

## **CWI Services Case Study: 001**

### **Hydropower Plant Penstock Material Procurement Support**

#### ***Background***

AG Investment Limited (AG) is the EPC Contractor for the Divune Hydropower Plant (DHPP) owned by PNG Power Limited (PPL) in PNG. The output for DHPP is 3MW by two units of 1.5MW turbine.

DHPP is designed to use steel penstock to transfer water to the powerhouse located at 2km away from the weir intake. In order to ensure steel penstock meet the operation and the contract requirements related to material specification, Chen Welding Integrity (CWI) Services was engaged by AG to provide penstock material procurement support.

#### ***Approach***

The procurement support required from CWI Services was to ensure the penstock material to be purchased complies with ASME Section II requirements as specified in the DHPP contract specification. Hence, CWI Services provided an engineer experienced in pressure equipment material, welding and quality control to ensure the support provided to AG meets the DHPP contract requirements,

CWI Services applied the approach consists of the stages of derivation, specifying, evaluation and verification (DSEV) to perform the procurement support activities. The graphical illustration of the DSEV approach is given in Figure 1. The detail description of the DSEV approach and activities performed are as follows:

- Derive requirements from the contract and code
- Specify procurement requirements
- Evaluate material quality
- Verify mill certificates

#### **Derivation (D)**

The CWI Services engineer derive the penstock material essential requirements from the contract specification and the applicable ASME codes and also ensure the applicability of the requirements.

#### **Specifying (S)**

Subsequent to derivation of the requirements, the CWI Services engineer produce a procurement specification to specify the procurement requirements in accordance with the contract specification and the applicable ASME codes for the steel mill to comply with. In this stage, liaison support for clarifying the specification requirements between the steel mill and CWI Services were also provided to AG.

#### **Evaluation (E)**

During the manufacturing stage, the CWI Services engineer evaluate the material quality at the steel mill by witnessing the mechanical tests and examining the test results. The activities performed in the evaluation stage were to ensure the following:

- Mechanical tests perform in accordance with the requirements specified in the procurement specification.
- The test results comply with the requirements specified in the procurement specification.

### Verification (V)

Prior to delivery of the penstock materials, the steel mill was requested to submit mill certificates for verification. The CWI Services engineer verified the contents of the mill certificate in accordance with the requirements specified in the procurement specification.

### DSEV Approach

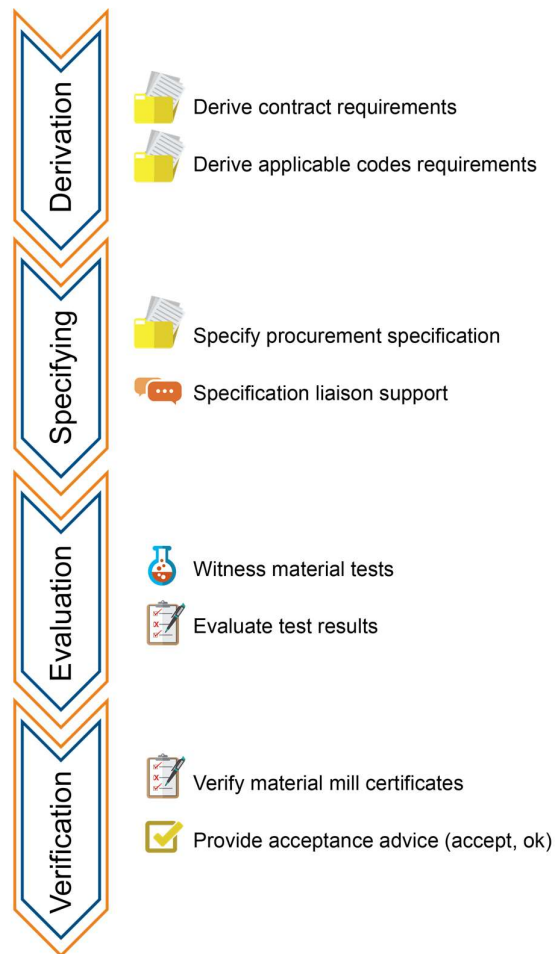


Figure 1 DSEV approach for procurement support

### Outcomes

The penstock materials manufactured in accordance with the requirements specified in the procurement specification met the manufacturing process, metallurgical, material properties, quality inspection, traceability and documentation requirements. Hence, AG allowed the steel mill to release the materials based on the acceptance advice given by CWI Services.

### Contact us

Further information related to the procurement support, please visit [www.cwi-services.com](http://www.cwi-services.com)  
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