BENDEELA PIPELINE CONTROL STRUCTURE

PROJECT DETAILS

OWNER/OPERATOR/CLIENT: SYDNEY CATCHMENT AUTHORITY

LOCATION: NSW

DATE: OCT 2008 – JUNE 2009

PROJECT VALUE: AUD2MILLION

awma
Water Control Solutions

BENDEELA PIPELINE CONTROL STRUCTURE

DESCRIPTION

The Bendeela Pipeline Control Structure is an integral part of the Shoalhaven water supply and power generation scheme.

The control structure isolates the Bendeela Pipeline from water contained in the Bendeela Pondage, protecting the Bendeela Power/Pumping Station from flood events and allowing internal pipeline inspections and maintenance works.

PRODUCT

AWMA were engaged to design, manufacture, supply, install and commission:

- 1 off 4300mm wide x 8000mm high marine grade aluminium segmented stoplogs (4 of 2m segments) including a 200mm venting valve inserted into 20m deep guides.
- 1 off marine grade aluminium, stopboard self-engaging lifting frame
- 1 off marine grade aluminium storage rack

SERVICES

AWMA provided 100% of the design, manufacture, installation and commissioning process to the value of AUD205,000.

Additionally, AWMA provided extensive documentation, training and support.

MANAGEMENT

Early Contractor Involvement:
Initial site visits by AWMA sales and engineering staff to contribute to conceptual design development (6 weeks).

Design and Drafting:
AWMA in-house engineering team (6 weeks)

Manufacture:
AWMA in-house manufacturing team including purchasing, fabrication, QA, administration (8 weeks).

Installation:
One mobilisation by the installation team.

Commissioning:
AWMA Operations Manager (1 day).

Documentation:
Including Safety In Design, ITP, QA, MDR, O&M Manuals, Installation Manuals etc, managed by AWMA in-house administrative and QA departments.

Training:
Onsite by our Operations Manager (1 day), plus documentation and on-phone support as required.

DELIVERY

AWMA successfully delivered the project on-time and without variation.

INNOVATION

AWMA's Stoplogs and ancillary equipment (lifting frame and storage racks) provide double isolation for the control structure.

When isolating the Bendeela Pipeline during maintenance, four of the stoplogs are fitted one on top of the other, in the existing concrete chambers.

The top sealing stoplog segments provide complete sealing against a water depth of 16m and inserted in 20m deep guides

Venting of the internal chamber to prevent a vacuum was provided via flexible pipe connected to the surface.

RELEVANCE TO FUTURE PROJECTS

The aluminium segmented stoplogs feature AWMA's self engaging lifting frame that insert and remove the stoplogs section into a 20m deep shaft without visual contact during operation. Operating pressure of 16m on comparably low yield strength fabricated aluminium stoplogs.

Bendeela is a high head segmented gate project, with sealing on all four sides. This project provided valuable lessons regarding the hydrodynamic forces and vacuum effects on gates under significant hydrostatic loads. These lessons have been incorporated into comprehensive CFD Models that can be applied to future projects.

While the static load is relatively simple to calculate and engineer a solution. The hydrodynamic loads acting upon the gate, water body, structure and winch is where previous experience holds greater value than text book analysis.

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