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Abstract

For large diameter spiral pipes, there can be one skelp-end weld (SEW) in every 5-7 joints of pipes. The industry acceptance of SEWs is uneven although API 5L permits SEWs in finished pipes. A joint industry project (JIP) [1] was formed to develop uniformly acceptable inspection and test plans (ITPs) for SEWs. The development was conducted through two parallel processes: (1) fitness-for-service analysis of the SEWs under a variety of loading conditions expected in their life time and (2) consensus building based on the best practice and quality control protocols.

This paper details the fitness-for-service analysis of SEWs. A companion paper provides a summary of the recommended ITPs developed in the JIP [2]. In the fitness-for-service analysis, the SEWs were subjected to a variety of loading conditions covering construction, commissioning, and normal service with and without internal pressure. For in-service loading, both static and cyclic loading was considered. The extensive fitness-for-service analysis demonstrated that there is no inherent integrity risk associated with the SEWs when these welds are manufactured, tested, and inspected using generally accepted quality control measures applied to helical seam welds. Additional inspection and quality control for coil end properties and T-joints are recommended in the companion paper.

Keywords

Fitness for Service, Skelp-End Weld, Spiral Pipe