

Precedent: The \$US480 million Orange County Groundwater Replenishment System in California opened in 2008.

GROUNDWATER REPLENISHMENT SYSTEM

Pushing the water recycling frontier

The WA Water Corporation continues to set the pace on “climate independent” water, breaking ground on a novel water recycling scheme, writes Richard Collins.

In a water sector currently dominated by concerns over operational efficiency and asset maintenance, the Most Valuable Project of the year gong goes to Perth’s landmark groundwater replenishment scheme.

Stormwater Australia gave its infrastructure award to Banyule City Council’s \$6 million stormwater harvesting project in Melbourne, complete with a “double decker” design of two megalitres of storage under a wetland (see February issue).

But it’s impossible to go past the West Australian project as the signature development of 2014 given it will be the country’s first ever planned potable reuse project.

In October the first sod was turned on the ambitious project that will inject up to 14 gegalitres a year of highly treated wastewater into the deep aquifers below Perth. It will then seep through the aquifers over many years before reaching drinking water bores.

The government carefully frames the project as “securing Perth’s groundwater supply”. For example, the press release announcing the contract to build the \$125 million Advanced Water Recycling Plant relegated to a footnote the fact it will supply up to 20% of Perth’s future drinking water needs by 2060.

But it has not shied away from the toilet-to-tap implications. The Water Corporation has worked tirelessly during the project’s three-year trial phase to engage and inform the community.

Water Minister Mia Davies said almost 11,000 people had toured the visitors centre at the trial plant in northern Perth, while community support for the groundwater replenishment scheme has remained steady at about 76%.

The project is the centrepiece of the Water Corporation’s 50-year plan, ‘Water Forever: Towards Climate Resilience’, which includes goals to increase water recycling to 60% and develop up to 100 gegalitres of new water sources, including desalination.

The term bandied about water circles in the west is “climate independent”, hardly surprising given the crash in annual rainfall over the last 25 years and modelling that suggests some areas of the southwest will see water demand surpass supply by 2060 without further interventions.

Advanced Water Recycling Plant

Water Corporation CEO Sue Murphy told *WME* last year they were adopting a flexible planning approach.

“Our aim ... is to build a very small, maybe 7 GL per annum, groundwater

injection scheme and then grow that as Perth grows. If we get a run of very dry weather we can accelerate the growth of the scheme. If we get rainfall we can slow down the growth,” she said.

It turns out, however, that the benefits of scale were too much to ignore.

In July the government awarded the contract to build the Advanced Water Recycling Plant to the KEP Recharge Alliance of Thiess and CH2MHill, and sized it at 14GL.

According to Davies, “due to a comprehensive and competitive tendering process and strong competition for the contract, the state government has been able to effectively get the first two planned stages built for less than the price of one – saving \$24 million in the process”.

The plant could be further expanded to 28GL over several years as demand increases, she added.

Another major part of the scheme, a 754m recharge bore into the deep Yarragadee Aquifer, was completed in September. It will recharge a quarter of the recycled water produced by the plant each year. The groundwater replenishment scheme is scheduled to go live in late 2016; when it does it will push out the frontier on alternative water sources in Australia.

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