

SIMULATION OF THE EFFECT OF SHEAR STRESSES ON THE MEASURED STRESSES INSIDE 50 MM ID PIPES

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Abstract

Stress corrosion cracking (SCC) and thermal fatigue of pipes can be accelerated by the presence of tensile residual stresses. The presence of such residual stresses can not be easily determined non-destructively. The proposed instrument uses a forward beam in a single inclination mode, i.e. single exposure technique (SET). The simulation conducted deals with the effect of shear stresses when using SET on the measured axial stresses inside a 50 mm inner diameter. These stresses are assumed to be present in the material generated during manufacturing. The accuracy of SET was evaluated to be satisfactory.