

# **A Review on the Failure Assessment of External Corrosion Defects on API 5L X60 pipe steel**

**M. Hadj Meliani,**  
LTPPM, Hassiba benbouali University of Chlef, Algeria

## **Abstract**

Pipeline with multiple corrosion defects are often observed in the field. The strength of pipe with multiple corrosion patches depends on the corrosion patch intensity, their locations along longitudinal and circumferential directions of the pipe, in addition to the parameters influencing the strength of pipe with single corrosion defect. The existing design codes recommend the spacing between the corrosion patches when the interacting corrosion patches can be considered as a single patch for calculating the burst pressure of the defected pipe. In this paper, the strength and deformation characteristics of corroded pipe are investigated using finite element analysis. The parameters considered in the analysis are pipe geometries, number of corrosion patches and spacing between multiple corrosions. The effect of the interaction of adjacent corrosion using the distance similar to the distance recommended in DNV-RP-F101 code. The distances recommended in ASME B31G and CSA Z662-15 codes appear to be un-conservative. The finite element results are compared with different distance prediction models for corroded pipelines.

**Keywords:** Burst pressure, Corroded pipe, Multiple corrosion patches, Interaction.