



Project Snapshot

GIBSON ISLAND AWTP, AUSTRALIA

CAPACITY

100,000 m³/day [26 mgd]

INSTALLED UNITS

7 trains of R80S 8" Series

Pressure vessels

154 units per train [total 1,078]

START-UP DATE October 2008

WINNER – Global Water Intelligence Award

Gibson Island AWTP, Australia is the winner of the 2008 Global Water Intelligence Award for Water Reuse Project of the year.

Gibson Island Advanced Water Treatment Plant [AWTP]



BACKGROUND AND CHALLENGES

Since the early 1800s, Australia has been plagued by drought. Between 1826-1829 severe drought caused Lake George to dry up and the Darling River to cease flowing. In the late 1800s other areas became similarly plagued including Victoria, South Australia, Queensland and Western Australia. Based on historic climatic records the Australian government is responsible for declaring a region to be affected by drought or not, taking into account variables other than rainfall factors.

In 2006, the Australian government embarked on a strategic initiative aimed in response to population growth, climate change and severe drought. The Western Corridor Recycled Water [WCRW] Project was developed at a cost of \$2.5bn (AUS); it is located in South East Queensland [SEQ] and is the largest recycled water project in the southern hemisphere. It is also a key section of the SEQ Water Grid commissioned by the Queensland Government at an estimated total cost of \$9bn (AUS).

TECHNOLOGY

The WCRW is an ambitious project comprised of three advanced water treatment plants (AWTP): Bundamba, Luggage Point and Gibson Island that draws water from six existing wastewater treatment plants to produce purified recycled water. This water is distributed over a pipeline network over 200 kilometers (144 miles) long and provides alternative water source for the Swanbank, Tarong and Tarong North power stations. Water supply to Swanbank commenced in 2007 and mid 2008 to Tarong and Tarong North. The completed project provides secured water supply for industrial and agricultural applications as well as to supplement indirect potable reuse.

The Gibson Island Alliance includes MWH, Worley Parsons, Boulderstone Hornibrook and



ROPV manufactures pressure vessels in a wide range of sizes for all major industry systems and applications. We are the largest pressure vessel manufacturer in the Asia/Pacific region with headquarters in Harbin, China, manufacturing facility in Dezhou, Shandong Province and global sales office in San Francisco, California, USA.

Our commitment to quality and innovation has led to successful development of original equipment configurations with various industry partners for UF, EDI, large diameter membranes, and emerging water treatment technologies.

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United Group Infrastructure, and is responsible for building the Gibson Island AWTP, which produces up to 100 mega-liters (100,000 cu m³) of purified recycled water a day. The alliance is a key component of the Western Corridor Recycled Water (WCRW) project and is managed by WaterSecure on behalf of the Queensland Government.

The Gibson Island AWTP is located at Murrarie, East Brisbane on the southern side of the Gateway Bridge. The AWTP utilizes a combination of technology the provides three essential barriers:

MICROFILTRATION - removes suspended material and microorganisms including some viruses

REVERSE OSMOSIS - pushes water under high pressure through a semi-permeable membranes to remove viruses, organic compounds and inorganic compounds such as salt

ADVANCED OXIDATION - uses hydrogen peroxide and ultraviolet light to destroy any remaining compounds.

This is the first time that the combination of the three different technologies has been used, an outstanding work hailed worldwide with 11 international and national awards, including the prestigious GWI Global Water Award for "Water Reuse Project of the Year."

When GE Infrastructure Water & Process Technologies (GE) made a decision on the choice of pressure vessel manufacturer, they turned to the largest FRP pressure vessel in the Asia Pacific region – ROPV of Harbin, China. The combination of ROPV's highly competitive operational cost, bulk buying power of raw material resources and unmatched manufacturing experience in the region made the decision easy. Mr. Li Youqing, ROPV CEO said, "ROPV was born out of the experts from the Chinese government's highly reputed and respected Harbin FRP Design Institute. During its infancy in 1984, the institute's designers and researchers worked on advanced polymer materials to develop space age component parts working in cooperation with the country's national space and aviation industry. With this knowledge, GE is assured that they receive performance engineered pressure vessels from the engineering craftsmen of ROPV."

ROPV supplied GE with over 1,000 units of R80S 8" x 40" high pressure seawater pressure vessels which were developed as part of seven (7) trains with 154 units each for a total of 1,078 units that produces a capacity of 100,000 m³ per day [26 mgd].

The outcome is a pure, safe and secure source of water. Keith Davies, CEO of the Western Corridor project and WaterSecure said, "The advanced water treatment processes are second to none. The project is exceptional because it combines the best technologies known to humanity to produce one of the purest sources of water in the world. By using global experts throughout all stages of design and construction, we've assured of the best outcomes."



Committed to Quality and Technology

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