

Environmental Assessment Guides for Planners



COMPOSTING WORKS

November 2007

Composting can have minimal environmental impact if located in an appropriate area and sited, designed and operated properly. If proper care is not taken in addressing environmental issues, however, it has the potential to cause environmental harm.

For the purposes of this guide, composting works include works at which mushroom or other compost, organic fertiliser or soil conditioner with organic components are produced or are capable of being produced at a rate not exceeding 200 tonnes per year. When a composting proposal exceeds this scale it must be referred to the Environment Protection Authority (EPA) as a Schedule 8 Item 11 Schedule 22 (6)(3) activity of the *Development Regulations 1993*.

The purpose of this guide is to help council planners to assess such proposals from an environmental viewpoint. It focuses on environmental issues and does not deal with the process of assessing proposals against the provisions of the Development Plan.

Key environmental issues

- Air quality
- Water quality
- Waste management
- Noise

Information requirements

The following environmental information is required to undertake an adequate assessment:

- separation distances from residential or other sensitive receivers
- air quality protection measures
- noise mitigation measures
- water demand and use
- water and soil protection measures including
 - wastewater containment and disposal
 - chemical storage and work areas
 - stormwater pollution prevention
 - solid waste storage and disposal

Guide for Applicants Composting Works provides more details on information requirements and can be found at <www.planning.sa.gov.au>

Applications lacking any of this information should not be accepted.

Before you read further: information about noise in this document may be out of date. This document is being revised. Please refer to the Environment Protection (Noise) Policy 2007, available at www.legislation.sa.gov.au.

Environmental assessment

Air quality

The potential for offensive odours from the composting process is generally related to the type and condition (e.g. nutrient and moisture content, porosity) of the organic waste that comes in and the composting method employed. High nutrient (e.g. manures, animal carcasses) and anaerobic wastes have the greatest potential to generate offensive odours and need to be incorporated into the composting process immediately or undergo pretreatment to minimise odour emission. Composting processes should be designed and operated to achieve appropriate temperature and moisture levels and to ensure that composting material is maintained in an aerobic condition. Material that has completed the composting process should be stored in a way that prevents anaerobic conditions and the release of offensive odours. These measures should also minimise the potential for fires to occur during the composting process.

Composting activities also have the potential to cause environmental nuisance by generating dust from vehicle movements within the site, formation and turning of windrows, material screening and stockpiling or loading compost for transport off site. Measures need to be taken to minimise the potential for dust to be generated and migrate off site. This can include sealing and 'wetting' access roads and activity areas, maintaining compost windrows and material stockpiles at a suitable moisture content and minimising the quantities and height of material stockpiles on site. Screening, using earthen walls and thick vegetation and misting sprinkler systems, may also assist in minimising the migration of dust off site.

A minimum separation distance of 500 metres from houses is recommended.

Water quality

Clean rainfall from outside the composting area needs to be excluded so that it does not flow through the area and become contaminated. All runoff from within the operational areas needs to be collected and managed as it is likely to be contaminated with debris and nutrients. This contaminated water (leachate/wastewater) is any water that has come into contact with composting areas.

The composting process generates leachate that can pollute surface water, stormwater and groundwater if not managed effectively. All activities involving receiving, processing, composting and storing the final product should be conducted on a hardstand area capable of withstanding heavy equipment (e.g. compacted quarry rubble, concrete or bitumen). The pad needs to be designed and constructed to ensure that leachate flows to a low point for collection and subsequent storage, treatment, disposal or re-application onto windrows. Suitable collection devices include concrete sumps, while suitable storage, treatment and disposal facilities include appropriately sized tanks or lagoons.

Leachate storage facilities should be located as far away as possible from watercourses, stormwater drains and underlying groundwater. A minimum separation distance of 100 metres from watercourses and 2 metres above seasonal high groundwater levels is recommended.

Inbuilt structural water conservation controls are also advisable. The facility should incorporate systems that enable water to be contained and reused (including stormwater and wastewater), and replace potable (mains) supplies for operations such as landscape irrigation, toilet flushing and process water (e.g. machine cooling, cleaning, wetting of access roads, maintaining moisture content in windrows).

Behavioural work practices, such as stormwater drain labelling, signage displaying standard operating procedures and training employees are also encouraged in addition to the in-built structural controls within the facility.

Waste management

Waste management issues are often related to the type of wastes that are received for composting. Waste that is free of contaminants generally poses few risks as it is unlikely to result in the generation of litter and enables feedstocks to be readily incorporated into the composting process. Waste that contains significant quantities of contamination (e.g. organics collected at kerbside) should undergo pretreatment prior to introduction into the composting process to minimise the generation of litter throughout the composting process. Contaminants and litter should be stored securely in containers and regularly transported to a facility that is licensed by the EPA to receive that kind of waste. Litter fencing may need to be constructed around some activities.

If unsuitable or 'off-specification' waste is delivered to composting sites, it will need to be managed to prevent offensive odours, surface and groundwater pollution and the generation of litter. Consideration should be given to whether such waste should go to a suitably licensed landfill for disposal.

Noise

Noise nuisance includes that generated from trucks transporting compost to and from the site, grinders, turners and screening equipment. Considering the separation distance between composting works and the nearest house on a neighbouring property for odour control purposes however, it is unlikely that noise will be a significant issue.

Checklist of environmental issues

- Separation distances (500 metres from houses, 100 metres from watercourses, 2 metres to seasonal high groundwater level)
- Effective controlled drainage area
- Composting activities conducted on suitable pad
- Leachate effectively managed
- Surface water effectively managed
- Litter management in place
- Adequate removal of waste
- Types of organic waste to be used
- Odour and dust effectively managed

Draft standard conditions

To use and adapt as may be applicable to a specific proposal

1. The composting area must have a controlled drainage area from which all clean rainfall runoff is excluded.
2. Composting activities must be conducted on a hardstand area to allow free drainage of leachate to a leachate collection and management system.

3. Dedicated rubbish containers must be provided to collect all solid waste material generated by the activity. All containers used to store waste must:
 - be covered at all times to prevent the entry of stormwater or dispersal by wind
 - be sealed to prevent leakage
 - not be used for toxic materials, chemicals, solvents, any liquids or sludges
 - be located on hardstand areas
4. The feedstock and composting process shall be maintained such that odour and dust emissions are minimised.

The following notes contain important information for the applicant and should be attached to the approval notice.

- The applicant is reminded of their general environmental duty, as required by Section 25 of the Environment Protection Act, to take all reasonable and practical measures to ensure that the activities on the whole site, including during construction, do not pollute the environment in a way which causes or may cause environmental harm.
- The conduct of works at which compost is produced at a rate exceeding 200 tonnes per year requires a licence under the *Environment Protection Act* 1993.

References

Information sheets, guidance documents, codes of practice, technical bulletins referenced in this guide can be found at: www.epa.sa.gov.au

These include the following EPA Guidelines:

Guidelines for Separation Distances, August 2000

Guideline for Wastewater and Evaporation Lagoon Construction, March 2004

Guideline for Odour Assessment using Odour Source Modelling, February 2006.

The *Environment Protection (Water Quality) Policy, 2003* and the *Environment Protection (Industrial Noise) Policy, 1994*, can be accessed through: www.legislation.sa.gov.au

FURTHER INFORMATION

Legislation

Legislation may be viewed on the internet at: www.legislation.sa.gov.au

Copies of legislation are available for purchase from:

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| Service SA Government Legislation Outlet | Telephone: | 13 23 24 |
| 101 Grenfell Street | Facsimile: | (08) 8204 1909 |
| Adelaide SA 5000 | Internet: | shop.service.sa.gov.au |

For general information please contact:

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| Environment Protection Authority | Telephone: | (08) 8204 2004 |
| GPO Box 2607 | Facsimile: | (08) 8124 4670 |
| Adelaide SA 5001 | Freecall (country): | 1800 623 445 |
| | Internet: | www.epa.sa.gov.au |
| | Email: | epainfo@epa.sa.gov.au |
