THE PROBLEM

A simplified definition of strain is the change of the shape of an object when a force is applied. Pipeline movement caused by natural phenomena like landslides, subsidences, earth movements, floods or earthquakes is a reality that could compromise the integrity of your assets by generating bending strain concentrated in specific areas.

This bending strain could cause pipeline buckling and eventually, failure of the pipe wall causing leaks that result in lost product and environmental damage. Strain concentrations with other types of defects, e.g. corrosion, deformations or cracking, become particularly severe threats to the asset.

THE SOLUTION

Using high-resolution INS data acquisition and leveraging leading-edge software products, NDT Global’s Atlas INS service is the most reliable way to identify areas where a pipe-wall could be deformed close to or exceeding the critical strain limit of the steel. The accuracy of the Atlas INS attitude (altitude) measurements is far greater than the tolerances required for bending strain analysis.

The tool can also detect very slight changes in curvature. Moreover, by performing these surveys regularly, NDT Global can detect changes in strain over time and accurately locate the hinge points of the pipeline movement.

Combined with NDT Global’s Atlas UG technology, strains corresponding to other features like misaligned welds or dents are filtered out. For local strain, NDT Global has developed a point-wise local strain methodology that estimates the small-scale strain along the local deformations. The ultrasonic geometry sensor technology introduces an overlap to get a complete ultrasonic image of the shape of the deformations used in local strain estimation.

YOUR BENEFITS

- Pinpoint tensile and compressive longitudinal strains
- Detect strain areas in proximity to girth welds (most susceptible points due to residual thermal stress and material imperfections)
- Compare strain results to detect strain over the time
High strain areas
Wrinkles are often indicators of pipeline settling or imminent buckling, these are areas with a high strain on the pipeline. The Atlas INS and Atlas UG tools are the most accurate tool combinations to pinpoint high strain areas that represent a threat for your assets.

Please note: Tool and performance specifications depend on inspection and pipeline conditions. Please contact your local NDT Global representative for further information.

NDT Global reserves the right to introduce modifications and changes without prior notice.

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