

CASE STUDY

JOINT TREATMENT AND REUSE SCHEME

NPEC/Tarac Technologies Nuriootpa, Barossa Valley, SA

The 75 ha North Para Environment Control (NPEC) site, next to Tarac Technologies in Samuel Road, Nuriootpa, was established in 1975 with a 1.2 km pipeline from the industrial site that housed the four businesses: Penfolds, Kaiser Stuhl, Tarac and TST.

Today, NPEC is jointly owned by Fosters and Tarac who are both committed to the sustainable management of winery and distillery waste water at the NPEC site and through their investment have significantly increased the beneficial re-use of wastewater from the site in recent years.

Until 2009, NPEC received wastewater from the wineries and distillery in Nuriootpa as well as Tarac Technologies' Samuel Road operations. In the past two years, pipelines have been extended to connect the nearby Peter Lehmanns, Richmond Grove and Torbreck wineries to the treatment plant.

There are two treatment plants on the NPEC site, allowing wineries the opportunity to segregate and dispose of waste according to its strength. Tarac's high-strength plant takes approximately 60 ML/year of effluent with a BOD above 20,000 mg/L and EC above 20,000 $\mu\text{S}/\text{cm}$ from Tarac Technologies after it has recovered products such as alcohol and tartrate from wine processing residuals.

Wastewater treatment consists of anaerobic and aerobic lagoons followed by microfiltration and reverse osmosis to provide about 35 ML of soft water (EC <500, BOD < 5) for boiler feed and cooling towers. Approximately 25 ML of high salinity (EC >70,000, BOD <5) retentate from the reverse osmosis goes into evaporation lagoons.

Biogas produced in the anaerobic lagoon is captured and returned to Tarac for steam raising in a boiler co-fired with natural gas.



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Grape and Wine Research and
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NPEC site in Nuriootpa,
South Australia

Photograph: Mike Carson,
JJC Operations

The low strength plant treats up to 250 ML/year of waste with a BOD below 5,000 mg/L and EC below 1,200 μ S/cm, with the aim of producing treated water suitable for irrigating neighbouring grapevines. The water is treated by anaerobic and aerobic lagoons and stored over winter before reuse. Media filtration has been incorporated to improve reuse quality for off-site customers.

Fifty per cent of the treated water at the low-strength plant is sold back to customers for vineyard irrigation, private garden watering and construction watering. There is 200 ML of winter storage on-site (about 12 months' storage). The 50% of water that is not sold is reused onsite for forage irrigation.

Reference

Carson, M. (2007) *Waste Water Reuse: From Woodlot to Vineyard*. Presented at 'Progress Through Engineering' Winery Engineering Australia Annual Conference and Exhibition

