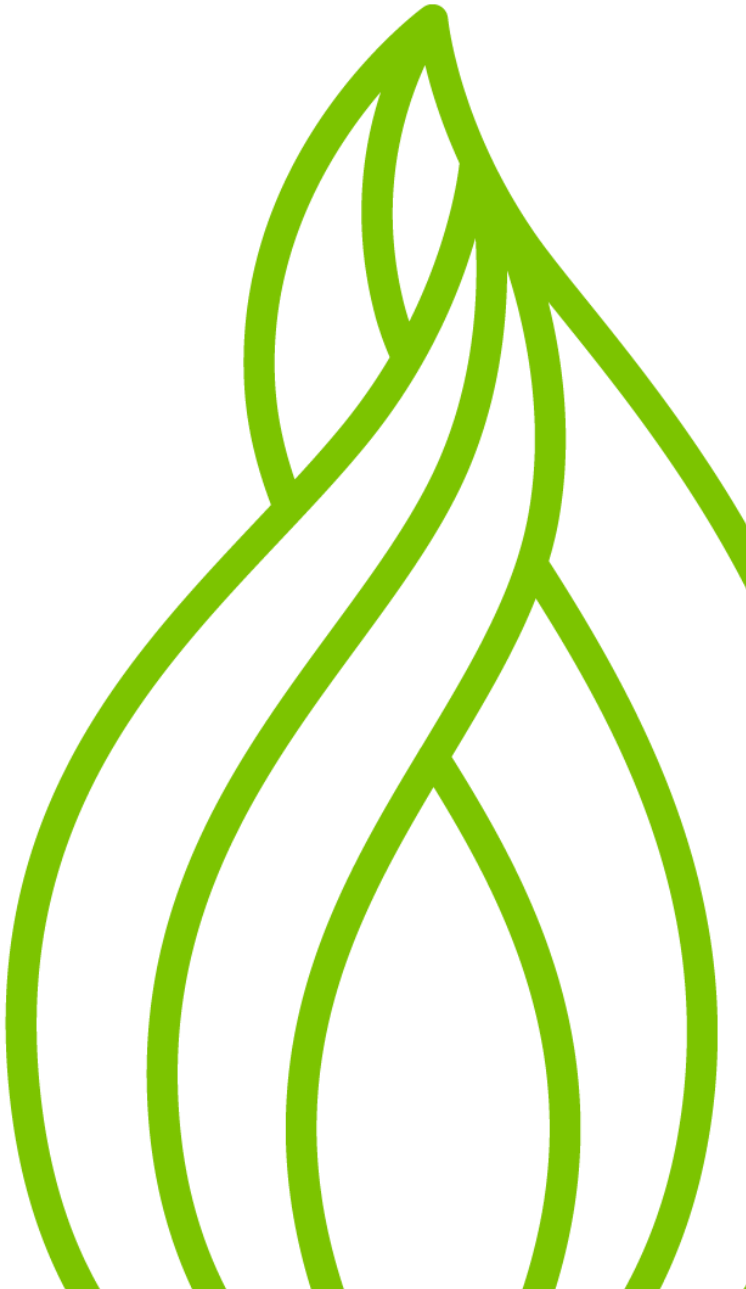
national gas transmission

# L555 Dent Tolerance

## Value Tracking Case Study



# L555 Dent Tolerance

## Background

The project carried out comprehensive testing on pipeline dents to determine the tolerance levels of L555 (X80 grade) pipeline. The findings have provided the GB gas industry with validation of L555 (X80 grade) pipeline tolerance levels for plain dents and gauges. This knowledge can then be incorporated into industry wide procedures such as P11.

## What's new?

The project was a great success providing further information on dent tolerances and the appropriate policies have been updated:

- T/PM/P/11 Management Procedure for inspection and repair of damaged steel pipelines designed to operate at pressures greater than 2 bar.
- T/PM/G/19 Management Procedure for Application of Model Design Appraisals.
- T/PM/P/11 (Management Procedure for Inspection, Assessment and Repair of Damaged (Non-Leaking) Steel Pipelines above 150mm Nominal Diameter and Designed to Operate at Pressures Greater Than 2 Bar)

Changes within these documents have led to dent tolerances being increased from 2% to 6% and improved terminology relating to damage to welds. Increased tolerances and information allows for better assessments of our assets and ensures action is taken only when necessary. Previously, dents identified at lower levels would require remedial actions and possible outages. By completing the supporting analysis work and updating tolerance levels we are able to confidently assess dents and either rectify work or confirm that no action is required.

## The benefits

The project has provided the GB gas industry with validation of grade L555 pipe tolerance levels for plain dents. This knowledge has been incorporated into pipeline inspection procedures (P11) and will be made available for implementation into industry wide procedures. National Gas Transmission, and the gas industry, will benefit from a more detailed understanding of the integrity of plain dents in grade L555 pipe so that appropriate decisions can be made on remedial action. This will reduce the need for potentially costly excavations that would impart environmental impacts and potential service disruption.

## Financial savings

Forecasted approx. £200k per avoided remedial action in excavation avoidance.
Evidence gathered from 2022/23 from two sites identified the following:

Site one identified 50 dents of which 5 required no further action due to the increase in dent tolerance.
5 x £200,000 = £1,000,000 cost avoidance.
Site two identified 270 dents of which 18 required no further action due to the increase in dent tolerance.
18 x £200,000 = £3,600,000 cost avoidance.

Total cost avoidance to date £4,600,000

## Implementation

Approach has been fully rolled out across National Gas Transmission and further site work to be completed 2023/24. Benefits to be tracked from site outputs and shared for value tracking.

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