

CWI Services Case Study: 005

Gas transmission pipeline welding compliance surveillance

1 Background

Sinopec International Petroleum Service (Thailand) Co. Ltd (Sinopec) is the contractor for a 42-inch Pipeline in Thailand. Sinopec applied automatic GMAW and semi-automatic FCAW processes to weld the circumferential seam welds between line pipes. The weldments were required to comply with the welding requirements of API 1104 and sour service hardness requirements of ISO 15156-1. Figure 1 shows an area of pipeline welded with automatic GMAW process.

Chen Welding Integrity (CWI) Services was engaged by the Sinopec as an independent expert to carry out a welding compliance surveillance to ensure the welding comply with the requirements of project specification, qualification and construction codes, welding procedure and welding practices. The compliance surveillance from Sinopec was followed by a series of technical support provided to Sinopec by their certified international welding engineer (CertIWE).



Figure 1 An area of pipeline welded with automatic GMAW process

2 Approach

2.1 Overview

The compliance surveillance activities were carried out by the CertIWE who has provided technical support to Sinopec for the same project. The compliance surveillance activities included pre and post surveillance desktop activities and on-site surveillance. A systematic surveillance approach was applied for this compliance surveillance. The graphical summary of the applied systematic surveillance approach is showed in Figure 2.

2.2 Surveillance process

The compliance surveillance was completed based on the sequence of activities as follows:

1. Review project specification and welding code requirements, and define requirements and acceptance criteria.
2. Review compliance of approved WPS's and PQR's, and understand welding practice requirements and welding parameters.
3. Develop site surveillance checklist and parameters.
4. Carry out site surveillance by:
 - Witnessing welding practices before, during and after welding
 - Collect actual welding parameters
 - Dialogue with site personnel to assess their understanding of WPS requirements
5. Assess and verify the surveillance outcomes in accordance the requirements of project specification, welding code and approved WPS. The assessment and verification completed are as follows:
 - Verification of preheat temperature, interpass temperature, heat input, travel speed and time lapse between welding passes (for automatic welding only) in accordance with approved WPS.
 - Verification of welding practices e.g preheat method, post heating maintenance duration and interpass cleaning method.

3 Outcomes

Sinopec has benefitted from the compliance surveillance by implementing the recommendation from the surveillance outcomes to improve the welding practice to fully comply with the welding and quality requirements without compromising the productivity of pipeline installation.

Contact us

Further information related to welding surveillance services, please visit www.cwi-services.com
For enquiry related to quality management support, please contact us at funwee.chen@cwi-services.com

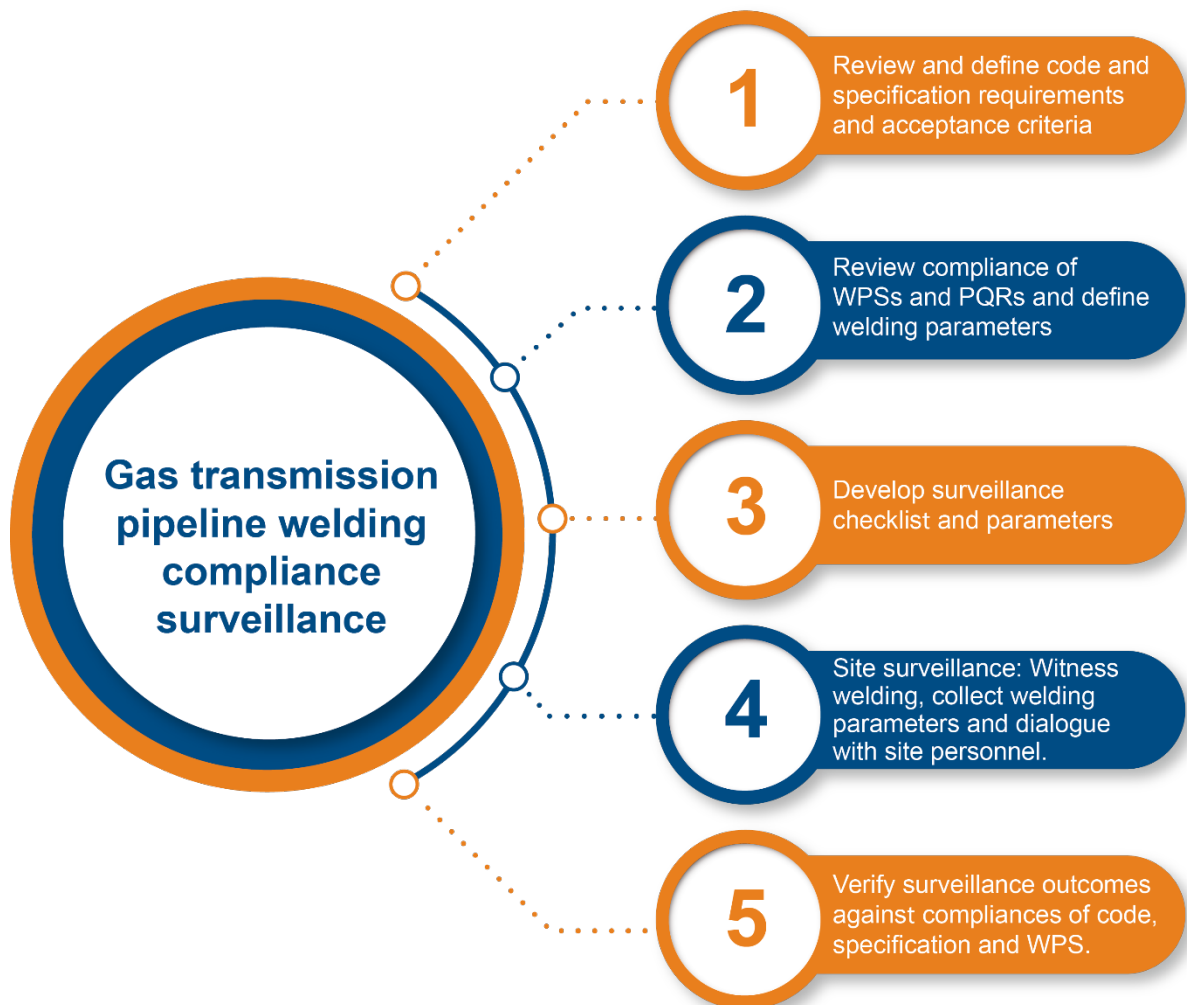


Figure 2 The applied welding compliance surveillance systematic approach