

Environment Protection Authority

Guideline for stockpile management: Waste and waste derived products for recycling and reuse

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Disclaimer

This publication is a guide only and does not necessarily provide adequate information in relation to every situation. This publication seeks to explain your possible obligations in a helpful and accessible way. In doing so, however, some detail may not be captured. It is important, therefore, that you seek information from the EPA itself regarding your possible obligations and, where appropriate, that you seek your own legal advice.

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Summary

This guideline outlines the potential risks associated with the stockpiling of wastes and waste derived products and provides guidance on the appropriate and relevant controls to reduce those risks.

The Environment Protection Authority (EPA) expects persons undertaking such stockpiling to have regard to this guideline as the EPA will use it to assist in determining whether facilities are meeting their general environmental duty and may require compliance of particular aspects through regulatory tools under the *Environment Protection Act 1993*.

1 Introduction

A common aspect of waste management is the storage or stockpiling of waste for recycling or reuse. The Environment Protection Authority (EPA) requires that this activity is conducted in an appropriate manner so that the risk of harm to human health and the environment is prevented or minimised. Storage or stockpiling must be undertaken only in suitable circumstances for genuine and beneficial purposes.

The EPA's *minimum* expectation for the management of potential risks is the focus of this guideline. In particular, it addresses issues related to on-site layout, stability and dimensions of stockpiles and timeframes for storing waste and waste derived products (waste materials).

2 Application of the guideline

Scope

In this guideline, *materials* includes

- waste awaiting processing, recycling or reuse
- waste soil
- building rubble and material excavated from roads
- organic wastes
- waste derived products
- secondary or residual materials from waste processing or industrial activities
- other potentially contaminated materials¹.

This guideline applies to these materials and also contains guidance for other wastes such as organic wastes and wastes temporarily stored at authorised transfer or sorting facilities such as Municipal Solid Waste, and Commercial and industrial (General) Waste. The guideline is aimed at solid waste and therefore issues regarding liquid waste storage have not been specifically addressed.

This guideline is not intended to be exhaustive in addressing every material. The particular wastes mentioned tend to be the main waste types that are currently stockpiled and give rise to environmental risks. Wastes not specifically identified in this guideline may have additional specific requirements for their storage in addition to the requirements below. Refer to Appendix 3 for further sources of information in regard to specific requirements for waste such as radioactive wastes, treated timber and quarantine wastes.

Requirements regarding the suitability of waste derived products for reuse or recovery, including the requirement for it to be a recognised product produced to a consistent specification that is fit for purpose, has an immediate market, will not cause harm and is for genuine and beneficial purpose, are addressed in separate guidance documents (refer Appendix 3).

The *conduct of a depot for the reception, storage, treatment or disposal of waste* is a prescribed activity of environmental significance pursuant to Schedule 1 of the *Environment Protection Act 1993* (EP Act)² and requires both a licence from the EPA and development authorisation under the *Development Act 1993*.

There are some exceptions to the requirements for a licence to store waste, such as temporary storage of waste at the place at which it is produced. Examples include manure storage on a farm for stabilisation prior to reuse.

Irrespective of the need for specific EPA authorisation, this guideline addresses issues that are applicable to the stockpiling of waste at the production site and at sites conducting the processing, recycling and reuse. In all cases, this guideline will assist in determining whether facilities are meeting their general environmental duty by taking all reasonable and practical measures to prevent or minimise environmental harm, as specified by section 25 of the EP Act.

The key risk factors are outlined in section 3 with further details provided in Appendix 1. These will be considered by the EPA when making an assessment including:

- assessing and determining conditions of Authorisation (Development Approvals and EPA Licence)

¹ A contaminant includes physical and chemical substances and these may have the potential to cause site contamination (refer Appendix 2).

² Unless the exceptions listed in activity 3(3) of Schedule 1 of the Environment Protection Act 1993 apply.

- assessing environment management plans
- pursuing of compliance with environmental authorisations
- assessing proposals for exemptions from requirements of the EP Act or similar
- assessing compliance with the EP Act (including the general environmental duty and action following substantiated complaints).

The *Environment Protection (Waste to Resources) Policy 2010* (W2R EPP) indicates that stockpiling of waste may be considered disposal. The W2R EPP contains requirements on how waste must be disposed, with penalties for illegal dumping.

Legislation

The considerations and legislative mechanisms for stockpile management detailed in this guideline are shown schematically in Figure 1.

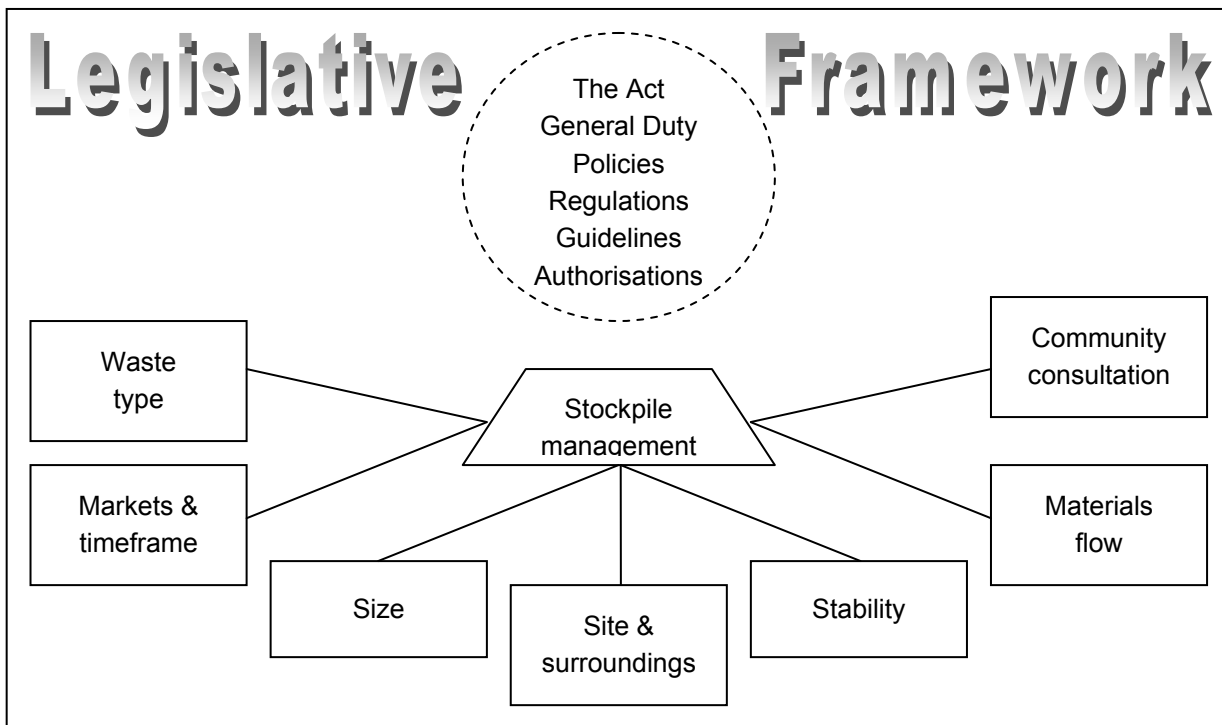


Figure 1 Considerations for the assessment and management of risks to prevent and minimise harm

In addition, the EPA guidelines, *Waste management regulatory framework and objectives* (2008) and *Waste derived materials guiding principles for determining approval processes and product standards* (2008) (the Guiding Principles)³ outline the regulatory and policy framework and the key principles that must be considered in addressing waste recycling and reuse issues to ensure that the EPA's objectives are met. These key objectives are to:

- prevent or minimise the risk of harm to the environment and human health; and
- support the most preferable use of waste and secondary materials in accordance with the waste management hierarchy.

The Guiding Principles provide the basis for the development and implementation of this guideline.

³ <www.epa.sa.gov.au/waste_reform.html>.

3 Potential risks and impacts

A summary of key risks, factors affecting risk and general suggested measures is included in Appendix 1 of this guideline. Where specific EPA approval is required, proponents will need to consider these risks in detail to ensure a robust risk assessment is conducted and acceptable management measures and procedures are put in place. Whether a licence is required for the specific activity or not, the risks posed need to be considered by operators.

On-site risks will depend on factors such as the:

- waste type and chemical and physical characteristics of the materials being stockpiled
- location and climate of the site
- hydrological and hydrogeological conditions including proximity to surface and groundwaters, water quality and protected environmental values
- length of time materials will be stored
- proposed management approach of the stockpiled materials

Additional off-site risks need to be considered and depend on factors including:

- proximity to and sensitivity of the surrounding environment (including adverse impact to water, human health and amenity)
- exposure due to elevation in metres AHD⁴ of the working floor level which the stockpile is situated upon and relative to the surrounding environment
- implementation of appropriate pollution control standards
- management of traffic in and around the site
- more specific guidance is provided in section 4 and a more comprehensive list of risks, factors affecting risk and suggested measures are provided in Appendix 1.

⁴ Australian Height Datum (mAHD)—the national level datum based on the average means sea level around the Australian coastline in metres.

4 Assessment and management of requirements

This section describes the EPA's key expectations for the assessment and management of stockpiles with the aim of preventing or minimising the potential for negative impacts on human health and/or the environment. In all cases, the site and material specific conditions need to be taken into account when determining the exact requirements relating to bunding, on-site layout and community consultation.

If the risks listed in Appendix 1 are not properly managed there is an increased risk of substantial costs to individuals, companies, the community and government to rectify any resulting impact on health and the environment. These would include costs associated with pursuit of compliance and remedial action which the EPA can recover in accordance with the EP Act⁵.

For licensed sites, the EPA may address the general expectations and include more specific requirements as licence conditions.

(a) Waste type: potential emissions and risks

The storage requirements for stockpiles need to be based on the material type and the associated risks they pose. These criteria will in turn determine what pollution controls are required to prevent or minimise any adverse impact.

Leachate, dust, odour and litter

- Materials with a potential to produce leachate and contaminated runoff should be stored in a sealed and bunded area in order to divert stormwater away from the waste, and contain and prevent impact from potentially contaminated runoff. Covering these materials may also be required to reduce the potential for leachate generation or to prevent or minimise gaseous or dust or other emissions⁶.

Municipal Solid Wastes, Commercial and Industrial Waste, and Construction and Demolition Waste (Mixed) must be stored in an undercover enclosed facility⁷ on a sealed⁸ and bunded surface whilst awaiting transfer or processing.

Inert waste, asphalt, green waste, Construction and Demolition Waste (Inert), untreated timber and wood waste may be stored outside. Appropriate management procedures should still be in place, including dust management and stormwater controls to ensure emissions are controlled to prevent harm.

For licensed sites, conditions of authorisation may be applied to specifically address these matters and there is further guidance available from EPA (refer Appendix 3).

- Where wastes are temporarily stored on the site at which they are produced, such as agricultural manures awaiting reuse or transfer, no specific EPA licence is required. For example, farm wastes such as spent litter (straw and wood shavings) from broiler chicken sheds and pig shelters, manure solids separated prior to effluent lagoons on dairies, piggeries and cattle feedlots, can have value as fertilisers or soil enhancers and should not be stockpiled without such a future purpose. However measures to ensure the activity does not cause harm to the environment and the issues addressed in this guideline should be considered. Emissions control (eg for dust, runoff and leaching) is also of increased importance when managing site contamination, as these sites may present additional associated risks of causing harm. Further guidance is available for farm waste management, soil remediation sites and biosolids (refer Appendix 3).

⁵ Sections 103 and 135 of the Environment Protection Act 1993.

⁶ Refer EPA Guidelines, Bunding and Spill Management (2007) and Environmental management of on-site remediation (2006) and EPA Information Sheet, Undercover storage requirements for waste/recycling depots (2009).

⁷ Must have appropriate ventilation and access.

⁸ Sealed with a material of low permeability.

Vermin

- In addition to adverse health and amenity impacts from dust, odour and leachate, outdoor stockpiles of materials can also harbour vermin such as rodents and mosquitoes which may lead to the risk of diseases. Controls such as barriers, covering, minimised storage timeframes and generally good housekeeping should be implemented to help mitigate potential impacts from vermin.

Fire

- Materials that can produce heat through degradation (such as organic wastes and other putrescible wastes) should not be stored for long periods and should remain well aerated to reduce any risk of overheating and spontaneous combustion. Regular internal stockpile temperature monitoring and control can provide information to assist with better management.
- Depending on the size and composition of the stockpile, there should be sufficient spacing between stockpiles to allow access in case of emergency and to help prevent the spread of fire. This spacing should at least be equal to the height of the stockpile or adequate for emergency vehicle access, whichever is the greater.
- Depending on the size and composition of the stockpile, flammable or combustible liquids and hazardous wastes should not be stored near to waste stockpiles. Similarly, maintenance and activities that can produce sparks such as welding should be conducted away from waste storage areas.
- All outdoor used tyre storage sites should comply with the *General Guidelines for the Outdoor Storage of Used Tyres* issued by the South Australian Fire Service's Fire Safety Department. Tyre storage in buildings needs to comply with the Building Code of Australia, Part E of Book 1. Refer to local council for further details.
- Persons storing waste should ensure they are meeting any specific requirements for building design, fire fighting equipment, monitoring, management and training as required by Australian Standards (where relevant), planning and fire authorities.

(b) Site and surroundings

- Materials must be stored away from surface watercourses, flood zones and groundwater recharge areas to prevent environmental harm to water. There are obligations and associated offences under the *Environment Protection (Water Quality) Policy 2003* to not discharge waste to land or waters, including through infiltration.
- The *Guidelines for Separation Distances (2007)* should be consulted to ensure appropriate separation distances to assist in the minimisation of the potential for adverse impacts such as odour, dust, noise and other impacts on amenity.
- Sites should be secured to prevent unauthorised access but allow for entry of emergency vehicles.
- Each stockpile needs to have adequate spacing to allow access for vehicles and materials handling, and attending and reducing the impact of emergency situations such as fire [refer 4(a)]. Areas between stockpiles should be kept free of obstruction and allow easy movement of emergency vehicles.
- On licensed sites, materials should be segregated into discrete and manageable components with clear signage demarcating the various waste storage areas.

(c) Dimensions

- EPA generally requires that maximum stockpile heights for material management or resource recovery activities be in the range of 3–5 metres. These stockpile height limits are largely based on stockpile manageability, dust impacts, stability, potential impact to underlying infrastructure and fire risk. The height of stockpiles should generally be lower than surrounding structures.
- Greater stockpile heights will need careful and adequate assessment of all the additional risks the increased height poses and it must be demonstrated that these risks can be managed, as excess height can also lead to other safety risks such as from instability.

- In some situations (due to more sensitive nearby locations and uses) environmental risks may be considered higher which may result in the EPA requiring lower stockpile heights.
- Stockpiles should generally be below fence lines when within five metres of the site boundary.
- The risks posed by specific wastes should be considered when determining the suitable width and overall footprint of the stockpile. For example, accessibility or risk of fire.

(d) Stability

When considering stockpile stability, size and management, the issues that should be considered include:

- relevant sub-surface geology and geotechnical characteristics
- structure of the base and sub-base including ability to protect groundwater and susceptibility to dissolution from rainwater or materials held in the stockpile
- likelihood of stockpile failure due to:
 - poor design and management including excessive height and side slope gradients
 - decreased internal friction caused by water inundation or gas generation or other pressure on or within the stockpile.
- proximity to extraneous sources of ground vibrations including railway lines, or other heavy vehicle movements or building activities
- materials handling procedures to prevent stockpile collapse
- topography of the land where the stockpile is placed
- climatic conditions.

(e) Materials flow and management

- The volumes of material required on sites can vary considerably depending on the nature of the markets that the activity is supplying or targeting. Stockpiling needs to be conducted with materials flow and capacity of the site in mind. That is, the stockpiling of materials must not be a process of continual growth, but needs to be a balanced and systematic approach to materials input, processing, output, storage, reuse or sale and removal offsite, to demonstrate responsible and sustainable management for recycling and reuse.
- For licensed sites, the EPA may require, through conditions of licence or Environment Protection Orders, reporting on materials flow and mass balances to demonstrate to the EPA's satisfaction that appropriate materials management is in place.

(f) Markets and timeframes

To ensure a consistent approach to regulation, storage time and market availability is a prime consideration to avoid inappropriate and speculative stockpiling of material; to minimise the risk of abandonment; and to prevent avoidance of regulatory regime.

- The length of time required for storage of the material needs to be considered carefully and may relate to what management procedures will be in place to manage risks during storage and how and when the material will be removed for reuse or re-processing. Management plans should be developed and implemented to address any increased risks that extended storage periods may present if required and should still be contingent on the existence of a market. This may be required through conditions of authorisation.
- Storage and stockpiling should be considered as a temporary measure and there must be no stockpiling for speculative purposes; an immediate market should exist for a material being stored for recycling or reuse. An immediate market means that it is an identified and recognised market as demonstrated by the existence of a known customer with a demonstrated and available beneficial use for the material.

- As a default, for temporary storage of materials prior to reuse, the EPA does not generally support storage or stockpiling of materials awaiting recycling or reuse for longer than six months in order to reduce potential abandonments or speculative indefinite stockpiling. Any proposals for storage exceeding this timeframe will need to demonstrate the need and the existence of the market or buyer. If this cannot be demonstrated then the EPA may have cause for the operator to transport the material to a licensed landfill or other suitable waste management facility for disposal, treatment or recycling.
- Longer storage for certain organic wastes such as manures and sludges may be suitable to allow for stabilisation and drying prior to reuse provided appropriate pollution controls are in place. Storage of biosolids is addressed in the *South Australian Biosolids Guidelines for the safe handling, reuse or disposal of biosolids* (1997). Persons storing or stockpiling these materials will still need to consider and address any potential risks posed, such as odour, leachate, dust and vermin.
- In general, at licensed waste management facilities:
 - Municipal Solid Wastes, Commercial and Industrial Waste, Construction and Demolition Waste (Mixed) and putrescible wastes must only be temporarily stored whilst awaiting processing and/or transfer and disposal. Municipal Solid Wastes and putrescible waste should be removed daily but storage timeframes may be acceptable for up to 72 hours, dependent upon the waste and the suitability of the facility design and operation. This is because storage of these wastes for longer periods may result in increased risks particularly to human health and the environment. Considerations such as distance and economies of scale may mean this period is specifically altered in remote areas. Storage timeframes may be specified as a condition of licence.
 - Inert stockpiles of materials for processing and reuse, eg construction and demolition waste, normally are ongoing activities; however these will still need to operate on a materials flow basis to prevent accumulation of materials with no market or in excess of site capacity.

(g) Community consultation

- Depending on the location, potential off-site risks and level of community interest associated with an activity, an appropriate level of community consultation may need to be undertaken both at the planning and operational stages of stockpiling activities. In such cases, stakeholders including surrounding communities and local residents should be advised on issues such as duration, potential risks and impacts and the related mitigation measures. Relevant contact details of company or project coordinators should also be provided to the community for open communication to allow queries or complaints to be addressed.

Appendix 1 Risks Associated with stockpiling of materials

Risks		Potential impacts	Examples of factors affecting the risks and resulting impacts	Suggested measures
1	Pollution of waters, leaching or runoff of contaminants and particulates	<ul style="list-style-type: none"> reduced natural resource quality and potential use site contamination (land, surface water and ground water) site degradation reduced ecosystem quality and function could be considered disposal and subject to fines under the W2R EPP 	<ul style="list-style-type: none"> waste type and leachability climatic controls effectiveness of management procedures and practices engineering controls topography and proximity to watercourses 	<ul style="list-style-type: none"> containment of leachate and diversion and control of stormwater bunding low permeability surface cover/enclosure stormwater runoff controls such as silt traps and settlement ponds management plans suitable site selection and separation distances
2	Heat generation with potential to cause fire	<ul style="list-style-type: none"> damage to property, risk to human health pollution of atmosphere offensive odours 	<ul style="list-style-type: none"> waste type stockpile dimensions climatic conditions 	<ul style="list-style-type: none"> minimise stockpile size ensure suitable access and spacing monitor stockpile temperatures maintain aerobic conditions implement operational procedures and contingency plans maintain fire prevention and fire fighting equipment
3	Generation of litter	<ul style="list-style-type: none"> degradation of the environment threat to fauna adverse impact on amenity 	<ul style="list-style-type: none"> waste type management procedures engineering controls 	<ul style="list-style-type: none"> housekeeping, litter collection and other operational procedures and management containment such as fencing, enclosures, cover and other physical barriers

Risks		Potential impacts	Examples of factors affecting the risks and resulting impacts	Suggested measures
4	Dust emissions	<ul style="list-style-type: none"> adverse impact on amenity damage to property human health impacts (eg respiratory problems) 	<ul style="list-style-type: none"> climatic conditions including exposure to winds elevation stockpile size waste type exposed soils/unsealed roads 	<ul style="list-style-type: none"> physical controls (sprays, covers, compaction, screening, enclosure, windbreaks, binders and road surfacing) traffic (control frequency and speed) minimised stockpile height suitable site selection and separation distances materials handling, operational procedures and management, eg moisture content during handling or cessation of activities in adverse conditions
5	Odour emissions	<ul style="list-style-type: none"> adverse impacts on amenity 	<ul style="list-style-type: none"> waste type climatic conditions management procedures land use and compatibility with surrounding land use 	<ul style="list-style-type: none"> physical controls eg containment, cover, enclosure, vapour filtration suitable site selection and separations distances effective management and monitoring procedures maintain aerobic conditions
6	Biogas emissions	<ul style="list-style-type: none"> adverse impacts on amenity increased release of greenhouse gas to the environment 	<ul style="list-style-type: none"> waste type climatic conditions management procedures land use and compatibility with surrounding land use 	<ul style="list-style-type: none"> physical controls eg aeration, extraction, filtration, containment, enclosure effective management and monitoring procedures
7	Vermin	<ul style="list-style-type: none"> reduced productivity of land pressure on native species disease and other risks to human health 	<ul style="list-style-type: none"> waste type housekeeping and operational procedures and management 	<ul style="list-style-type: none"> suitable facility design physical barriers and enclosure implement effective management procedures

Risks		Potential impacts	Examples of factors affecting the risks and resulting impacts	Suggested measures
8	Adverse visual amenity	<ul style="list-style-type: none"> interference with the enjoyment of the area and creation of unsightly or offensive conditions 	<ul style="list-style-type: none"> stockpile size waste type land use and compatibility with surrounding land use 	<ul style="list-style-type: none"> minimise stockpile size suitable site selection and separation physical controls eg screening, enclosure
9	Stockpile instability	<ul style="list-style-type: none"> stockpile collapse, leading to potential injury and damage to infrastructure 	<ul style="list-style-type: none"> waste type topography climatic conditions stockpile height materials management 	<ul style="list-style-type: none"> implement appropriate materials handling procedures minimise stockpile size
10	Inadequate platform stability and suitability	<ul style="list-style-type: none"> site contamination infiltration of leachate into and damage to underlying groundwater aquifers damage to stockpiled area and infrastructure potential damage to capping material if storage is on old landfill leading to increased risk of emissions from leachate and gas generation ground instability 	<ul style="list-style-type: none"> waste type sub-surface geology and structure below sub-base sub-base material characteristics (particle size, Atterberg limits, density) likelihood of sub-base failure eg due to faulting, sliding, slumping, caving or climatic impacts proximity to extraneous sources of ground vibrations including railway lines 	<ul style="list-style-type: none"> suitability designed and engineering facility minimise stockpiling size and overloading suitable size selection and separation distances

Risks		Potential impacts	Examples of factors affecting the risks and resulting impacts	Suggested measures
11	Excessive accumulation of material	<ul style="list-style-type: none"> • adverse impact on amenity • increased risk of dust emission and other resulting impacts • expanding capacity of site 	<ul style="list-style-type: none"> • speculative stockpiling/lack of market • lack of materials balance and flow management • acceptance of inappropriate materials • ineffective or lack of planning and management procedures 	<ul style="list-style-type: none"> • pre-planning • appropriate materials flow calculations, management and procedures • contingency plans • acceptance of appropriate waste (types, volumes) • ensuring existence and availability of markets
12	Abandonment of stockpiles and avoidance of regulatory regime	<ul style="list-style-type: none"> • adverse impact on amenity • distortion of market and avoidance of levy by diverting material to stockpile with no sustainable end use • increase risk of harm of occurring due to lack of management 	<ul style="list-style-type: none"> • speculative or long term stockpiling • lack of market • lack of planning • inappropriate management • unsuitable persons accepting waste 	<ul style="list-style-type: none"> • existence and availability of markets • pre-planning • contingency plans • sustainable materials flow practices • appropriate ownership, contractual and management arrangement financial assurance
13	Mischievous or criminal vandalism	<ul style="list-style-type: none"> • damage to property • financial losses • harm to the environment eg due to fire or spills • harm to human health eg due to fire, chemical release, accident 	<ul style="list-style-type: none"> • accessibility of the site • visibility of the site • supervision of the site • contingency planning 	<ul style="list-style-type: none"> • secure fencing • security cameras • automated alarms and fire response systems • supervision • response plans

Note: The local climatic conditions of a site along with the risks listed above are major considerations in determining if it is suitable to stockpile particular types of waste and waste derived products. The likelihood of harm occurring is also dependent on supervision and implementation of appropriate management plans. Inappropriate management of such risks may lead to a breach of the EP Act including causing environmental harm including nuisance.

Appendix 2 Definitions

Refer to Waste Definitions guideline (2009) for further waste and waste-related definitions

Biosolids Stabilised organic solids derived totally or in part from wastewater treatment processes that can be managed safely to utilise beneficially their nutrient, soil conditioning, energy, or other value. The term biosolids does not include untreated wastewater sludges, industrial sludges or the product produced from the high temperature incineration of sewage sludge. It should also be noted that many other solid waste materials are not classified as biosolids eg animal manures, food processing or abattoir wastes, solid inorganic wastes and untreated sewage or untreated wastes from septic systems/sullage wastes.

Commercial and Industrial Waste (C&I) **Commercial and Industrial Waste (General)**
The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), but does not contain Listed Waste, Hazardous Waste or Radioactive Waste.

Commercial and Industrial Waste (C&I) **Commercial and Industrial Waste (Listed)**
The solid component of the waste stream arising from commercial, industrial, government, public or domestic premises (not collected as Municipal Solid Waste), that contains or consists of Listed Waste.

Construction and Demolition Waste (C&D) **Construction and Demolition Waste (Inert)**
The solid inert component of the waste stream arising from the construction, demolition or refurbishment of buildings or infrastructure but does not contain Municipal Solid Waste, Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste.

Notes:

C&D waste (Inert) should be such that the entire composition of the C&D materials is Inert Waste with no contamination by foreign material. As such it is acknowledged that - with the aim of no contamination - there may be some negligible components of foreign material contained in the waste (as a guide, 0–5% maximum by volume per load). C&D waste (Inert) includes bricks, concrete, tiles and ceramics, steel and inert soils.

Foreign material includes green waste, plastics, electrical wiring, timber, paper, insulation, tins, packaging and other waste associated with construction or demolition of a building or other infrastructure. Foreign material must not be Municipal Solid Waste, Liquid, Listed, Hazardous or Radioactive Waste.

Construction and Demolition Waste (Mixed)
The solid component of waste stream arising from the construction, demolition or refurbishment of buildings or infrastructure which contains some foreign material (as set out below), but does not contain Municipal Solid Waste, Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste or Radioactive Waste.

Notes:

C&D Waste is considered C&D Waste (Mixed) if it contains significant foreign materials from construction and demolition activities that would render the load of waste no longer inert (as a guide, 5–25% maximum by volume per load).

Foreign material includes green waste, plastics, electrical wiring, timber, paper, insulation, tins, packaging and other waste associated with construction or

demolition of a building or other infrastructure. Foreign material must not be Municipal Solid Waste, Liquid, Listed, Hazardous or Radioactive Waste. Where waste from construction and demolition sites contains predominantly foreign materials or domestic waste, such as waste from household clean-ups collected by commercial skip bins, this is defined as Commercial and Industrial Waste (General).

Chemical substance Any organic or inorganic substance, whether a solid, liquid or gas (or combination thereof), and includes waste.

Contaminant For the purpose of waste derived product, means a chemical substance that has no beneficial effects for the stated purpose and has the potential to cause harm to the environment, human health or agriculture.

Inert Waste Solid waste that has no active chemical or biological properties. These wastes do not undergo environmentally significant physical, chemical or biological transformation and have negligible potential to cause environmental harm.

Leachate A liquid that has percolated through and/or been generated by decomposition of waste material. It includes water that comes into contact with waste and is potentially contaminated by nutrients, metals, salts and other soluble or suspended components and products of decomposition of the waste.

Municipal Solid Waste **Municipal Solid Waste – Hard Waste**
The solid component of the waste stream arising from domestic premises which is not suitable for collection using a kerbside bin system, but does not contain Commercial and Industrial Waste (General), Listed Waste, Hazardous Waste, Radioactive Waste or waste that is not deemed suitable for collection by local councils.
Note: MSW (Hard Waste) is typically collected in campaigns by local councils, which also advise on what wastes are suitable for that collection.

Municipal Solid Waste—Kerbside bin collection

The solid component of the waste stream arising from mainly domestic but also commercial, industrial, government and public premises including waste from council operations, services and facilities that is collected by or on behalf of the council via kerbside collection, but does not contain Commercial and Industrial (General) Waste, Listed Waste, Hazardous Waste or Radioactive Waste.

Pollutant means—

- a any solid, liquid or gas (or combination thereof) including waste, smoke, dust, fumes and odour; or
- b noise; or
- c heat; or
- d anything declared by regulation (after consultation under section 5A) or by an environment protection policy to be a pollutant,

but does not include anything declared by regulation or by an environment protection policy not to be a pollutant.

Pollute	<p>means—</p> <ul style="list-style-type: none"> a discharge, emit, deposit or disturb pollutants; or b cause or fail to prevent the discharge, emission, depositing, disturbance or escape of pollutants, <p>and pollution has a corresponding meaning.</p>
Site contamination	<ul style="list-style-type: none"> 1 For the purposes of this Act [EP Act], site contamination exists at a site if— <ul style="list-style-type: none"> a chemical substances are present on or below the surface of the site in concentrations above the background concentrations (if any); and b the chemical substances have, at least in part, come to be present there as a result of an activity at the site or elsewhere; and c the presence of the chemical substances in those concentrations has resulted in— <ul style="list-style-type: none"> i actual or potential harm to the health or safety of human beings that is not trivial, taking into account current or proposed land uses; or ii actual or potential harm to water that is not trivial; or iii other actual or potential environmental harm that is not trivial, taking into account current or proposed land uses. 2 For the purposes of this Act, environmental harm is caused by the presence of chemical substances— <ul style="list-style-type: none"> a whether the harm is a direct or indirect result of the presence of the chemical substances; and b whether the harm results from the presence of the chemical substances alone or the combined effects of the presence of the chemical substances and other factors. 3 For the purposes of this Act, site contamination does not exist at a site if circumstances of a kind prescribed by regulation apply to the site.
Waste	<p>As defined under the Environment Protection Act 1993,</p> <p>Waste means —</p> <ul style="list-style-type: none"> a any discarded, rejected, abandoned, unwanted or surplus matter, whether or not intended for sale or for recycling, reprocessing, recovery or purification by a separate operation from that which produced the matter; or b anything declared by regulation (after consultation under section 5A) or by an environment protection policy to be waste, <p>whether of value or not.</p>
Water	<p>means—</p> <ul style="list-style-type: none"> a water occurring naturally above or under the ground; or b water introduced to an aquifer or other area under the ground; or c an artificially created body of water or stream that is for public use or enjoyment.

Appendix 3 Further guidelines and information

EPA Publications

Bunding and spill management, publication 080/07, <www.epa.sa.gov.au/xstd_files/Waste/Guideline/guide_bunding.pdf>.

Code of practice for milking shed effluent, publication 440/03,
<www.epa.sa.gov.au/xstd_files/Waste/Code%20of%20practice/milking_shed.pdf>.

Copper chromated arsenate (CCA) timber waste—storage and management, publication 572/04,
<www.epa.sa.gov.au/xstd_files/Waste/Guideline/guide_cca.pdf>.

Environmental guidelines for collection depots, publication 336/08,
<www.epa.sa.gov.au/xstd_files/Container%20deposit/Guideline/collection.pdf>.

Guidelines for composting works in South Australia (draft), publication 701/07,
<www.epa.sa.gov.au/xstd_files/Waste/Public%20consultation/composting_guidelines.pdf>.

Guidelines for environmental management of on-site remediation, publication 623/06,
<www.epa.sa.gov.au/xstd_files/Site%20contamination/Guideline/guide_remediation.pdf>.

Guidelines for resource recovery and waste transfer depots, publication 390/01,
<http://www.epa.sa.gov.au/xstd_files/Waste/Guideline/rrwt.pdf>.

Guidelines for separation distances, publication 717/07,
<www.epa.sa.gov.au/xstd_files/Industry/Guideline/sepguidepcd.pdf>.

Soil bioremediation, publication 589/05, <www.epa.sa.gov.au/xstd_files/Site%20contamination/Guideline/guide_soil.pdf>.

South Australian biosolids guideline for the safe handling reuse or disposal of biosolids, publication 093/97,
<www.epa.sa.gov.au/xstd_files/Waste/Guideline/biosolids.pdf>.

Undercover storage requirements for waste/recycling depots, publication 845/09,
<www.epa.sa.gov.au/xstd_files/Waste/Information%20sheet/info_storage_waste.pdf>.

Waste tyres, publication 183/07, <www.epa.sa.gov.au/xstd_files/Waste/Guideline/guide_tyres.pdf>.

Waste Reform Project, <www.epa.sa.gov.au/environmental_info/waste/waste_reform_project>:

- *EPA Board Waste to Resources Subcommittee Report*, publication 700/07.
- *Waste management—regulatory framework and objectives*, publication 796/08.
- *Waste derived materials—guiding principles for determining approval processes and product standards*, publication 796/08.

Other useful references

Australian Quarantine Inspection Service, <www.daffa.gov.au/aqis>.

Department of Primary Industries and Resources SA (PIRSAs Rural Solutions) have guidelines for dairies in many areas of the state, available from the dairy industry website:

<www.dairyindustrysa.com.au/technical_info_for_farmers/effluent_management>.

PIRSA also has a number of publications that include advice on waste management in intensive animal industries:

- Guidelines for the Establishment and Operation of Cattle Feedlots in South Australia, publication 525/06, www.epa.sa.gov.au/pdfs/cattle.pdf.
- Guidelines for the Establishment and Operation of Poultry Farms in South Australia (1998), www.pir.sa.gov.au/_data/assets/pdf_file/0015/24162/poultry_farm_guidln.pdf.

National Environmental Guidelines for Piggeries (2006),

[www.australianpork.com.au/pages/images/National%20environmental%20guidelines%20for%20piggeries%20\(Print-ready\).pdf](http://www.australianpork.com.au/pages/images/National%20environmental%20guidelines%20for%20piggeries%20(Print-ready).pdf).

National Environmental Management System for the Meat Chicken Industry (2003), www.rirdc.gov.au/reports/CME/03-038sum.html.

General Guidelines for the Outdoor Storage of Used Tyres (2005), South Australian Fire Services, Guideline 013, Amendment A, www.samfs.sa.gov.au/community/commercial/guidelines/G013%20Outdoors%20tyre%20storage.pdf.

Australian Standards

- Sampling and testing aggregates—AS 1141 series
- Sampling and testing of soils for engineering—1289 series
- Sampling and testing Asphalt—2891 series
- Aggregate and Rock for engineering—2758 series
- Leachate Methods of Analysis—AS 4439 series
- Maintenance of fire protection systems and equipment—AS 1851–2005
- Fire safety audits—AS 4655–2005

Site Contamination information, please contact:

Environment Protection Authority	Telephone:	(08) 8204 2004
Science and Sustainability Division	Facsimile:	(08) 8124 4670
GPO Box 2607	Freecall (country):	1800 623 445
Adelaide SA 5001	Website:	www.epa.sa.gov.au/environmental_info/site_contamination

Radioactive Waste information, please contact:

Environment Protection Authority	Telephone:	(08) 8130 0700
Radiation Protection Division	Facsimile:	(08) 8130 0777
GPO Box 2607	Freecall (country):	1800 623 445
Adelaide SA 5001	Website:	www.epa.sa.gov.au/environmental_info/radiation

For general information please contact:

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

Legislation

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

Copies of legislation are available for purchase from:

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

Planning and Development Issues, please contact:

Department of Primary Industries and Resources SA	Telephone:	(08) 8303 0600
Planning SA	Facsimile:	(08) 8303 0782
Roma Mitchell House	Website:	www.pir.sa.gov.au
136 North Terrace		www.planning.sa.gov.au
Adelaide SA 5000		
Postal: GPO Box 1815		
Adelaide SA 5001		
