

CASE STUDY

WASTE STREAM SEGREGATION

Simple segregation measures



Australian Government
Grape and Wine Research and
Development Corporation



Separation of stormwater

Stormwater has several elements:

- roof;
- tarmac/roads; and
- cellar areas.

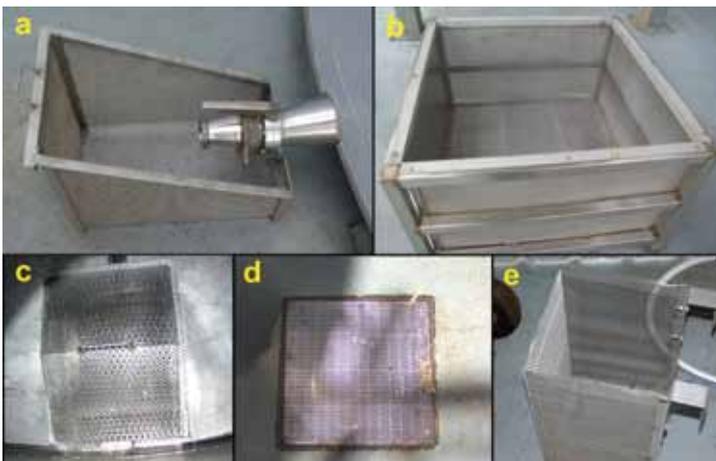
Improved management of stormwater includes:

- removing roof water from the wastewater stream and sending it directly to a reuse system or for use as process water;
- separating tarmac runoff to a reuse system at sumps, with a first flush system; and
- separating cellar runoff at sumps with a first flush system.

Replacing earth filtration with crossflow

Replacing earth filtration with crossflow reduces the recovered wine's exposure to oxygen, eliminates water use in vacuum pumps and eliminates the cost and waste disposal associated with diatomaceous earth.

At Oxford Landing, Yalumba has replaced 90% of earth filtration with microfiltration. For lees filtration it has recently implemented large diameter hollow fibre membranes for high solids streams (other than juice bottoms).



Solids removal screens in use at the Rycroft Winery (Treasury Wine Estates): (a) screening from tank to waste; (b) screening red fermenter wash water; (c) screening during tank washing; (d) drain cover screen; and (e) general purpose screen.



Squeegee to replace hosing down areas.



Piped system for cellar wastewater within the cellar drains at the Yalumba Oxford Landing Winery.

Stormwater - Oxford Landing Winery

Yalumba's Oxford Landing Winery use a 'decision sump', where pH and EC are monitored, with flows below 800 EC and with a pH of 6.5 to 9.0 able to be diverted directly to its clearwater storage for irrigation reuse. Outside of vintage this system is used only for heavy rainfall events.

The cellar water collection system at Yalumba is supported with a dual wastewater collection system. This has the cellar drains running to the decision sump. Inside the cellar a separate piped system takes all waste from tank washing directly to the wastewater treatment system. The above photo shows the internal drain and the system used to direct tank waste to the piped system.

Stormwater – Treasury Wine Estates



Stormwater swales at the Wolf Blass Winery. Photo courtesy of Rohan Wighton, Treasury Wine Estates

Wolf Blass Winery

At the Treasury Wine Estates Wolf Blass Winery, a first flush system is used in the majority of the tank farm and processing areas of the winery, whereby the first flush of stormwater is pumped to the wastewater treatment plant (WWTP). Electrical conductivity (EC) sensors situated in the pump stations, trigger a diversion to stormwater when the EC is $<500 \mu\text{S}/\text{cm}$. The stormwater then



Stormwater diversion sump at the Wolf Blass Winery, with the diversion to stormwater shown at the left side of the sump. Photo courtesy of Rohan Wighton, Treasury Wine Estates.



Storage of high-strength waste for distillation at the Yalumba Oxford Landing Winery. These tanks are conveniently located between the marc bays and grape receive area, ensuring ease of access for tankers and ease of access for marc bay drainage, fermenter sludges and spills in the crusher pit.

flows to the stormwater dam, via grassed swales (photo above). In another area, a rain switch is used to divert stormwater flows after a certain amount of rainfall.

During diversion to stormwater, the wastewater sumps fill to a higher level that has a gravity drain on the left side of the sump shown below.

Collection of high-strength wastes

Tank sludges, crossflow retentate, centrifuge sludges, marc bay drainage, spills and leaks in crusher pits and spent caustic can all be sent for distillation, tartrate recovery or separate high-strength waste treatment.

In many wineries there may be spare or old tanks at appropriate locations in which these waste products can be stored. If no old tanks are available, poly tanks are a relatively inexpensive



Storage of spent caustic waste at Treasury Wine Estates Ryecroft Winery.

solution. The above photo shows the poly tanks used for storage of product for distillation by Tarac at Yalumba's Oxford Landing Winery. The photo below shows the old tanks use at the Treasury Wine Estates Ryecroft Winery for storing of spent caustic solution before collection by Tarac and disposal in the dirty stream of NPEC.

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