Barwon Water Biosolids Management

Australia and New Zealand

Water

Plenary Environment operates this fully-enclosed thermal drying facility for treating Barwon Water's biosolids, a by-product of the treatment of waste water and sewage.

The facility treats Barwon Water's biosolids to T1 Grade; the highest treatment grade under EPA standards.

Project facts

Location
Geelong, Victoria, Australia

Client
Barwon Water

Value (NPV)
A$77.6 million

Our role
Project sponsor
Equity investor
Financial arranger
Asset manager

Design, construction, operations and maintenance contractor
TRILITY

Beneficial use provider
Ferti-Tech

Financial close date
August 2007

Completion date
September 2012

Contract terms
Design, build, finance, maintain, and operate for 20 years

Awards
- Sustainable Water Management, 2014 Banksia Sustainability Awards
- Environmental Protection Award, 2014 Premier's Sustainability Awards

Project website
www.dtf.vic.gov.au/partnerships-victoria-ppp-projects/barwon-water-biosolids-management-project

The Plenary solution also involves the beneficial use of these treated biosolids. Currently pelletised biosolids are dispatched from the facility to more than 30 broad acre cropping and pasture farms across Central and Western Victoria.

This was one of the first projects to be delivered under the Partnerships Victoria framework for a local water authority.

Extensive consultation processes resulted in community criteria being included in the contract and delivered by Plenary Environment. The outcome was the selection of a thermal drying facility that:

- is fully-enclosed with zero odour beyond Barwon Water's fence;
- is no taller than the existing buildings at the Black Rock water reclamation plant;
- produces the highest treatment grade of biosolids possible;

- has no visible air emissions; and
- includes substantial investment in landscaping and aesthetics.

The facility replaces the practice of transporting biosolids 80 km by truck to another facility for drying, reducing the number of heavy trucks on local roads by 1000 truck movements each year.

Design features

Using a proven drying technology, the facility provides the means to safely receive, store and treat Barwon Water's biosolids in a manner that is sympathetic to the local environment and the surrounding community.

The faciliy is enclosed within an architecturally designed building, with a colour scheme that is reflective of the local coastal palette. It is also designed to comprehensively treat all odour, eliminating the potential for nuisance or adverse impact on the local environment.

The facility uses recycled water to cool the vapour generated during the drying process. This water is treated and returned to Barwon Water's Black Rock Water Reclamation Plant.

The facility has been designed and constructed with sufficient capacity to cater to Barwon Water's needs for the 20 year Operating Term and to deal with the full range of expected operating conditions.

Innovations

This facility places Barwon Water at the forefront of responsible biosolids management in Australia, and was one of the first projects in the water sector to be delivered as a PPP project under the Partnerships Victoria framework.

It required Plenary to search internationally for the most reliable and environmentally sustainable technical solution for the treatment of some 60,000 tonnes of biosolids each year. To ensure the technology was suitable, a pilot plant was imported to test the performance and operation of the drying technology under local conditions.

Following the pilot plant testing, Plenary selected an innovative thermal drying technology that pelletises the biosolids and treats them to the highest treatment grade possible under EPA guidelines. Achieving the T1 Treatment Grade permits the widest possible beneficial use of the dried biosolids, including 100% recycling as a nutrient rich farm fertiliser or as a fossil fuel replacement.

Local impacts

Economic

Through the construction period, the project significantly contributed to local employment, through direct construction labour, subcontractors and local fabrication and engineering.

During the operating phase, the staffing and maintenance is being undertaken by staff living locally, providing further support to the community.

Environmental

The facility contributes to Barwon Water's long-term goal of a "no waste" sewerage system – where 100% of recycled water and 100% of biosolids are committed to sustainable use. The Barwon Water Biosolids Management Project provides an environmentally sustainable and long-term management scheme for these biosolids produced by all of the region's water reclamation plants.