

SYDNEY DESALINATION PLANT

PROJECT DETAILS

OWNER/OPERATOR/CLIENT: SYDNEY WATER, NSW

CLIENT: BLUEWATER (A JOINT VENTURE OF
JOHN HOLLAND AND VEOLIA WATER)

LOCATION: DATE: OCT 2008 – JUNE 2009

DATE: JAN 2008 – JUL 2009

PROJECT VALUE: AUD2BILLION

REFERENCE: NO LONGER AVAILABLE



SYDNEY DESALINATION PLANT



DESCRIPTION

The wind powered desalination plant can supply up to 250million litres of water a day, which is up to 15% of Sydney's water needs. Through a reverse osmosis process freshwater will be extracted from seawater before it is further treated and connected with Sydney's water supply. At the time the reverse osmosis building was the largest of its kind under construction in the Southern hemisphere and the second largest in the world.

PRODUCT

AWMA were engaged to design, manufacture, install and commission over 72 water control gates for the Sydney (Kurnell) desalination plant.

- 4 off 2800m wide x 3000mm high x 12m head, grade 2507 super duplex stainless steel, top sealing outlet gates
- 4 off 1500m wide x 2750mm high x 12m head, grade 2507 super duplex stainless steel, top sealing intake gates
- various sized, grade 2507 super duplex stainless steel, top sealing, electric actuated penstocks
- various marine grade aluminium segmented stoplogs up 2800m wide x 3000mm high, 12m head, with bi-directional seals and 2507 stainless steel guide frames up to 15m long
- Epoxy coated steel stopboard self-engaging lifting frames

SERVICES

AWMA provided 100% of the design, development, testing, manufacture, installation and commissioning process to the total value of AUD2.2million.

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 (24 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:

Mobilisations by the installation team as per program schedules.

Commissioning:

AWMA Operations Manager (2 days).

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 on-phone support as required.

DELIVERY

AWMA successfully delivered the project on-time and without variations

INNOVATION

The super duplex stainless steel control gates were manufactured to the highest specifications including hydrostatic testing to 180KPa with an equivalent load of 200 tonnes.

Advanced manufacturing practices in-house saw hydrostatic testing included in the supply agreement for the Sydney Desalination Plant. The unique testing capabilities established at AWMA provides clients with reduced asset risk.

Due to the nature of the desalination plant, the design specifications of the Blue Water Project were extremely demanding. The penstocks and stopboards will withstand high head pressure capacity in off seating conditions, continuous exposure to unfiltered and waste backwash sea water as well as daily exposure to shock chlorination.

The larger gates are approximately 3m x 4m and manufactured from super duplex stainless steel, due to its corrosive resistance and 100 year life expectancy. All gates manufactured for this project comply with stringent 'continuous welding' specifications for super duplex stainless steel.

RELEVANCE TO FUTURE PROJECTS

Below is an excerpt from an audit report conducted during the contract to supply super duplex stainless steel (SAF 2507) penstocks and stopboards for Sydney's Desalination Plant, one of the industry's highest specified water projects in Australian history.

"The audit scope was to look at the performance of the fabrication facility for supplying the stainless steel penstocks and stopboards in accordance with the specification requirements and reviewed and approved in-house documents. Testing data, certification, product delivery, materials suitability, control of subcontracted work, calibration and make-up of MDR documentation were all investigated in the time available. As a result of the audit trail it was evident that the level of workmanship and attention to detail within the AWMA facility is of a high standard with personnel committed to providing a product that meets the expectations of the client."

- Sydney Desalination Plant BlueWater Independent Quality Inspector.

In addition to the above audit, AWMA demonstrated consistent quality control by the receipt of zero non-conformance reports for the life of the project.



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