

## Case study 008

# The House of Welding Procedure Service

### *Introduction*

The House of Welding Procedure Service is a service concept developed from the technical services related to welding procedure and a service provided to industry since the establishment of CWI Services. The House of Welding Procedure Service is supported by the technical knowledge, expertise and experience, qualification and competency of welding engineers. These strong supports enable CWI Services to erect the four pillars of welding procedure service which are

- Pillar 1: Welding procedure development
- Pillar 2: Welding procedure review
- Pillar 3: Independent expert assessment for compliance and applicability of welding procedures
- Pillar 4: Training of development and review of welding procedures

The four pillars of welding procedure service enable CWI Services to tailor solutions for its clients to achieve technical excellence, cost optimisation and project delivery.

This case study discusses the four pillars of welding procedure service that CWI Services provides to industry. These four pillars of service are supported by the stiff foundation from the combination of technical knowledge, expertise and experience and qualification and competency of welding engineers. The four pillars of service bring the three-benefits composite roof to shield client's interest in the perspectives of technical excellence, cost optimisation and project delivery.

The stiff foundation supports the services, the four pillars of services and the three-benefits composite roof are presented in the concept of The House of Welding Procedure and it's illustrated in the infographic.

### *Pillar 1: Welding procedure development*

The welding engineers of CWI Services are experienced in providing welding procedure development service. From the experience of the successfully delivered projects, welding engineers of CWI Services developed welding procedures by considering the following factors:

- The factors that can optimise the compliance and qualification of welding procedures
- The factors that can be applied in the environment of construction
- The factors that can improve the productivity

In a welding procedure development project for an EPC Contractor of surge tank construction, the welding engineer of CWI Services design the qualification test programme, manage and witness the qualification tests, compile procedure qualification records and produce cover report. The qualification test programme was for automatic and manual welding processes but it was not solely designed based on the requirements of project specification, welding qualification and construction codes. Further considerations for construction accessibility and construction method were also included as test programme design considerations. The multi perspectives consideration delivered the benefits in the perspectives of technical excellence and cost optimisation for welding procedure development programme as well as improve project delivery of surge tank construction at a resource scarce remote project site.

Apart from the success project presented as above, CWI Services have also delivered other welding procedure development projects at different level of complexity and with different materials for different application and service environments. The experience gained from and success delivery of projects are continually driving CWI Services to provide the Pillar 1 welding procedure development service.

## ***Pillar 2: Welding procedure review***

Welding engineers of CWI Services are experienced in reviewing welding procedures for different materials and different qualification requirements. The in-depth understanding to code requirements, the knowledge and experience related to welding procedure qualification enable CWI Services to provide comprehensive review with a short lead time. Review carried out by welding engineers of CWI Services will not solely based on the requirements of project specification and qualification codes, however, technical justification in relation to potential risk to affect weld joint quality and integrity will also be considered while conducting review of welding procedure.

In an oil field development project, a welding engineer of CWI Services was engaged to review welding procedures for more than 100 different equipment to be constructed from different materials for different service and to be complied with different design and qualification requirements. The technical knowledge and experience of the welding engineer of CWI Services assisted the client to turnaround the welding procedure review in a short turnaround cycle and resulted to initiation of welding fabrication of equipment.

Apart for the review service provided to the oil filed development project, CWI Services was also engaged to review welding procedures for cases related to failure investigation, quality improvement and suitability of application. The experience gained from and success delivery of projects continually driving CWI Services to provide the Pillar 2 welding procedure review service.

## ***Pillar 3: Independent expert assessment for compliance and applicability of welding procedures***

The experience of welding engineer and strong knowledge in the perspectives of material, application of welding process, testing methods as well as in-depth understanding of the concept of code rules has made CWI Services become a competent provider for independent expert assessment service to resolve welding procedure issue related to compliance and applicability.

In an onshore pipeline construction project, disagreement of the qualification range of welding procedures happened between the Consultant and Contractor. This disagreement has resulted to stop of welding operation for certain locations. CWI Services was engaged to provide independent expert opinion for the compliance and applicability of welding procedures. The welding engineer of CWI Services carried out independent assessment to assess the compliance and applicability of welding procedures from the perspectives of welding practice, quality and integrity of weld joints. The independent expert assessment provided by welding engineer of CWI Services was accepted by the Consultant and Contractor and resulted to resume of welding operation. This has brought the benefits in the perspectives of technical excellence and cost optimisation as requalification was not needed as well as resumed of welding operation.

Apart from the onshore pipeline project, CWI Services also provided independent expert assessment service when welding quality and integrity were deemed due to suitability and compliance of welding

procedures. The experience gained from and success delivery of projects are continually driving CWI Services to provide the Pillar 3 independent expert assessment service.

### ***Pillar 4: Training of development and review of welding procedures***

The Pillar 4 training of development and review of welding procedure service is a service develop from the experience gained and skill developed from the success delivery of projects under the Pillars 1, 2 and 3 services. The experience, knowledge and skill of welding engineers enable CWI Services to tailor training course based on clients organisation business, qualification codes or specific needs to understand specific topics related to welding procedure. In addition, welding engineers of CWI Services also experienced in developing and deliver training course to clients in any industry.

The Pillar 4 service bring benefits to clients in the perspective of improving staff skill and knowledge in developing and reviewing welding procedures as well as formulate solutions to resolve welding procedure related issues. The benefits to be gained from the training provided by CWI Services can assist clients to avoid unnecessary delay of welding operation and optimise project profit in avoiding unnecessary welding qualification test which are benefits in the perspectives of cost optimisation and project delivery.

The experience gained and skill developed from the success delivery of projects under the Pillars 1, 2 and 3 services are continually driving CWI Services to provide the Pillar 4 training service.

### ***Conclusion***

The concept of The House of Welding Procedure Service has enabled CWI Services delivered projects under the four pillars of welding procedure service to clients in oil & gas, manufacturing, hydropower and consultation industries. Its clients have received benefits in the perspective of technical excellence, cost optimisation and project delivery.

The House of Welding Procedure Service is a multi-perspectives service formulated by CWI Services and it supported by the stiff foundation from the combination of technical knowledge, expertise and experience, qualification and competency of welding engineers. The stiff foundation for The House of Welding Procedure Services made CWI Services be capable to provide the four pillars of welding procedure service to clients. The four pillars of service bring the three-benefits composite roof to shield client's interest in the perspectives of technical excellence, cost optimisation and project delivery.

### ***Contact us***

For further information or enquiry related to The House of Welding Procedure Service, please visit [www.cwi-services.com](http://www.cwi-services.com) or contact us at [funwee.chen@cwi-services.com](mailto:funwee.chen@cwi-services.com)

