In-service Welding Guidelines

Procedures for welding onto in-service pipelines and piping systems

Because the practice of welding onto in-service pipelines is not uncommon, there is a need to standardize how in-service weld repair procedures are qualified and selected. Using properly qualified procedures provides a cost-effective solution for minimizing the risk of hydrogen cracking by eliminating high-cost, unnecessarily complex procedures.

EWI has published **In-service Welding Guidelines**, a collection of procedures which are documented by both Welding Procedure Specifications (WPSs) and Procedure Qualification Records (PQRs). These procedures – qualified to the requirements of API 1104, API 1107, ASME Section IX, BS4515, BS6990, and CSA Z662 – were developed using both laboratory mock-ups and full-scale pipes, and validated by making field welds onto live gas pipelines. They apply to both hot-tap branch connections and sleeve repairs (both fillet and groove welds).

In-service Welding Guidelines provides best practices for repairing in-service pipelines under a broad variety of conditions and situations.

Benefits

Welding directly onto in-service pipelines is beneficial for saving time, labor, and expense:

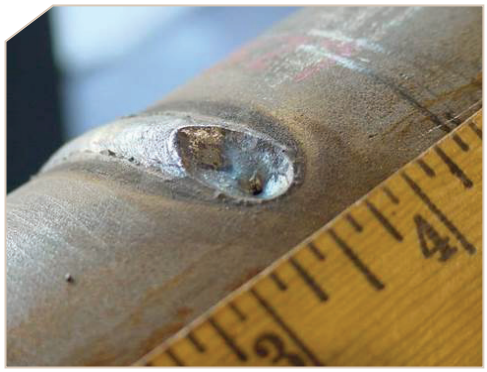
- *Uninterrupted Flow: Maintaining product flow eliminates lost income due to non-delivery as well as the expense and potential environmental impact of draining liquid pipeline contents and venting gas to the atmosphere.*
- *Best Welding Practice: Employing these procedures can significantly reduce the time required for welding and the potential for failures attributable to poor welding practice.*

To ensure the success of an on-line welding procedure, certain issues must be addressed to guarantee public, environmental, and worker safety both during and after welding. **In-service Welding Guidelines** covers the varying situations and conditions that need to be considered when welding on in-service pipelines.

Features

Guidelines are provided for:

- ***Repair type:*** *Processes for both hot-tap branch connections and sleeve repairs (both fillet and groove welds).*
- ***Method Selection:*** *Criteria for choosing the least complicated, least expensive welding procedure required for a particular situation.*
- ***Differing Conditions:*** *Procedures for a range of conditions including steel with a carbon equivalent (per IIW) of 0.50 or less; any diameter pipe operating at any flow rate; any combination of pipe, branch or sleeve thickness; gas metal arc welding (GMAW) and shielded metal arc welding (SMAW) using both low hydrogen and cellulosic electrodes; welding uphill or downhill; and any gas or liquid pipeline contents.*



The EWI Advantage

EWI empowers industry leaders to overcome complex manufacturing challenges and integrate new processes to accelerate production efficiency, integrity, and reliability. We apply our unique combination of materials, fracture mechanics, and process knowledge to deliver timely solutions in design and fabrication. We can assist you at any stage in your process or collaborate with you from start to finish.

Pricing and Contact Information

In-service Welding Guidelines is available to EWI members for $12,500 and to non-members for $16,000. For more information, contact **Michael Carney**, Senior Engineer, *mcarney@ewi.org.*

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