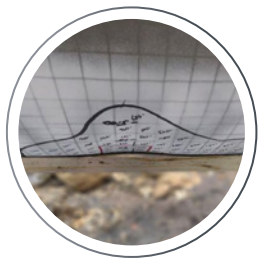


ARE PIPELINE DENTS CAUSING YOU STRESS?

► **IMMINENT OR FUTURE DANGER:** Dents might not cause immediate failure, but changing conditions and time may mean problems ahead.



DENT ASSESSMENT



Mechanical damage often results in immediate pipeline failure – but not always. Dents might be below the failure condition at the time of impact but can grow through cyclic pressure until they cause “delayed failure.” A three-level assessment provides insight into future integrity and pressure cycling of pipeline dents.

APPROACH

Three levels of assessment

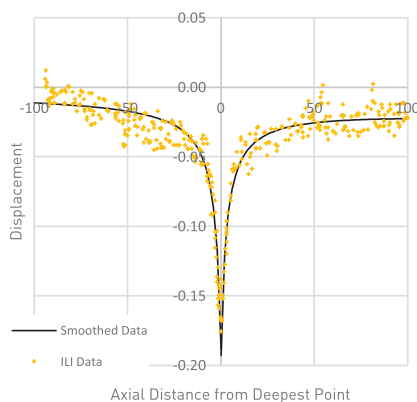
A three-level assessment provides insight into future integrity and pressure cycling of pipeline dents. We use the in-line inspection (ILI) dent profile and calculated strain to begin the prioritization process. The next step looks at the constraint, acuteness and both static and cyclic loading. If it's needed, a finite element analysis and fatigue assessment can be conducted.

VALUE

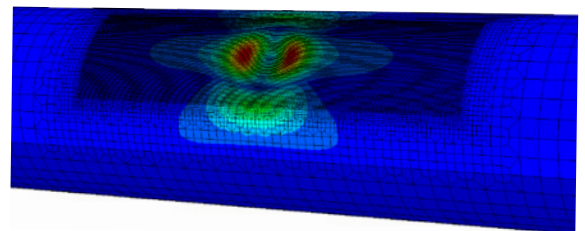
Setting the right priority

We provide everything from a simple priority ranking enabling optimized dent repairs to a full-level analysis for critical dents where accessibility makes repair difficult. Plus, we provide advice on future operating conditions.

GEOMETRIC ILI RUN – DENT PROFILE



FINITE ELEMENT ANALYSIS OF A DENT



EXTENDING BEYOND INSPECTION

- ▶ Improving safety, efficiency and productivity throughout the life of your pipeline.

ASSESSMENT SERVICES



Immediate Integrity Assessment

IMMEDIATE THREATS:

- ▶ Metal loss
- ▶ Dent strain
- ▶ Bending strain
- ▶ Selective seam weld corrosion
- ▶ Cracks
- ▶ Mechanical damage



Future Integrity Assessment

TIME-DEPENDENT THREATS:

- ▶ Corrosion growth
- ▶ Line movement
- ▶ Crack growth
- ▶ Dent fatigue
- ▶ Other changes in pipeline conditions



Advanced Integrity Assessment

MORE COMPLEX THREATS:

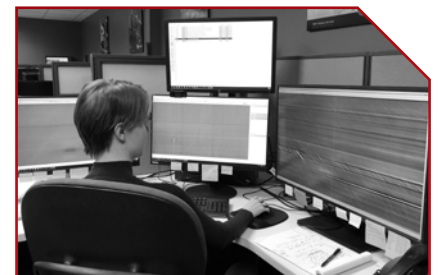
- ▶ Non-axial stress corrosion cracking
- ▶ Branch connection loading
- ▶ Wrinkle bends
- ▶ Hard spots
- ▶ Other threats requiring finite element analysis (FEA)

Using the right approach

The right assessment approach, consistent with codes, industry-accepted methods and operator mandates, ensures compliance and auditability.

Focus on the right decisions

By focusing on the anomalies that matter most, you can make the best integrity decisions for your pipeline.



Contact your TDW sales representative for more info.



T.D. Williamson

