly confident remediation decisions, ultimately optimizing the operator's physical repair budget.