GUIDELINES

DRAFT GUIDELINES FOR SEPARATION DISTANCES FOR COMPOSTING FACILITIES

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WHAT ARE THESE GUIDELINES FOR?

This document provides guidance to operators of commercial composting facilities and regulating bodies on the requirements for separation distances between composting operations and their local community. The separation distance is assessed by EPA on referral from the local council and is completed in conjunction with the EPA works approval assessment.

We encourage planning authorities to use these guidelines when considering land use near existing composting facilities. However, they do not address issues of encroachment on composting facility operators from sensitive land uses.

The separation distances in these guidelines supersede:

- buffer distances for composting facilities given in *Recommended buffer distances for industrial residual air emissions* (EPA publication AQ2–86, revision dated July 1990)
- buffer distances for composting facilities given in section 3.2 of the *Environmental guidelines for composting and other organic recycling facilities* (EPA publication 508).

WHAT ARE SEPARATION DISTANCES?

The terms 'buffer' and 'separation distance' have been used interchangeably in the past. This document uses the term 'separation distance' to mean the space between the composting facility (the activity boundary) and sensitive land uses.

Sensitive land uses include land used for a residential dwelling (other than a caretaker's house on industrial or commercial premises), hospital, school, caravan park or other similar use involving the presence of individual people for extended periods (except in the course of their employment or recreation).

Separation distances are set for composting facilities so that, in the event that odour is unexpectedly generated (whether by equipment failure, accidents or abnormal weather conditions), there is enough space for odour to disperse without the sensitive land users being adversely affected.

While separation distances are a way to reduce impacts of these odour emissions, they are not an alternative to preventing them from happening in the first place.

APPLICATION OF THESE GUIDELINES

These guidelines apply to new activities and redevelopment of existing activities for which planning approval is required. These guidelines should not be applied retrospectively to an existing activity.

The guidelines apply to all organic recycling facilities using biological processes applied to predominantly solid substrates, including composting operations that are licensed by EPA.

MANAGEMENT OF ODOUR

The State Environment Protection Policy (Air Quality Management) [SEPP(AQM)] aims to ensure that the local community is not affected by offensive odours generated by onsite activities. 'Offensiveness' is subjective and generally influenced by the type and strength of the odour, as well as how often a person is exposed to it.

For routine conditions SEPP(AQM) requires design criteria based on odour (1 odour unit) at and beyond the boundary of the premises. Alternatively, a health risk assessment may be used to demonstrate that beneficial uses to the environment are protected.

It is important for the composting industry to proactively avoid problems by applying best practice design, optimal operation and adequate separation distances in case of unexpected upset conditions. Recommended separation distances for upset conditions are based on our experience regulating composting facilities.

If a community is affected by odour, EPA may require further steps to reduce the impact on the community. This may include restricting the waste accepted at the premises and/or requiring an upgrade to the facility, including enclosure of the operations and/or installation of odour-control equipment.

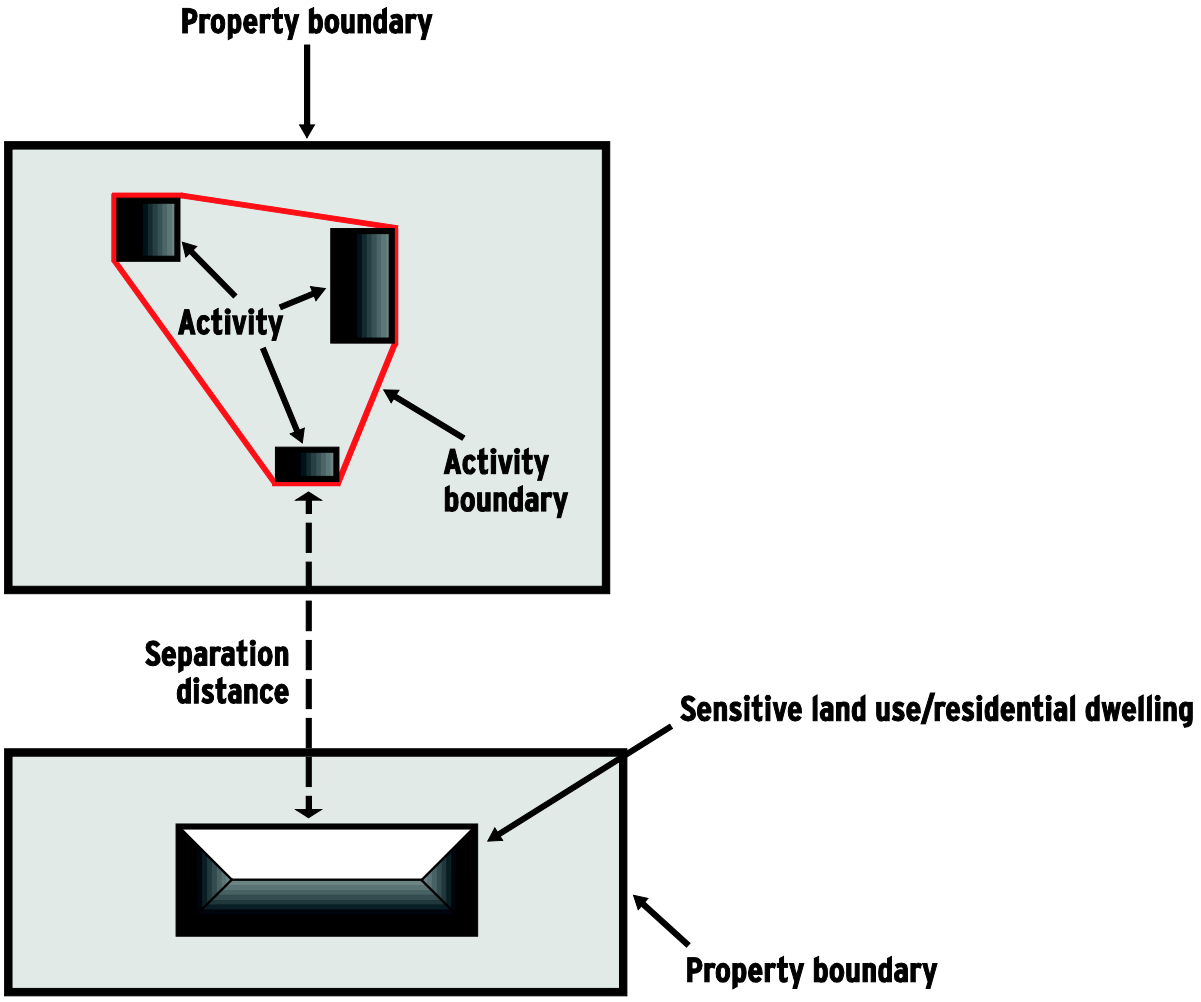

Figure 1: Illustration of activity boundary and separation distance.

APPLICATION OF SEPARATION DISTANCES

The separation distance should be measured from the activity boundary to the boundary of designated residential areas or other sensitive land uses, such as a dwelling in a farming zone (see figure 1). The activity boundary is the imaginary boundary that encloses all activities, plant, buildings or other sources from which residual emissions may arise (this includes stockpiles, windrows, leachate ponds and odour-control equipment).

The separation distance should be within the site boundary of the facility; however, this is not always practicable. Where offsite effects may be experienced any impacts on neighbouring land users must be reduced by careful site layout, with the activity producing any residual emissions located as far as possible from the nearest sensitive land uses.

RECOMMENDED SEPARATION DISTANCE

Tables 1 to 3 outline the recommended separation distance for a number of reference facilities, as well as a ranking of process design and feedstock. These separation distances have been determined on the basis of key parameters affecting odour, such as plant capacity, process design and feedstock (as outlined in Table 1).

Table 1: Reference facilities

	Reference facility 1	Reference facility 2	
Separation distance	1000 m	2000 m	Facilities over 50,000 tpa will be assessed on a case by case basis
Plant capacity	Up to 50,000 tpa (~125 tpd)	Up to 50,000 tpa (~125 tpd)	
Process design	Outdoor receipts	Open static pile/windrow	
	Enclosed in-vessel composting		
	Outdoor maturation[1]		
	Odour control equipment on discharge of process air and room ventilation		
Feedstock	Green waste[2], commercial & kerbside food waste, grease trap waste	Green waste (note1)	
Meteorology	Standard	Standard	
Topography	Standard[3]	Standard[3]	

1: As specified in Australian Standard (AS 4454).

2: Including kerbside green waste, grass clippings, timber, branches, hay, sawdust.

3: Topography would be predominantly flat or slightly undulating.

Table 2: Process ratings

Process type	Potential for odour generation
Open, static pile/windrow	Highest
Open, turned windrow	↓
Open, aerated, static pile/windrow, capable of continuous aeration	
Vermiculture without pre-composting	
Covered, aerated, static pile/windrow, capable of continuous aeration and moisture control, open-air maturation	
Vermiculture with pre-composting	
Housed/indoor composting with odour-control equipment and open-air maturation	
Covered process for active and maturation phase with odour-control equipment	
In-vessel (tunnel or drum) aerobic composting with odour-control equipment and open air maturation	
Fully enclosed facility with enclosed receipts and enclosed maturation phase with best-practice odour-control technology[1]	Lowest

1 Best-practice odour-control technology will be assessed based on the proposal and may include biofiltration, activated carbon or others. Consideration of international practices may also be relevant, based on the proposed facility.

Table 3: Feedstock ratings

Feedstock[1] composted	Potential for odour generation
Animal excreta (includes dead livestock and manure)	Highest
Biosolids (fresh)	↓
Prescribed industrial waste (e.g. grease interceptor trap waste)	
Municipal green with food waste (kerbside green/food waste bins)	
Food waste	
Biosolids (>7 yrs)	
Green waste (includes kerbside green waste, grass clippings, hay and sawdust)	↓
Hard green waste (timber, branches)	Lowest

1 Discuss with EPA any wastes not listed here.

VARIATION FROM THE REFERENCE FACILITY

Where it can be demonstrated that the proposed technology is the best combination of techniques, methods, processes or technology used in an industry sector or activity, and exceeds the reference facilities in Table 1, a reduction in separation distances may be considered.

Greater separation distances will be required where a facility design does not meet the criteria of a reference facility; for example, if volumes are exceeded or the facility receives more odorous feedstock (see Table 3 for examples of feedstock ranking).

Where a greater separation distance is not obtainable, the facility should be upgraded to meet the criteria for that separation distance. See Table 2 for guidance on processes with the lowest potential for odour generation. A works approval application detailing the proposed separation distance must be submitted to EPA for assessment.

As a guide, the following criteria must be satisfied for facilities that vary from the reference facilities:

- The plant has a standard of emission control technology significantly better than that assumed in the reference facility. The best available technology would be expected.
- An environmental audit of residual emissions has been completed.
- There is no history of pollution reports arising from residual emissions (in the case of an existing plant).
- The plant is significantly larger or smaller than that on which the recommended distance is based, to an extent that will substantially affect residual emissions performance.
- There are exceptional topographic or meteorological characteristics that will affect dispersion of residual air emissions.

These criteria must be fulfilled prior to consideration of site-specific separation distances; but this does not guarantee that a different distance will be approved. When applying for a site-specific separation distance, additional information must be given, including proposal-specific data and odour dispersion modelling.