



**Environmental Services Pty Ltd**

*"Engineering & Environmental Solutions for Wineries"*

ACN 096 265 780

PO Box 443 TANUNDA SA 5352

M 0411 158 528 P (08) 8563-0634 F (08) 8563-0596

W [www.archerenviro.com.au](http://www.archerenviro.com.au) E [peter@archerenviro.com.au](mailto:peter@archerenviro.com.au)

## Lane Vineyard Winery Waste Water Management

The Lane Vineyard winery is licensed to process up to 499 tonnes per year. The wastewater from the plant is treated aerobically and then re-used as irrigation water to the vineyard at the winery site.

Screens located in the winery itself remove the gross solids from the wastewater. Although winery wastewater is 90% soluble BOD (Biological Oxygen Demand), the longer the solids (such as skins) are kept in the wastewater, the more BOD leaches out of the solids increasing the BOD levels and making wastewater treatment more difficult.

The secret of any wastewater system is to remove these solids early.

The wastewater is collected in a sump in the bunded area. This sump acts as the first control point for the wastewater. From this sump, the wastewater is pumped into a 95 kl treatment tank.

The two factors in winery wastewater treatment are time and air.

Located in this treatment tank is a floating aerator. This aerator injects oxygen into the wastewater to treat the wastewater and remove nutrients. This size of this tank has been calculated so that the wastewater has a minimum retention time to complete the BOD reduction reaction.

This BOD reduction reaction generates alkaline by-products and as a result of this no addition of pH correcting chemicals is required by the winery.

This saves the winery

- money, by not using caustic soda
- time, by not tying up operator's time
- OH&S risk, by not needed a bunded area to store the chemical, PPE needs
- The sodicity of the treated wastewater is kept to a low level.

The aerator run time is determined by the pH of the water in this tank. The aim is to keep the pH between 6 and 8. Over 8, the aerator run time is reduced, and below 6, the aerator run time is increased.

When the water is pumped into this treatment tank from the sump, water overflows from this treatment tank into the clarification tank under gravity.

The purpose of the clarification tank is to settle out biomass in the wastewater. When untreated, winery wastewater biomass is difficult to settle. After treatment,

wastewater biomass settles out of solution rapidly. This biomass settles to the bottom of the tank to form an anoxic zone where denitrification of the wastewater occurs.

Biomass is routinely extracted from this tank annually and taken off site. Desludging of the treatment tank is not required as such unless there is a significant non-organic load such as DE.

When water flows into this clarification tank, it displaces clear water which then overflows into the storage tank (95 kl). The water in this storage tank is then recirculated and filtered through a self-cleaning filter to remove final solids. That way, the water is getting cleaned as it is being stored.

Located in this tank is a second aerator that keeps the wastewater fresh. When wastewater is stored for a long period of time without aeration, the dissolved oxygen content of the wastewater drops and then mal-odours may be generated.

The backwash from this filter is returned to the treatment tank for additional treatment.

When the water level in the storage tank is high, irrigation to the vineyard occurs.



Aerator in action

The WWTP will easily treat up to 50 kg of BOD per day. Treatment efficiency is around 90+%.

What is 50 kg of BOD? – It's about 1,000 litres of wine or lees lost down the drain.