Adelaide Desalination Plant

TRILITY®

This state-of-the-art desalination plant is used to supply drinking water to Adelaide. It has the capacity to supply up to 100 billion litres of water a year, which equates to about half of Adelaide's current water needs

TRILITY is a Joint Venture (JV) partner in AdelaideAqua Pty Ltd, the entity which has an agreement with SA Water to operate and maintain the plant until 2033.

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The objective of this project was to deliver a climate independent water supply, to provide protection against periods of drought and to reduce reliance on the River Murray. The Adelaide Desalination Plant (ADP) provides a sustainable water supply to South Australians. It has the capacity to supply up to 300 million litres of desalinated drinking water each day.

The facility is located in Adelaide's southern suburbs and meets the strict environmental performance criteria required for a project of its significance and scale.

The plant features:

- Marine intake and outfall tunnels
- An ultra-filtration membrane pre-treatment process which delivers optimum reliability, reduced energy usage and treatment requirements
- A highly innovative Reverse Osmosis (RO) membrane technology, which ensures the efficient extraction of seawater and a smaller plant footprint
- Ground breaking energy efficiency initiatives, which reduce reliance on the external power supply
- An innovative diffuser design, which ensures saline concentrate is returned to the marine environment in an environmentally sustainable manner

As a result of the use of innovative technology, the plant has one of the lowest capital cost per megalitre of installed capacity and has the lowest operating cost per megalitre of water produced by any large desalination plant in Australia.

Desalinated water is pumped from the Adelaide Desalination Plant (ADP) through a pipeline to the Happy Valley Reservoir where it is combined with treated water from other sources before entering the existing water supply network.

The ADP is designed for flexible operation to meet fluctuating demand. It can be efficiently operated over a wide range of water production rates up to 300 million litres each day, improving water reliability and ensuring the State is equipped to deal with drought.

This climate independent source is a significant water security asset and is South Australia's insurance policy against future droughts. Desalinated drinking water resources operate

independently of rainfall. They also reduce the demands on Adelaide's major water resources, such as the River Murray and ground water reserves.

The project successfully achieved the important milestones for the delivery of the ADP and ensured it is one of the lowest whole-of-life projects for any large desalination plant in Australia.

Who

SA Water is a water utility wholly-owned by the Government of South Australia. It provides water and wastewater services to approximately 1.5 million people across South Australia and has more than 1,500 employees.

What

Adelaide Desalination Plant (ADP)

Where

Port Stanvac, south of Adelaide

Why

South Australia is the driest state in the driest inhabited continent, Australia and has traditionally relied on the River Murray to provide up to 70 per cent of its water supply. During the millennium drought there were record low flows into the state's natural catchments, coupled with five years of historic low flows in the River Murray, which severely restricted the amount of water available for supply.

To meet South Australia's drinking water demand, the Government of South Australia recognised the need to build a desalination plant to provide a diverse water supply, allowing South Australians to reduce their reliance on the River Murray and other rain-dependent water sources, including rivers, reservoirs, aquifers and storm water.

Awards

2014 Adelaide's Port Stanvac Water Desalination Plant received the GPM Global Sustainability Project of the Year Award for 2013

2013 The Adelaide Desalination Plant project won international recognition, in winning the Project Management Institutes (PMI) Project of the Year Award. It was also named the International Project Management Association (IPMA) Gold Winner for Project Excellence in Mega-Sized Projects

2013 Global Water Intelligence Desalination Plant of the Year Distinction Award SA Water, C'wealth of Australia and AdelaideAqua

2013 Project Management Institute (Australia) Australian Project of the Year Winner, SA Water

2013 Water Industry Alliance Smart Water Awards (Planning & Delivery and Resource Management categories) Winner – Planning and Delivery Category, SA Water

2012 National Electrical and Communications Association National Excellence Award Category 6 – Large Industrial Winner, O'Donnell Griffin

2012 Civil Contractor's Federation Earth Awards Category 5 – Projects Greater than $75 Million Contract Value Winner, SA Water and AdelaideAqua

2012 Australian Water Association (South Australian Branch) South Australian Infrastructure Innovation Award Winner, SA Water and AdelaideAqua

2012 Master Builders Association SA Branch Excellence in Services – Category 6 Winner, Hindmarsh Plumbing

Snapshot

Client	SA Water
Type of Contract	Design, Build, Operate and Maintain (DBOM)
Facilities	Desalination plant with marine intake and outfall tunnels
Technology	Reverse Osmosis
Design Capacity	100 GL per annum, with capacity to deliver up to 300 million litres of water each day
Term	20 years
Capital Cost	c. $1.83b

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For further information

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