

Beenyup WWTP Stage 2 Odour Control and Upgrade



Location	Perth, WA
Client	Water Corporation
Contract	Alliance
Total Cost	\$40 million
Duration	December 2002 to May 2006



AN ALLIANCE WITH BLACK & VEATCH, GHD AND THE WATER CORPORATION TO REDUCE THE ODOURS BY UP TO 95% AND INCREASE PLANT CAPACITY BY 20%

Leighton Contractors, Black and Veatch and GHD were selected by a rigorous design and open-book process. Commitment to the alliance culture was a critical selection factor. After preliminary design, the project team moved to an integrated office on site. By working together the team achieved significant benefits to the project.

Whole-of-life cost analysis was applied to all aspects of the upgrade. This process justified some cases of higher capital cost for improved performance and reduced operating expense in the long term.

State-of-the-art technology was introduced using ultrasonic disintegration to enhance the treatment process. Odour control is by catalytic chemical scrubbers with 100% standby capacity.

Odour treatment was completed in December 2003.

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Innovations Space Saving

As part of the upgrade the plant needed large flow-splitting weir chambers, however there was nowhere to put them. The alliance came up with the breakthrough idea of building them within the aeration tanks, saving space and money and increasing efficiency of operation.

Building saved

The original concept included a new sludge dewatering building. The Alliance used temporary mobile centrifuges which allowed the building to be refurbished and reused. Not only did this save costs but it also presented a more compact and efficient plant.

Growing Digestors

The digestors were operating at their limits with reduced "active" volume due to accumulated rags, grit and scum. The Alliance came up with the idea of extending the walls upwards using precast concrete panels. This concept saved \$6 million in capital costs and created space for other process plant.

Project Target Costs

The PTC was derived at the preliminary design stage. Key performance indicators were used to modify the "pain/gain" share and ensure that cost is not the only incentive.

Outcomes

- Alliance team established in common site office
- 150 procurement packages placed
- Completion schedule on target
- Final cost projection below PTC

Team Work

The team at Beenyup was made up of people who have worked together on previous projects with the Water Corporation. Recent examples include:

- Construction of Samson Brook Pipehead Dam
- Subiaco WWTP design and construct tender
- Remedial works for Serpentine Dam
- Construction of MIEX filtration unit at Wanneroo
- Construction of Harvey Dam