

Liu, M., Wang, Y.-Y., Rapp, S., and Collins, L., Recommended ITP for The Quality Assurance of Skelp-End Welds in Spiral Pipes, Proceedings of the 9th International Pipeline Conference, September 24-28, 2012, Calgary, Alberta, Canada, Paper no. IPC2012-90663

Abstract

API 5L allows skelp-end welds (SEWs) in finished pipes with some restriction on their position relative to the pipe ends. However, the overall acceptance of SEWs by the pipeline industry is spotty. For large diameter pipes, there could be one SEW for every five to seven joints of pipes. Therefore, allowing SEWs in finished pipes offers meaningful economic advantages to both pipe suppliers and purchasers when the quality of the SEWs can be assured. A joint industry project (JIP) was formed to develop uniformly acceptable inspection and test plans (ITPs) for SEWs. The JIP members included the five linepipe manufacturers and six pipeline operators. The ITPs were developed through two parallel processes: (1) fitness-for service analysis of the SEWs under a variety of loading conditions expected in the entire service life of a pipeline, and (2) consensus building based on the best practice and quality control protocols. The JIP group reviewed the suitability of existing QA procedures for SEWs and sought to provide users further assurance by developing supplemental QA/QC procedures. The ITPs contain additional provisions to supplement the requirements of the accepted industry standards, such as API 5L and CSA Z245.1. They incorporated specific quality control measures that address concerns in certain perceived weak points of SEWs, including the effects of coil-end properties, weld quality at T-joints, and open-root forming of the partial-penetration ID weld. This paper summarizes the deliberation and recommended resolution of several key issues related to the perceived quality concerns of SEWs. A companion paper covers the fitness-for service analysis of SEWs [1]. The project group, led by respective organizations of the authors, is working with API 5L committee to adopt some of the recommendations in the future revisions of API 5L.

Keywords

Pipeline construction, Linepipe specification, Spiral pipe, Skelp-end weld