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API Standard 579-1/ASME FFS-1, *Fitness-For-Service*, Second Edition

The methods and procedures in this Standard are intended to supplement and augment the requirements in API 510, API 570, API 653, and other post construction codes that reference *FFS* evaluations such as NB-23.

The assessment procedures in this Standard can be used for Fitness-For-Service assessments and/or rerating of equipment designed and constructed to recognized codes and standards, including international and internal corporate standards. This Standard has broad application since the assessment procedures are based on allowable stress methods and plastic collapse loads for non-crack-like flaws, and the Failure Assessment Diagram (FAD) Approach for crack-like flaws.

The Fitness-For-Service assessment procedures in this Standard cover both the present integrity of the component given a current state of damage and the projected remaining life. Assessment techniques are included to evaluate flaws including: general and localized corrosion, widespread and localized pitting, blisters and hydrogen damage, weld misalignment and shell distortions, crack-like flaws including environmental cracking, laminations, dents and gouges, and remaining life assessment procedures for components operating in the creep range. In addition, evaluation techniques are provided for condition assessment of equipment including resistance to brittle fracture, long-term creep damage, and fire damage.

The Fitness-For-Service assessment procedures in this Standard can be used to evaluate flaws commonly encountered in pressure vessels, piping and tankage. The procedures are not intended to provide a definitive guideline for every possible situation that may be encountered. However, flexibility is provided to the user in the form of an advanced assessment level to handle uncommon situations that may require a more detailed analysis.

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