

## Environmental Management Assessment Checklist for Unlicensed Wineries

The checklist was modified from the environment management checklist for wineries developed by the Environment Committee of the South Australian Wine Industry Association (SA WIA) in association with the South Australian Environment Protection Authority (EPA). The checklist should assist winery owners and operators assess potential environmental impacts associated with wine production, and priority that should be given to certain short- and medium-term strategies to minimise impacts. Completion of the checklist will also assist in achieving compliance with the *Environment Protection Act 1993* and relevant Environment Protection Policies.

Completing the checklist every 12 months can help reinforce the importance of environmental management and enable issues to be identified and addressed, and priorities and strategies to be reviewed. The EPA will also use the checklist when undertaking an environmental assessment at the winery.

The major objective is a reduction in actual or potential impacts of winery operations on the local environment, including complaints from the local community. Use of the checklist could also be used as an initial step towards a winery developing an Environmental Management System.

Every winery can contribute to the 'clean and green' image of the industry and enhance domestic and international sales of their wine products through proactive environmental management.

Users can also contribute towards improving the checklist by contacting SA WIA or EPA by mail, fax or e-mail.

## Preliminary

The following (if available) will be useful tools in using this checklist. These documents will also assist during EPA assessments.

- map or diagram of the premises showing locations, key activities and features
- aerial photo showing premises and nearby development
- copy of Certificate/s of Title for the premises (or CT references)
- flow chart showing the sequence of activities
- detailed layout drawings for stormwater/wastewater systems
- records of water use and wastewater production and disposal
- soil survey/analysis for wastewater irrigation management
- irrigation records
- details of irrigation areas
- any previous environmental assessments
- any procedures manuals or documents
- any records of reports or complaints
- details of waste and/or wastewater contractors used (if any)
- notepaper for recording additional information.

## Making use of the checklist

### *Unanswered questions*

- Highlight any questions you are unable to answer, or for which you need further information.
- For each unanswered question, indicate what is required to answer.

### *Answered questions*

Some questions are structured to prompt an action if you answer 'no', unless you were referred to another question or activity.

- 1 List all questions to which you answered 'no', and which did not refer you to another section of the checklist. If uncertain, please contact the EPA or SA WIA for advice.
- 2 For each question, indicate what actions are required, and by whom.

- 3 Rank actions in priority for achieving outcomes, and set a timetable.
- 4 Set target dates to resolve actions and outcomes, difficulties encountered, etc.

### *Modifying the checklist*

A checklist of this nature can be useful in achieving better environmental management. You could use this one to develop a specific checklist tailored for your winery.

Formal environmental management systems often use a simple scorecard system based on such lists and documents. Thus the checklist modification and review process is a useful first step towards establishing a formal EMS if desired.

## Contacts and publications

Advice on using the checklist, further general information and a range of helpful publications are available from:

Keith Jones  
SA Wine Industry Association  
National Wine Centre  
Botanic Road  
Adelaide SA 5000

Tel: (08) 8222 9277  
Fax: (08) 8222 9276  
E-mail: [keith@winesa.asn.au](mailto:keith@winesa.asn.au)  
Web site: [www.winesa.asn.au](http://www.winesa.asn.au)

Dean Macmullen  
SA Environment Protection Authority  
77 Grenfell Street  
Adelaide  
(GPO Box 2607, Adelaide SA 5001

Tel: (08) 8204 2035  
Fax: (08) 8204 2025  
E-mail: [dean.macmullen@epa.sa.gov.au](mailto:dean.macmullen@epa.sa.gov.au)  
Web site: [www.epa.sa.gov.au](http://www.epa.sa.gov.au)

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Rainfall data can be obtained from:

Bureau of Meteorology  
Climate and Consultancy Section  
PO Box 421, Kent Town SA 5071

Tel: (08) 8366 2691  
Fax: (08) 8366 2693  
Web site: [www.bom.gov.au](http://www.bom.gov.au)

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Other information and advice relating to human and environmental health issues can be obtained from:

Department of Health  
Environmental Health Services  
Level 2, 150 Grenfell Street  
Adelaide  
(PO Box 6, Rundle Mall  
Adelaide SA 5000)

Tel: (08) 8226 7100  
Fax: (08) 8226 7102  
E-mail: [EHB@health.sa.gov.au](mailto:EHB@health.sa.gov.au)  
Web site: [www.dh.sa.gov.au/pehs/](http://www.dh.sa.gov.au/pehs/)

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## Winery Details

*Name(s) by which winery is known*

a) .....

b) .....

c) .....

*Site location (provide CT references if available)*

.....  
.....  
.....

*Postal address*

.....  
.....

*Annual crush*

2001:..... tonnes

2002:..... tonnes

2003:..... tonnes

2004:..... tonnes

*Processes undertaken on site*

(crushing, pressing, filtration, fermentation, maturation, stabilisation, bottling, etc.)

.....  
.....

*Contact person*

Name: ..... Designation: .....

Telephone: ..... Fax: .....

E-mail: .....

## Winery Wastewater

Wastewater generated by processing and cleaning operations at wineries is normally the most significant environmental management issue at wineries. An understanding of the sources and destination of winery wastewater and the impacts of variations in quality and quantity is an important step towards environmentally sustainable management.

### 1. Winery wastewater monitoring

#### *Volume—monitoring wastewater flow*

1.1 Is the volume of winery wastewater monitored?  Yes  No

What volume of wastewater do you generate annually? \_\_\_\_\_kL/yr( D)  
(Specify monitored amount, if known. Otherwise please estimate)

1.2 How is winery wastewater volume measured?

- pump hours run meter       orifice plate  
 flow meter                       weir  
 flume                                 other (specify) .....
- not measured

1.3 How is wastewater disposed of?

- land (crop irrigation)  
 land (woodlot irrigation)  
 land (spreading only)  
 evaporation pond  
 sewer/STEDS  
 tanker removal

1.4 Is the flow measurement device located at the final collection point before storage, or discharge?  Yes  No

If no, where is it measured? .....

Environmental Management Assessment Checklist

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1.5 Is the flow measurement device calibrated in accordance with the manufacturer's specifications?  Yes  No

1.6 Does your winery have a written procedure for monitoring wastewater flow and calibrating equipment used?  Yes  No

1.7 Is there a designated person responsible for monitoring wastewater?  Yes  No

If so, nominate: .....

1.8 Are records kept of winery incidents resulting in abnormal wastewater flows—e.g. spills/leaks?  Yes  No

1.9 Have you reviewed monitoring data and records in the past year?  Yes  No

*Discharge of wastewater to sewer*

1.10 Is any winery wastewater discharged to sewer, sewage treatment works or a township septic tank effluent disposal system?  Yes  No

If yes, does the operator of that system have limitations on the quality and/or flow rate of wastewater that can be taken?  Yes  No

If yes, briefly outline the requirements: .....  
.....

*Discharge of wastewater by irrigation*

1.11 Do you discharge any wastewater by irrigation?  Yes  No

If no go to question 2.1

1.12 Is the land located within a defined water protection area?  Yes  No  Don't know

1.13 Is the depth to standing groundwater greater than 15 m?  Yes  No  Don't know

1.14 Is the irrigation area or any component of the wastewater system (including storage/evaporation lagoons) located within 50 m of a watercourse?  Yes  No  Don't know

## 2. Previous environmental assessments

2.1 Has the winery previously undertaken any environmental assessments (other than pre-development assessments)?  Yes  No

If no go to question 3.

2.2 Did such assessment/s identify any issues that required urgent attention?  Yes  No

2.3 Has the winery undertaken any action to address the issues identified?  Yes  No

2.4 Has there been any previous discussions with the EPA or the local council relating to environmental issues— e.g. arising from complaints, development applications?  Yes  No

If yes, please describe briefly the recommendations arising from and outcomes of the discussions:

.....

.....

.....

## 3. Winery wastewater collection, minimisation, contingencies and treatment

This section aims to review all aspects of the winery collection, treatment and disposal/utilisation system. Before making any substantial changes to the current system it is necessary to weigh up the relative benefits to be gained from implementing 'cleaner production' strategies in the winery, upgrading or replacing wastewater treatment equipment and/or modifying aspects of the wastewater disposal/utilisation strategy.

*Winery wastewater collection*

- 3.1 Are all wet-work areas (i.e. those subject to contact with grape, juice, wine or cleaning products) served by a wastewater drainage/collection system?  Yes  No
- 3.2 Is all wastewater collected in such a system?  Yes  No
- 3.3 Does the wastewater drain to more than one sump?  Yes  No
- 3.4 Does wastewater flow freely within the drains and into the sump(s)?  Yes  No
- 3.5 Does wastewater lie in ponds, puddles, low-points, pipes, etc?  Yes  No
- 3.6 Is odour produced in the drainage, collection or storage systems?  Yes  No
- 3.7 Are drain screens provided to intercept large solids?  Yes  No
- 3.8 Are procedures are in place to routinely remove screened and settled solids from drains and sumps?  Yes  No
- 3.9 Is the main wastewater collection sump at or near the lowest point of the site?  Yes  No
- 3.10 Does the system rely on pumping and if so what are the likely consequences of an equipment or power failure?  Yes  No

*Pollution avoidance strategies*

- 3.11 Are solids swept away from drains and collected before hosing down floors?  Yes  No
- 3.12 Are all winery hoses fitted with trigger nozzles?  Yes  No
- 3.13 Is high pressure/temperature, low volume tank/barrel washing used?  Yes  No
- 3.14 Are cleaning chemicals reclaimed/re-used/conserved?  Yes  No
- 3.15 Are you aware of the *Cleaner Production* information available through SA WIA?  Yes  No

*Reporting, records, and contingency plans*

3.16 Does your winery have a plan of the wastewater system (pipes, sumps, etc.) which identifies locations of potential wastewater blockages?  Yes  No

3.17 Does your winery have a written procedure on the use and maintenance of the wastewater system, including contingencies for equipment or power failure?  Yes  No

3.18 Is a designated person responsible for managing the wastewater system?  Yes  No

If yes, nominate: .....

3.19 Are records kept of winery activities, or accidents resulting in failure of drainage systems?  Yes  No

3.20 Do you periodically review these records and procedures?  Yes  No

3.21 Is there a system in place for reporting incidents that may cause environmental harm to the EPA or local council?  Yes  No

*Wastewater segregation & treatment*

3.22 Is high concentration wastewater (e.g. lees, waste raw product) separated from low concentration wastewater?  Yes  No

If yes, how is this done?  
.....  
.....

3.23 Is septic tank or similar wastewater discharged into the winery wastewater system at any point?  Yes  No

*If yes, you may need to contact the SA Department of Health*

3.24 Is laboratory wastewater discharged separately from the wastewater system at any point?  Yes  No

3.25 Does the winery wastewater undergo any form of processing or treatment after the main collection point?  Yes  No

If yes, briefly describe the treatment method, system or procedure:

.....  
.....  
.....  
.....

#### 4. Wastewater irrigation

4.1 Is wastewater applied to land?  Yes  No

If no go to question 4.9.

4.2 Is the land owned or managed by the winery?  Yes  No

4.3 What is the approximate annual crush? ..... tonnes (t) [C]

4.4 What is the area of land used for application of wastewater?  
.....hectares (ha) [A]

4.4a Is the ratio of land available (for application of wastewater) to tonnes crushed greater than 0.2 ha per 100 t of crush?  Yes  No

• Ratio of land irrigated (ha) per tonne crushed ? (A/C) .....

OR

4.4b Is the application rate of wastewater less than 100 mm per year (refer to 1.1)?  Yes  No

• Wastewater application rate (mm/year)? (D/A) x 0.1 .....  
(Note: 'D' is calculated in Section 1.1 above)

4.5 What wastewater application methods are used?

- |   |  |
|---|--|
| <input type="checkbox"/> drip irrigation            | <input type="checkbox"/> undercanopy spray     |
| <input type="checkbox"/> over canopy spray          | <input type="checkbox"/> flood                 |
| <input type="checkbox"/> movable perforated pipe    | <input type="checkbox"/> fixed perforated pipe |
| <input type="checkbox"/> other, please specify..... |  |

4.6 What vegetation or crop is grown on the land application/irrigation area?

- |   |                                   |
|---|-----------------------------------|
| <input type="checkbox"/> unimproved greenfield or scrub | <input type="checkbox"/> pasture  |
| <input type="checkbox"/> tree plantation                | <input type="checkbox"/> vineyard |
| <input type="checkbox"/> other, please specify.....     |                                   |

4.7 Has a soil survey been conducted on the area to which wastewater is applied?  Yes  No

4.8 Has any assessment been made of the maximum hydraulic, nutrient and salt loads which can be sustainably applied to the land available and crop/vegetation?  Yes  No

If yes, what is the most limiting of these factors and in terms of the minimum area over which wastewater should be irrigated?

- water waste volume .....ha
- organic carbon (BOD) .....ha
- phosphorus.....ha
- other (s), please specify:.....
- salinity ..... ha
- nitrogen ..... ha

*Future expansion*

4.9 Is your processing capacity/rate expected to increase during the next 5 years?  Yes  No

If no go to question 5.1.

If yes, what is the projected annual crush in 5 years? ..... tonnes

*(Note: production details will be treated with confidentiality)*

Will adequate wastewater management infrastructure and/or suitable irrigation land be available to support the projected increase in winery wastewater arising from the winery expansion?  Yes  No

## 5. Stormwater management

Stormwater is rain and other forms of precipitation that falls on hard impervious surfaces such as roofs and paved areas, and which is collected and drained away quickly from a site to avoid localised flooding. Due to the different levels of surface cleanliness which stormwater comes in contact with, the quality of stormwater can range from very clean to very polluted. Therefore, stormwater at wineries can be a valuable resource or a source of pollution requiring careful management.

5.1 Is clean stormwater separated from winery wastewater?  Yes  No

If yes, briefly describe how and/or when the clean stormwater is separated from winery wastewater: .....

.....

5.2 Do you use the captured clean stormwater for productive purposes—e.g. supplementary irrigation, dilution?  Yes  No

If yes, briefly outline how: .....  
.....

5.3 Is all stormwater diverted during the vintage period from pavements near grape crushers and marc bays to the winery wastewater management system?  Yes  No

If no, please outline any measures in place to ensure that potentially contaminated stormwater does not enter stormwater drains: .....  
.....  
.....

5.4 If clean stormwater and/or potentially contaminated stormwater are diverted to the wastewater management system:

- What is the estimated catchment area (e.g. roof, hard paved surfaces) [X]? m<sup>2</sup>
- What is your annual rainfall for the *wettest year in 10?* [Y] mm
- Your estimated **maximum** annual stormwater production is (X x Y) ..... (m<sup>2</sup> \* mm /1000) ..... kL/yr
- From the above results, does the wastewater management system have sufficient capacity to handle this volume?  Yes  No

## 6. Other wastes

Wineries also need to appropriately manage and dispose all other wastes generated in a responsible manner, no matter how small the volume.

6.1 What other wastes are generated at the winery?

- hazardous chemical waste (e.g. poisons, laboratory chemicals, oil, etc.)
- stalks
- marc
- lees
- diatomaceous earth or other filter media
- sump or lagoon sludges
- solid wastes (normal domestic-type rubbish)
- CCA treated posts

Environmental Management Assessment Checklist

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other, please specify:.....

6.2 How are stalks stored and disposed of?

.....  
.....

6.3 Is all the marc and/or lees sent for reprocessing (alcohol recovery, composting)?  Yes  No  N/A

If yes, where to?.....

If no, how are these wastes disposed of?.....

.....

6.4 Is all spent diatomaceous earth sent for tartaric acid recovery?  Yes  No  N/A

If yes, where to?.....

If no how is it disposed of?.....

.....

6.5 How are sump and/or lagoon sludges disposed of?

.....  
.....

6.6 Are hazardous waste managed and disposed of according to relevant regulations?  Yes  No  N/A

6.7 If spent diatomaceous earth and/or sump/lagoon sludges are sent off site for treatment or disposal, are both the transporter and depot licensed under the Environment Protection Act to transport and dispose of such waste?  Yes  No

6.8 How do you store & dispose of CCA treated posts?

.....  
.....  
.....

## Community Issues

### 7. Noise

Noise can be a major health hazard for employees, as well as an annoyance for nearby residents and visitors, and thus should be kept to within acceptable limits imposed by either regulations on noise levels or by commonsense when neighbours are affected. Information on excessive noise can be found in the EPA's *Environment Protection (Industrial Noise) Policy 1994*.

7.1 Is the winery within 300 m of houses or tourist accommodation on neighbouring properties?  Yes  No

7.2 Do you operate a bottling line at the winery?  Yes  No

7.3 Have you received noise complaints in the past 3 years?  Yes  No

If no, go to 8.1.

If yes:

What times of the year are noise complaints generally received?

.....

What were the main sources of noise leading to complaints?

.....

7.4 Have noise measurements been made to confirm whether the winery is generating excessive noise<sup>1</sup>?  Yes  No

If yes, were the noise emissions from the winery excessive?  Yes  No

If no, go to 8.1.

Have acoustic consultants been engaged at any time to provide specialist noise control advice?  Yes  No

If yes, what actions or modifications (if any) were recommended to avoid a recurrence of noise complaints?

.....

.....

.....

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<sup>1</sup> A description of excessive noise can be found in the Industrial Noise Policy (1994) of the South Australia Environment Protection Authority.

Have complainants been advised of the actions, anticipated outcomes, and time frames?  Yes  No

Have the actions been completed?  Yes  No

## 8. Odour

Many wineries are located close to neighbouring residential dwellings, roads and other public areas.

In such circumstances odours arising from winery activities may give rise to concerns or complaints from people occupying or using those areas.

8.1 Is the site further than 100 m from occupied dwellings?  Yes  No

8.2 Is the site located further than 10 m from roadways, parks, reserves or other public land?  Yes  No

If no, does your winery have a mechanism that allows the users of these facilities to report on prolonged periods of unacceptable odours?  Yes  No

8.3 Have there been complaints about odours coming from the winery or the winery wastewater management system?  Yes  No

If no go to question 9.1.

If yes, what caused the odours?

- |   |   |
|---|---|
| <input type="checkbox"/> open storage systems | <input type="checkbox"/> drift from irrigation  |
| <input type="checkbox"/> marc heap            | <input type="checkbox"/> gaseous emissions      |
| <input type="checkbox"/> pesticide drift      | <input type="checkbox"/> other, please specify: |

.....

Were actions required to avoid a recurrence of odour complaints?  Yes  No

(if no, go to 9)

If yes, what were they?

.....

Have the actions, anticipated outcomes, and time-frames been communicated to the complainants?  Yes  No

Have the actions been completed?  Yes  No

## 9. Resource use

Rates of use of resources such as water, energy, chemicals and the like can provide a measure of environmental efficiency.

- 9.1 Do you monitor freshwater use for irrigation and processing?  Yes  No
- 9.2 Do you monitor energy use?  Yes  No
- 9.3 Do you have a waste minimisation strategy?  Yes  No
- 9.4 Do you use an environmental scorecard approach that measures chemicals and other pollutants used per tonne of grapes crushed, etc.?  Yes  No

## 10. Training and awareness

Staff training is essential for achieving high-standard environmental management. In the wine industry, this will often involve a high proportion of casual employees, particularly during vintage. Many economic benefits of Cleaner Production strategies can result from improved workplace efficiency. Encouraging ideas from staff will give them a sense of involvement and thus responsibility for achieving outcomes. Permanent staff members should be involved in an annual review of the checklist and associated outcomes.

- 10.1 Do you have a designated person responsible for the coordination of environmental monitoring and management programs?  Yes  No

If yes, details: .....

### 10.2 Do regular staff receive training in the following:

- |   |  |
|---|--|
| Objectives of environmental management                  | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Environmental impacts of water waste and pollutants     | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Community impacts of odours, noise, etc.                | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Objectives and procedures of your waste management plan | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Objectives and procedures of the monitoring program     | <input type="checkbox"/> Yes <input type="checkbox"/> No |
| Reporting requirements                                  | <input type="checkbox"/> Yes <input type="checkbox"/> No |

## Environmental Management Assessment Checklist

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- 10.3 Do casual employees receive environmental awareness training, as part of their induction process?  Yes  No
- 10.4 Do you have a documented emergency response plan?  Yes  No
- 10.5 Have all staff been trained in emergency response procedures?  Yes  No
- 10.6 Do you maintain up to date records of staff training?  Yes  No

**End of checklist**

*NOTES:*