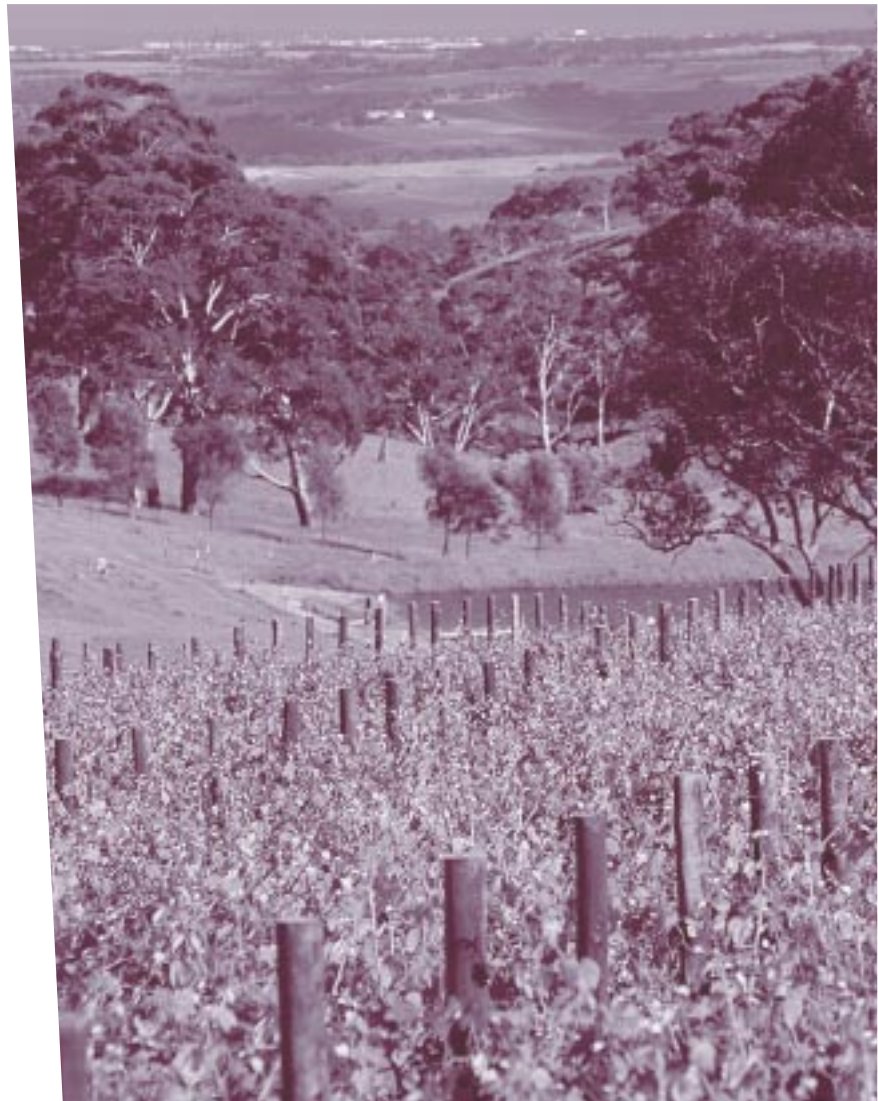


# Wineries and the environment

*An audit of the environmental management performance of SA wineries*



# Audit an industry first

This publication provides an overview of findings of the first statewide independent audit of the environmental performance of SA's wineries.

Australian wines are among the best in the world.

To ensure the environmental standards of the State's wineries match the quality of their products, the Environment Protection Authority (EPA) and the SA wine industry have entered into a unique partnership.

The partnership will help the nation's winemakers achieve world-class environmental standards, ensuring they have minimal impact on the local environment while maintaining Australia's renowned 'clean, green' status.

Environmental performance is becoming an increasingly important issue in the international marketplace. Many buyers are imposing formal environmental requirements on their suppliers, and the general community expects the wine industry to undertake its production in a responsible manner.

The audit and the resulting responses will play an important role in maintaining the environmental bona fides of SA's winemakers in an increasingly demanding global marketplace.

The audit, commissioned by the EPA in cooperation with the SA Wine and Brandy Industry Association, involved sixty-three SA wineries handling more than 500 tonnes of grapes a year.

Wineries with an annual throughput of more than 500 tonnes must be licensed under the *Environment Protection Act 1993* (the Act).

The audit was carried out in October and November 2001 by independent consultants and was designed to assess compliance with the wineries' licence conditions, the Act, and

several 'reference documents' pointing the industry towards world class standards.

The documents, including draft guidelines and advisory publications developed jointly by the EPA and the wine industry, stand beside the mandatory licence requirements as references and benchmarks for environmental performance.

The audit provided an insight into the environmental performance of all licensed wineries in the State's six major wine-making regions.

Outcomes include identification of:

- opportunities for improving winery and EPA operations
- environmental standards to help industry meet new benchmarks as they evolve
- protocols that will lead industry to world class winery management standards.

## Management context for this report

The *Environment Protection Act 1993* (the Act) places an obligation on the Environment Protection Authority (EPA) in relation to the use, development and protection of the environment. The Act requires that the environment should be managed in a way and at a rate that will enable people and communities to provide for their economic, social and physical well-being and for their health and safety. The EPA is also required to ensure that all reasonable and practicable measures are taken to protect and enhance the quality of the environment, having regard to the principles of ecologically sustainable development.

# Heading in the right direction

South Australia's wineries are heading in the right direction.

The audit results indicated most of the State's wineries are making a concerted effort to improve environmental performance.

Each of the sixty-three licensed wineries was assessed for risk and performance in categories ranging from winery site to sludge disposal.

Much of the assessment fell into the broad areas of solid and liquid waste management and disposal, monitoring and reporting.

Other aspects receiving attention included planning for accidents likely to impact on the environment, noise, odour, staff training and chemical storage.

The auditors gave each aspect of each winery's operation a risk rating of extreme, high, moderate or low based on the likelihood of an occurrence and the consequences if it should happen.

Of more than 800 ratings (not all categories applied to all wineries), the auditors found only ten incidences of extreme risk.

These extreme risk elements—each at a different winery—related to wastewater management (3), stormwater management (2), compost facilities (2), site, odour and chemical storage (1 each).

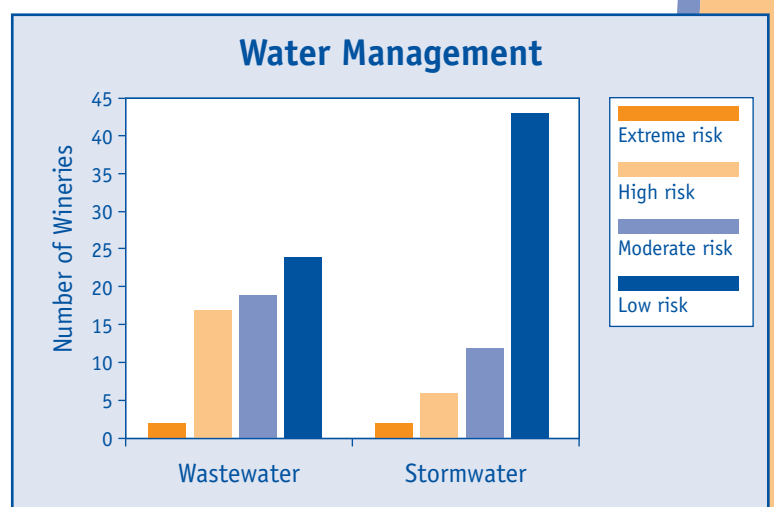
The EPA and its wine industry partners responded with immediate action to have those wineries put in place appropriate Environment Improvement Programs (EIPs) to address areas of extreme risk.

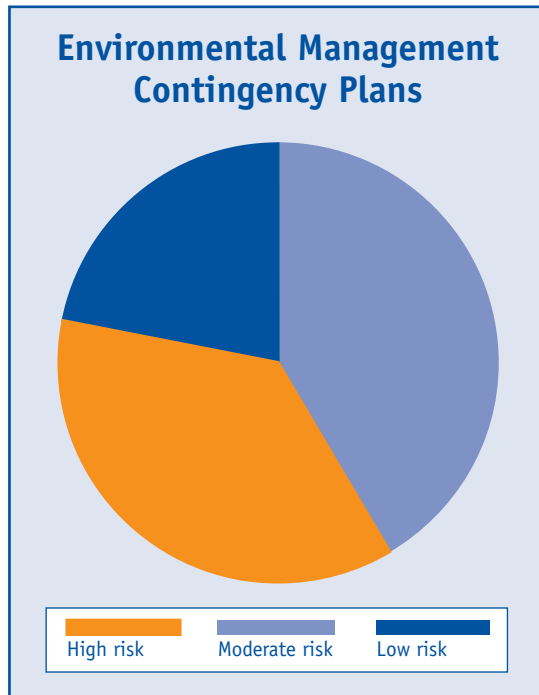
Across the State, specific areas of most concern related to management of wastewater from winery laboratories and other winemaking operations, and stormwater.

The most common areas of general concern related to lack of environmental management planning and training of employees, both required under the terms of the EPA winery licence.

According to the auditors, 'incorrect practices ... due to inadequate training have the potential to cause significant impact on the environment.'

Making staff aware of the potential environmental impacts of winemaking-related activities provides an opportunity to improve monitoring and reporting performance. It also reduces the likelihood of staff acting in ways that could produce adverse environmental effects.





The auditors found many winery personnel did not have a good understanding of the 'limiting factors for disposal of winery wastewater in the broader environment and knowledge of the potential impacts of inappropriate disposal of solid and liquid wastes'.

They identified a lack of tested emergency response plans in many wineries across the State as a significant issue for the industry.

Contingency plans that were available during site inspections were in most cases quite basic. Few wineries test their plans to ensure they are appropriate and that personnel are aware of their responsibilities in the event of an emergency.

Of particular concern is the level of monitoring, particularly in wastewater disposal areas.

In the Barossa, wastewater management was highlighted. Specific issues included the lining of wastewater lagoons, disposal of wastewater to areas with steep slopes, as well as the combination of domestic and winery wastewater without necessary monitoring.

Several wineries were located on steep sites, close to neighbours or creeks.

Composting, carried out at several wineries in the Langhorne Creek and Adelaide Hills region, was highlighted because of the wineries' proximity to neighbours and the potential for surface water and groundwater contamination.

Odour is also an issue for Langhorne Creek and Adelaide Hills wineries, mainly because of the proximity of neighbours.

Location – close to creeks, on steep slopes or close to neighbouring residential areas – is the main issue in the McLaren Vale area, with one composting area close to a creek also identified as a concern.

In the South East, insufficient monitoring of the impact of sludge disposal was the main issue to attract comment, as well as the lack of training and emergency contingency plans common to all regions.

Auditors found that one winery was applying more wastewater as irrigation than the receiving area could accommodate.

Composting and the siting of wineries attracted specific comment in the Clare region.

The auditors reported that the large sub-contracted composting operations being developed by two wineries in the Clare area are well managed. However, at the time of the audit they were operating without the required EPA licences.

In the Riverland, the main concern is wastewater disposal, with the sheer size of winery operations and the wastewater they generate being the key issues.

Most Riverland wineries dispose of their waste and stormwater by irrigating woodlot trees, lucerne or vines. However, many are experiencing difficulties in handling and disposing of the volumes of wastewater being generated.

# The way forward

The auditors believe SA wineries need to address the issue of environmental management training for staff, probably on a group basis to minimise costs and enable exchange of information on environmental practices and practical experience.

Industry and the EPA have already responded with plans for relevant environmental and practical training for winery staff in all regions.

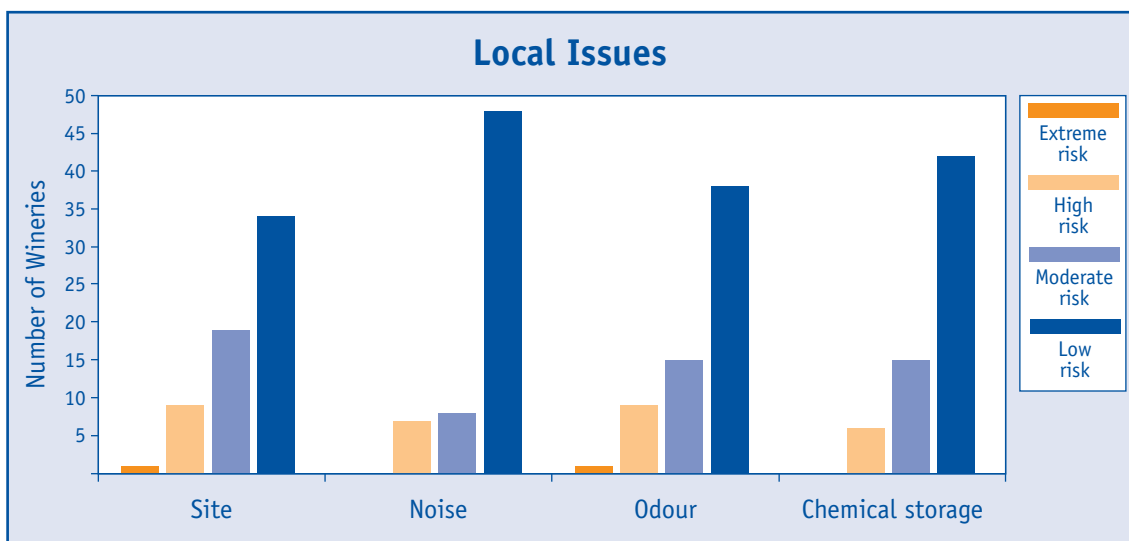
The auditors identified a need for improvements in compliance with monitoring requirements in several regions. They noted that monitoring enables wineries to understand the environmental impacts of their operations and also that data based on reliable monitoring is needed for sound management decisions.

The audit identified an opportunity for the EPA to provide guidance and education as part of its monitoring process. This could make winery management and employees more aware of the significance of what they are doing.

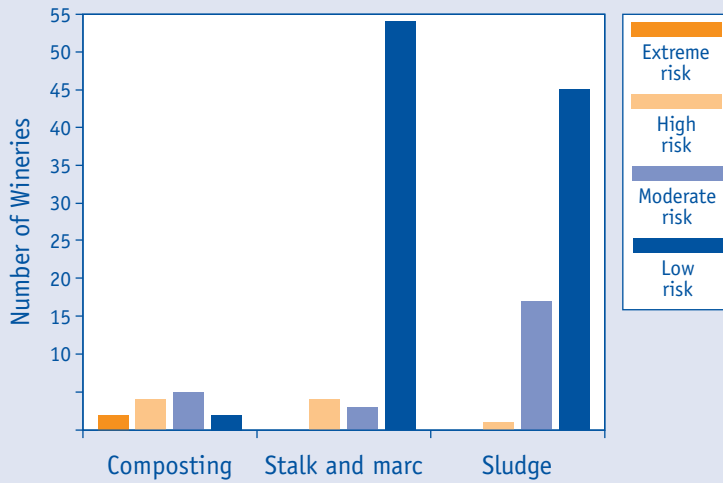


It also suggested that the EPA could provide better monitoring and environmental performance support. It identified a perception that information collected by wineries and submitted to the EPA is 'collected for the sake of collection' and not for a useful purpose.

The auditors therefore recommend that the EPA should 'provide regular feedback on monitoring and trends to the wineries to ensure they understand the value of the monitoring process'.



## Solid Waste



They also advocate modifying monitoring requirements while reducing the amount of monitoring required on some sites.

Officers of the EPA visited wineries during vintage to discuss audit outcomes and responses.

Since then, the EPA has issued revised licences under the Environment Protection Act addressing the audit findings, particularly in areas of wastewater, stormwater and solid waste management.

The new licences also include requirements for emergency contingency plans. The joint EPA – industry goal is to have proven contingency plans in place at all SA wineries before next vintage; these will minimise the risk from incidents that could impact adversely on the environment.

As a result of audit findings, several wineries are being required to undertake formal assessments of the integrity and capacity of their existing wastewater management systems.

In addition, some are entering into Environment Improvement Programs (EIPs) to upgrade wastewater collection, treatment and irrigation systems.

The EPA is also working closely with relevant planning authorities to ensure that, when considering applications for winery expansion or redevelopment, the need for upgraded waste management infrastructure is properly addressed.

Where the audit identified gaps in monitoring results, licensees are being required to submit revised monitoring programs to the EPA to ensure they are consistent with guidelines and advisory publications.

From July 1, 2002, all licensed wineries and distilleries are required to submit their monitoring data annually to enable tracking of wastewater generation trends and for use in developing benchmarks for winery waste disposal.

The EPA is also working with the SA Wine and Brandy Industry Association on a standard template for emergency contingency plans for wineries, and is developing templates for EIPs and data reporting to help wineries meet their licence requirements.



# Modelling the future

The audit identified several examples highlighting excellence, innovation and good ideas.

Many wineries are in the process of changing from diatomaceous earth to mechanical filters, which eliminates the need to dispose of spent diatomaceous earth.

At least two wineries have installed bunding provisions that can safely contain and handle large volumes of liquids in the event of an emergency.

Many are collecting and using stormwater (rainwater) for applications ranging from vineyard irrigation to cleaning and wash-down in the winery, and an increasing number are separating their stormwater and wastewater systems.

Separation of storm and wastewater not only increases the volume of clean water available for use but also reduces the volume of wastewater to be treated.

Several wineries are using well-engineered wetland systems to treat wastewater before it is used for irrigation.

Another has its wastewater treated in a series of 'lagoons', and yet another is using an advanced biological treatment system expected to produce high-quality irrigation water.

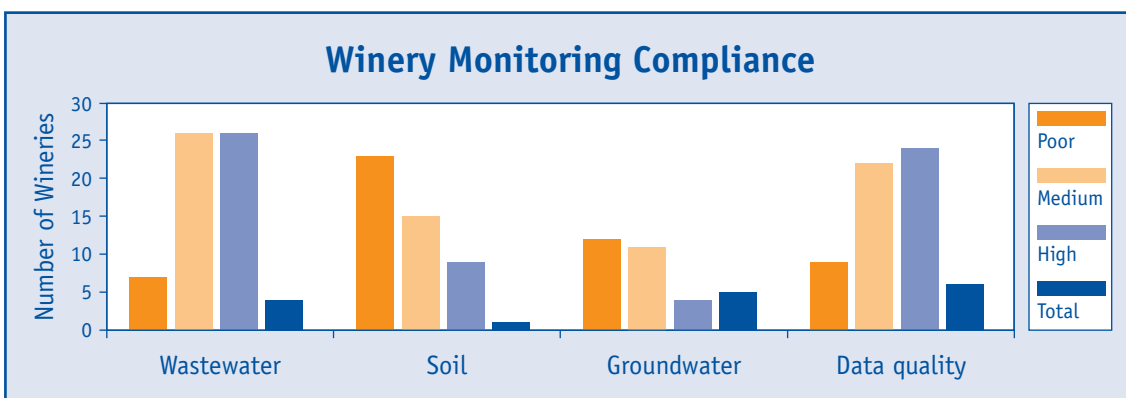


Wineries in one region are considering 'group composting', which would confine composting-related issues to a minimum number of sites.

Some wineries are using hot water for cleaning, significantly reducing the need to use caustic soda.

One winery is exploring the potential for its marc and stalks to be used as 'biomass' fuel in a boiler at a local processing plant.

As a reflection of the strength of the audit process, a small winery not required to hold an EPA licence is seeking a licence because it wants to be sure it is having minimal impact on the local environment.



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