

CASE STUDY

INDUSTRIAL USE

Vinpac and Adelaide Brighton Cement (ABC) Angaston, Barossa Valley, SA



Australian Government
Grape and Wine Research and
Development Corporation



Vinpac is a Barossa Valley-based provider of packaging and winemaking services, including winemaking, laboratory, bottling, warehousing and packaging.

Vinpac's Angaston facility produces about 30 million litres of wastewater a year. Its wastewater treatment used to include the use of evaporation lagoons at a neighbouring site, but this became unsuitable due to the volume of water produced.

Adelaide Brighton Cement (ABC) is a leading producer of integrated construction materials and lime. Its Angaston plant produces 280,000 tonnes/year of cement and lime products for the construction industry.

It wanted to reduce the consumption of mains water, but engineering solutions were expensive and limited in their scope. It had already reduced its mains water consumption with the capture and reuse of stormwater from the site.

In reviewing options to change its water management processes Vinpac identified the following opportunities:

- build a water treatment facility to improve the water to a level suitable for irrigation;
- pre-treat the water for disposal to sewer;
- reuse at ABC; or
- truck the water offsite for disposal via pasture irrigation or hydrating compost.



Vinpac's wastewater treatment plant with Adelaide Brighton Cement in the background.

*Photograph:
Paul Grafton,
Vinpac International*

The water is high in organic material (BOD 2,000 to 3,000 mg/L) which, combined with the flow rate, makes it unsuitable for discharge to the local municipal wastewater treatment plant without significant pre-treatment.

Similarly, the capital and operational costs of on-site treatment were much less favourable than pre-treatment for reuse at ABC, which had the lowest capital and operating costs, lowest risk and no impact on reuse from rainfall. The ABC option also directly replaced mains water.

To establish a formal arrangement to reuse the wastewater, Vinpac and ABC agreed on a set of specifications for the water and a plan for implementing the project. A trial ensured that the water quality did not affect the quality of the product produced by ABC and ABC's EPA licence was amended to include the use of winery wastewater and wash water.

The new wastewater treatment plant was designed to collect and treat 200,000 L of water per day and deliver it to ABC over a 10-hour period.

It also included buffer storage of up to two weeks' water at a daily rate of 200,000 L and capacity to collect and treat peak storm-related water flows. It operates 24 hours a day, seven days a week, without human intervention. The treatment train consists of adjusting and controlling the water's pH.

ABC controls the treatment valve system and monitors the water level in the storage tank, flow rate in the pipe and pH of the storage tank. The system is wirelessly managed using SCADA.

Reference

Grafton, P. (2009) *Vinpac and ABC Water Reuse Project – Case Study*. Presented at 'Sustainability through Technology' Winery Engineering Australia Annual Conference and Exhibition.

Acknowledgement

Paul Grafton, Vinpac International

