Australia

REUSE PROJECT SCORECARD

It has been almost impossible to pick up a water industry publication for the past several years without reading about Australia's water predicament. As the drought worsens, the stories are finding their way into mainstream newspapers and television and radio shows around the world.

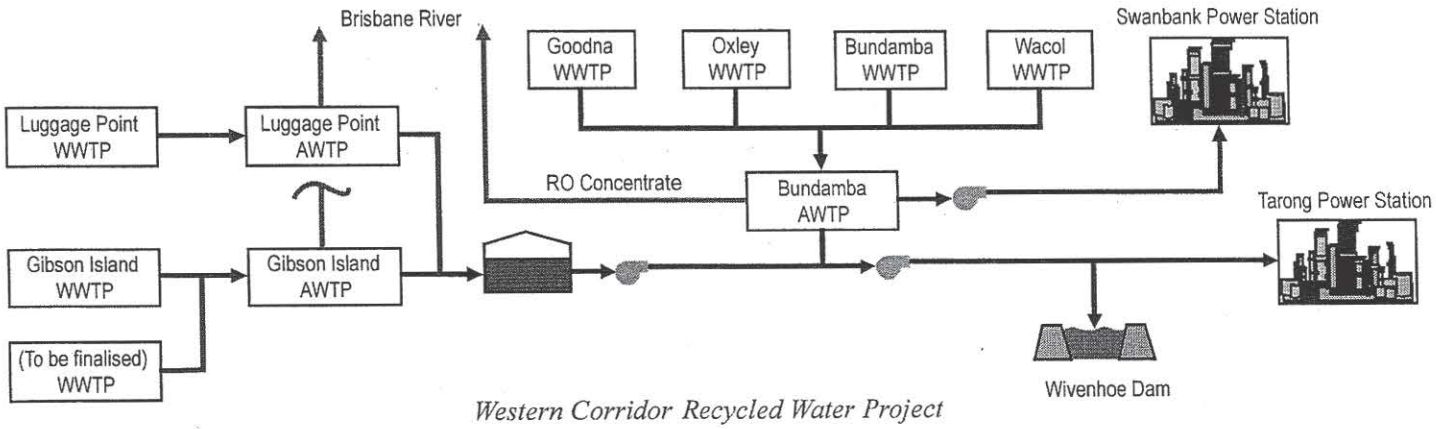
One of the most written-about water stories has been Queensland's A$2.4 billion ($2 billion) Western Corridor Recycled Water (WCRW) project. When completed in early 2009, it will be the southern hemisphere's largest recycled water scheme, repurifying effluent from seven secondary wastewater plants (WWTP). All of the advanced water treatment plants (AWTP) will employ MF/UF, RO and a final oxidation process that combines UV and hydrogen peroxide; however, the individual facilities will be constructed by different consortiums using various equipment suppliers.

A majority of the repurified water will be used in place of potable water for the Swanbank and Tarong electric power generation stations, and any excess will be used to top off the Wivenhoe dam reservoir as part of the state's indirect potable reuse (IPR) plan.

Because it is a complex project involving numerous treatment plants and multiple contractor alliances, pipelines, equipment suppliers and fast-track construction schedules, it is often difficult to follow discussions relating to the project. To help sort things out, *WDR* turned to process manager Troy Walker of Veolia Water Australia, the company responsible for integrating and operating the overall scheme, including an underground pipeline network extending 200km (125 miles).

Walker explained that all three different alliances have the same overall process trains but there are differences in pretreatment and membrane configurations. "Treated water from the Luggage Point AWTP will be combined with treated water in the Gibson Island treated water storage tank. It will then be pumped 66km [42 miles] to the Bundamba AWTP where it is boosted and combined with a portion of that plant's treated water for delivery an additional 80km [50 miles] to the Tarong Power Station. A takeoff point exists approximately half way along this section of pipe to the dam. A separate pipeline from Bundamba Stage 1A delivers water directly to the nearby Swanbank power station," he said.

AWTP	Bundamba Stage 1A	Bundamba Final	Gibson Island Stage 1A	Gibson Island Final	Luggage Point
Capacity ML/d, (MGD)	20 (5.3)	60 (16)	50 (13.2)	100 (26.4)	70 (18.5)
Project Commencement	Sept 2006	Nov 2006	Nov 2006	Jan 2008	Nov 2006
Plant Start-up	August 2007	July 2008	Dec 2008	Early 2009	Dec 2008
RO OEM	Koch Membrane Systems		GE Water		Doosan Hydro
MF/UF Pretreatment	Siemens Memcor		Siemens Memcor		Pall
Aliiance Partners	Black & Veatch, Theiss		MWH, Burns & Roe Worley, United Group, Baulderstone		CH2M Hill LaingO'Rouke
Operations Team	Veolia Water, Separations Process Inc (SPI)				



Western Corridor Recycled Water Project

Although RO concentrate from Luggage Point and Gibson Island can be discharged to the Brisbane River after some dilution, concentrate from Bundamba AWTP will be discharged to a more environmentally-sensitive tributary of the river. Black & Veatch is responsible for the Bundamba AWTP and according to Scott Freemen, the company's technology leader, the concentrate will undergo nitrification for ammonia removal, chemical precipitation to remove phosphorous and biological denitrification before discharge to ensure it will meet the mass nutrient loading goals on the ultimate receiving water—Moreton Bay.

Veolia has been involved in the project as the scheme operator since October 2006 and has worked closely with membrane specialist SPI. Together, they have provided oversight of the pilot operations, assisted with the specification preparation and are working to ensure there is as much commonality of design and equipment as possible.

Operator hiring and training took place concurrent with Bundamba's phase one startup period, and the operations staff provided critical support during initial sampling, analysis and setup of maintenance management systems. Bundamba Stage 1A is now fully operational and plant managers are in place at the other AWTPs.

But the rapid growth of Australia's mining sector continues to cause staffing problems as operations people are being hired for the Gibson Island and Luggage Point plants. According to Walker, "Building up an operations team for a scheme of this size has been a real challenge, particularly in our extremely tight labor market. The country is undergoing a resources boom right now, with China buying whatever we can dig up."