

INITIATION AND GROWTH OF CORROSION-FATIGUE CRACKS FROM CORROSION PITS USING ELASTIC-PLASTIC NOTCH ANALYSIS

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Corrosion pits are known to act as precursors for fatigue crack initiation under corrosive environment. The transition from pit to crack growth under corrosion fatigue is of considerable interest for many engineering structures. Several predictive methodologies have been developed. As the Pits grow with large aspect ratio, they behave like local stress/strain concentrations accentuating the crack initiation and growth. In this paper, we extend our recent analysis of crack initiation at the elastic-plastic notch tip stress fields* to evaluate its applicability to pit to crack transition.

Ref: K. Sadananda, A. Arcari, A.K. Vaudevan, Eng. Frac. Mech., 2017, 176 pp.144-160