

Environmental Guidelines for Stockpiling Waste

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I. Purpose

The purpose of this guide is to help Tasmanian industry and regulatory authorities (EPA and local councils) manage the environmental risks of waste stockpiling. Waste stockpiling is defined as the temporary storage of waste prior to disposal, or as part of recycling, reprocessing, recovery, or reuse activities. In Tasmania, waste is commonly stockpiled at:

- Municipal transfer stations
- Resource recovery facilities
- Scrap metal wreckers
- Auto salvage yards
- Agricultural land

Waste is also stockpiled by a range of business and industry sectors that generate waste as part of their operation. Examples include food manufacturing and processing industries.

This guide describes the environmental risks of stockpiling waste and suggests management practices that can be implemented to reduce the likelihood of environmental harm. Stockpile managers can use this guide to improve onsite environmental management systems and to promote the circulation of materials throughout the waste management process. Regulatory authorities may also use the guide to aid decision making and to address specific issues at individual facilities.

This guide is not a statutory document and should be given consideration by each stakeholder as it relates to their role in planning, developing, operating, assessing or regulating waste stockpiling activities. This guide is not intended to replace the requirements of existing permits, Environment Protection Notices (EPN) or Environmental Approvals issued through the Tasmanian Resource Management and Planning System (RMPS). The guide also does not cover the requirements of the National Construction Code, TasWater, WorkSafe Tasmania or the Tasmania Fire Service. Advice on these matters should be sought from the relevant authorities.

2. Regulatory requirements

Under the Tasmanian RMPS, the environmental aspects of waste stockpiling are regulated by either the EPA or local council, depending on the specific circumstances. Prior to the commencement of an activity involving waste stockpiling, proponents should first seek advice from the local council on any approvals that may be required.

For larger activities that involve waste stockpiling, the local council may be required to refer a development proposal to the EPA Board for assessment. If approved, the EPA Board may require relevant conditions to be included in a planning permit issued by the local council. Guidance on the EPA assessment process can be obtained from the EPA website: <https://epa.tas.gov.au/assessment/assessment-process>

In some instances, approval may not be required for a business to stockpile waste, or the conditions of an existing authorisation may cover the proposed activity. Notwithstanding this, persons responsible for managing waste stockpiles have a duty under the *Environmental Management and Pollution Control Act 1994* (EMPCA) to manage the waste appropriately. If a council or authorized officer is satisfied that stockpiled waste has, or is likely to cause environmental harm (which includes an environmental nuisance), an Environment Protection Notice (EPN) or Environmental Infringement Notice (EIN) may be issued on the person responsible for managing the waste. EPNs and EINs are regulatory tools of EMPCA. An EPN is a tool that can be used to require the remediation of environmental harm or impose requirements to prevent environmental harm from occurring. An EIN is a fine imposed for an offence under EMPCA and its regulations and is an alternative to court action.

2.1 Controlled and general waste

Under the *Environmental Management and Pollution Control (Waste Management) Regulations 2020* (Waste Management Regulations), all waste is classified as either general or controlled waste. Controlled wastes

are the most hazardous category of waste due to their toxicity, chemical or biological reactivity, environmental persistence or ability to bioaccumulate or enter the food chain. Controlled wastes are defined in EMPCA and include substances listed in List 1, Schedule A of the *National Environment Protection (Movement of Controlled Waste Between States and Territories) Measure 2004* (the NEPM) and are taken to possess one or more of the characteristics in List 2 of the NEPM. Additional controlled wastes are prescribed in the Waste Management Regulations.

General waste is any waste other than a controlled waste. Examples of general waste include paper and cardboard, glass, plastic and most domestic household waste.

Additional information about controlled and general waste can be obtained from the EPA website: <https://epa.tas.gov.au/business-industry/regulation/waste-management>

Requirements for controlled waste

Regulation 6(1) of the Waste Management Regulations requires the storage of controlled wastes to be undertaken in accordance with a relevant authority, or in accordance with an Approved Management Method that applies to that activity. Depending on the circumstances, such authorisation may be in the form of a planning permit, an EPN, an Environmental Licence or an Environmental Approval.

Applications for Environmental Approval to store controlled waste can be submitted through the EPA website: <https://epa.tas.gov.au/business-industry/regulation/waste-management/controlled-waste/handling-controlled-waste-in-tasmania/required-approvals-authorisations-for-controlled-waste-management/application-for-environmental-approvals-under-regulation-21-of-the-waste-management-regulations-2020>

Regulation 7 of the Waste Management Regulations requires controlled waste to be stored in such a way that it does not leak, spill or escape into the environment, or cause environmental harm or nuisance. If the Director, EPA considers that the aggregate quantity of a class or type of controlled waste produced or stored on a premises causes, or is likely to cause environmental harm, a written notice may be issued to the waste producer or occupier of the premises requiring them to do either or both of the following:

- Submit information in respect of the class or type, quantity and concentration of a pollutant in controlled waste produced or stored on the premises, and the location on the premises of the controlled waste
- Ensure that the controlled waste is removed to an appropriate facility

Approved Management Methods

Approved Management Methods (AMMs) specify requirements for handling certain wastes. There are currently three AMMs:

- Biosolids (2020)
- Clinical and Related Waste (2007)
- Storage and Reuse of Waste Tyres (2017)

Compliance with the minimum standards under an AMM satisfies legal obligations under the Waste Management Regulations with respect to handling that waste. Practices other than those specified by the AMM require separate approval.

Requirements for general waste

Not all activities that involve waste stockpiling require authorisation under EMPCA or the *Land Use Planning and Approvals Act 1993* (LUPAA). Exemptions related to the storage of certain types of waste at waste depots exist under Schedule 2 of EMPCA for clean fill, domestic waste stored at residential premises, and for waste temporarily stored at the place at which it is produced while awaiting transportation to another place. Notwithstanding this, there may be additional council requirements surrounding such activities and exemptions may not exist for activities involving waste disposal. Prior to stockpiling general waste, advice should be sought from the local council about any regulatory requirements.

Activities that involve stockpiling 100 tonnes or more per year of waste, other than those types covered by an AMM listed above, may be referred by council to the EPA Board for assessment. If approved, the EPA Board may require relevant conditions to be included in a planning permit issued by the local council.

3. Stockpile management issues

Inappropriately stockpiled waste has the potential to cause environmental nuisance and/or harm. Table I sets out common impacts of inappropriately stockpiled waste.

Table I: Environmental issues of waste stockpiling

Environmental Aspect	Potential Impact	Factors Affecting Risk and Impact
Leaching and runoff of contaminants, nutrients and entrained sediment	<ul style="list-style-type: none"> Onsite and offsite contamination of soil, surface water and ground water Degraded ecosystem function and quality Environmental nuisance, e.g. impacts to amenity, odour etc Bioaccumulation of metals within the food chain Human illness from exposure to contaminants 	<ul style="list-style-type: none"> Handling of waste Material sorting and separation procedures Inappropriate site layout, including stockpile proximity to sensitive features Unsealed and unbunded waste receipt and storage environments Lack of appropriate drainage infrastructure Spillage during liquid waste transfers Exposure of stockpiles to rain Topographical features of the site, e.g. gradient Nature of stockpiled material Operational practices
Fire	<ul style="list-style-type: none"> Degraded air quality including odour and visual impacts Pollution of the atmosphere Damage and/or harm to infrastructure and human health Release of contaminated firefighting water 	<ul style="list-style-type: none"> Stockpile size, composition and location Temperature of stockpiled waste Proximity to ignition sources Storage of incompatible wastes Site maintenance and vegetation management Onsite fire detection and suppression systems Combustibility of stockpiled waste Operational and emergency management procedures
Stockpile instability (above ground and sub-surface)	<ul style="list-style-type: none"> Ground instability Potential injury and infrastructure damage caused by stockpile collapse 	<ul style="list-style-type: none"> Stockpile dimensions, e.g. height, size, and exposed face gradient Materials handling and storage procedures Proximity to sources of vibration Subsurface geology Waste type Climate conditions
Litter	<ul style="list-style-type: none"> Degradation of the environment including visual amenity and contamination Impacts to fauna 	<ul style="list-style-type: none"> Climate conditions Management procedures Engineering controls

Environmental Aspect	Potential Impact	Factors Affecting Risk and Impact
		<ul style="list-style-type: none"> Excessive accumulation/stockpiling of materials
Abandonment	<ul style="list-style-type: none"> Impact on visual amenity Cost associated with site remediation Breakdown of stockpiled materials generating odour, leachate and contaminated runoff Fire risk Temporary stockpiling becoming unauthorised disposal 	<ul style="list-style-type: none"> Speculative stockpiling Market demand Materials storing procedures Commitment and resourcing of local regulatory authorities Compliance history of stockpile manager or business Robustness of regulatory tools
Noise and vibration	<ul style="list-style-type: none"> Environmental nuisance Infrastructure damage 	<ul style="list-style-type: none"> Hours of operation Proximity of sensitive receptors Management procedures, e.g. dropping heavy objects from height Type and tonal characteristics of equipment and plant used onsite Robustness of regulatory authorisations Conflicting land uses/zoning
Air quality	<ul style="list-style-type: none"> Increased release of odour and biogas emissions to the environment Migration of dust to neighbouring properties Human health impacts from exposure to airborne pollutants Reduced amenity Damage to neighbouring properties 	<ul style="list-style-type: none"> Climate conditions Proximity of sensitive receptors Presence of contaminants, e.g. asbestos, VOCs Management procedures Engineering controls, e.g. presence of sprinklers to suppress dust Type of waste, e.g. decomposition of organic wastes
Excessive accumulation of waste materials (e.g. stockpiles exceeding a set regulatory limit, or stockpiles that exceed the capacity of the land to receive waste after factors such as appropriate stockpile dimensions and size have been applied)	<ul style="list-style-type: none"> Increased likelihood of uncontrolled dust, leachate and runoff emissions Reduced amenity Increased fire risk Increased environmental liability Vermin attraction/harbourage 	<ul style="list-style-type: none"> Lack of pre-planning, e.g. appropriate materials flow calculations, management and procedures Contingency planning Availability of markets for stockpiled material Disposal availability and avoidance of disposal related fees Acceptance of appropriate waste

4. Recommended stockpile management practices

This section describes stockpile management practices that can be implemented to reduce the likelihood of environmental harm from occurring in activities involving waste stockpiling. Due to the vast range of waste stockpiling activities undertaken in Tasmania, the recommendations made in this section are general, and designed to assist proponents meet their general environmental duty. It is recommended that stakeholders engage external consultants for specialist and site-specific advice, as appropriate.

4.1 Regulation and operational management

- Where an authorisation to undertake an activity that may involve waste stockpiling is required by council or the EPA, the authorisation should include a requirement for the proponent/stockpile manager to develop and implement a site-specific Environmental Management Plan that addresses the environmental risks associated with stockpile management. As a guide, the information contained in the plan should outline:
 - a) A list of materials allowed to be received and stockpiled at the facility;
 - b) How stockpiled waste will be received, sorted, stored, reused, recycled, reprocessed and/or disposed of;
 - c) A detailed plan showing the location of stockpiles, separation distances between stockpiles, the length, width and height of stockpiles, and the proximity of stockpiles to sensitive features and site boundaries;
 - d) A risk assessment identifying the risk of wastes stockpiled and management practices to reduce the likelihood of environmental harm;
 - e) Information about how stockpiled waste will be managed to prevent excessive accumulation and environmental harm, including information on the storage of controlled wastes;
 - f) A contingency plan in the event of a change to market or customer demand;
 - g) A fire management plan if combustible materials, or materials capable of generating heat, are stockpiled;
 - h) Details of soil and groundwater sampling where appropriate;
 - i) Decommissioning and rehabilitation planning; and
 - j) Any other information the local council or Director, EPA requires.
- Regulatory authorities should periodically review the conditions of existing authorisations. If required, the conditions of an existing Land Use Permit may be varied by an EPN issued under sections 44(1)(d) or 44(2)(d) of EMPCA, depending on whether the activity is regulated by the EPA or a local council. Where a Land Use Permit is not in force EMPCA provides for alternative authorisations, such as Environment Protection Notices or an Environmental Approval.

4.2 Leachate and contaminated runoff

- Leachate and contaminated runoff must not be allowed to enter stormwater drains or surface waters.
- If the waste stockpiling site is connected to a municipal sewer system, further advice must be sought from TasWater. Approval from TasWater is required for trade waste disposal.
- Triple interceptor traps, or similar, should be used to prevent contaminants such as fat, oil, grease, fuel and silt leaving the site.
- To reduce excessive runoff, stockpiles should be located on sites with minimal slope. Perimeter cut-off drains, or bunds, should be constructed at strategic locations to prevent contaminated surface water from leaving the site. It is recommended that bunds and/or drains have capacity to contain any runoff that could reasonably be expected to arise during rainfall events.
- Unsealed sites should have adequate vertical separation between the ground surface and the ground water level. Soils with high permeability may require additional management measures to prevent the infiltration of pollutants into the water table.
- Waste with the potential to generate leachate should be stored in sealed or bunded areas to contain any leachate produced. Covering may also be required for specific wastes to reduce the potential for leachate and odour generation.
- Liquid wastes and/or wastes that have potential to leak hazardous material should be stored under an appropriately covered structure on a sealed and bunded surface.
- Activities where there is a potential for spillage of hazardous materials (such as dismantling and separation) should only be undertaken on a bunded, sealed surface. Wastes spilt on these areas must be appropriately contained, treated and disposed of.

- Chemical spill kits, appropriate to the types and volume of waste stockpiled on site, should be kept at appropriate locations onsite.
- Waste should not be stockpiled near water bodies or water courses. Stockpiles upslope of sensitive features should have infrastructure suitable to contain runoff.
- Waste should not be stockpiled on land subject to flooding, in depressions, or where surface water collects.
- Regulatory authorities may require soil and/or water monitoring as a condition of approval to monitor the impacts of stockpiled waste on environmental receptors.

4.3 Fire

- A fire management plan should be prepared for all sites that have stockpiles of combustible waste. The fire management plan must outline strategies to prevent fire occurring onsite as well as strategies to enhance the capacity of the Tasmania Fire Service to control fire on the land, and prevent soil, surface water and groundwater contamination, in the event of fire. The fire management plan should be prepared in consultation with the Tasmania Fire Service. Further advice can be sought from the Tasmania Fire Service.
- Stockpiles of combustible waste should be limited in size and volume appropriate to the site fire risk.
- Combustible waste must be stored separately from wastes that have a potential to generate heat and other ignition sources.
- Waste capable of generating heat should have appropriate temperature monitoring. Organic materials should be rotated as necessary to minimise the risk of auto-ignition.
- Processed materials such as chipping, shredding, baling or crumb should be allowed to cool prior to stockpiling.
- Aisles should be created between waste stockpiles to allow access for emergency vehicles. Aisles must be kept clear of obstructions.
- A water supply with appropriate pressure should be maintained to combat fire.
- Vegetation in and surrounding waste stockpiling sites should be appropriately managed.
- Fire detection and suppression systems should be implemented and maintained appropriate to the fire risk of waste stockpiled onsite. Advice should be sought from the Tasmania Fire Service concerning these systems.

Further guidance can be obtained from the following resources:

- State Government of New South Wales 2019, *Fire Safety Guideline – Fire Safety in Waste Facilities*, Fire and Rescue NSW, https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf
- EPA Victoria State Government of Victoria 2018, *Management and Storage of Combustible Recyclable and Waste Materials - Guideline*, <https://www.epa.vic.gov.au/about-epa/publications/1667-2>
- WISH – Waste Industry Safety and Health Forum 2020, *WASTE 28 Reducing Fire Risk at Waste Management Sites Issue 3*, <https://www.wishforum.org.uk/wp-content/uploads/2020/05/WASTE-28.pdf>

4.4 Stockpile instability

- Stockpiles generally should not exceed 3-5m in height. Stockpiles should be lower than surrounding structures and fences when within 5m of structures and fences.
- Stockpiles should not have an excessive slope gradient. Generally, any uncontained face of a stockpile should recede on a slope no greater than 45 degrees to minimise the risk of collapse.

- Stockpiles should be located away from sources of vibration such as railway lines, construction activities or heavy vehicle movements.
- Consideration should be given to stockpile stacking and the overall dimensions of each stockpile.

Note: Guidance for appropriate stockpile dimensions should be obtained from a suitably qualified consultant.

4.5 Litter

- Stormwater drains should be fitted with appropriate screening to prevent the ingress of litter into the stormwater system.
- Depending on the type of waste handled, vehicles should be covered to prevent dispersal of litter during transit.
- Sites should be kept clean and free of loose materials capable of becoming windblown such as paper, plastic and cardboard. Waste that has left the site, or that is trapped in fencing, should be removed and appropriately disposed of or recovered.
- Physical barriers such as fencing, enclosures and covering may be necessary to prevent loose materials escaping the site.

4.6 Abandonment

- Stockpiling should not be speculative. Applications for stockpiling activities should demonstrate the existence of a market, and contingencies in the event of changing market demands.
- Approval for waste stockpiling should not be contingent on processing plant or disposal pathways being developed. Avenues for waste removal should be immediately available.
- The length of time required for stockpiling should be considered by regulatory authorities. Wastes stockpiled on sites should be temporary, with continual movement through the waste management process.
- Applications to stockpile waste should detail how waste will be removed from a site, and the site rehabilitated.

4.7 Noise and vibration

- Regulatory authorities may implement limits on hours of operation to limit environmental nuisance.
- Regulatory authorities may impose a requirement for a noise survey to be completed to demonstrate the effects of a proposed operation on nearby sensitive land uses.
- Site design and layout should incorporate acoustic barriers, damping and insulating materials as necessary. Equipment and plant should be fitted with silencers as appropriate.
- Separation distances between facilities and neighbours should be maintained. Roller doors and windows facing sensitive receptors should be closed during noisy activities.
- Load dropping should be avoided at all times.

4.8 Air quality

- Waste must not be burnt or incinerated without specific approval.
- Suitable dust suppression systems should be in place for waste stockpiles that can generate dust. Dust suppression systems must be maintained and fit for purpose.
- Stockpiles of dusty materials should be covered or stockpiled in an enclosed facility if necessary to protect from prevailing winds. The direction of prevailing winds should be considered for odour and

dust control. Storage areas should be designed with sufficient capacity to ensure all material is properly contained and protected from dispersal by the wind.

- Incompatible wastes must be segregated to prevent odour and gas being generated.
- Organic materials, such as offal and food processing waste, should be removed from abattoirs and other processing operations daily or refrigerated. Organic materials should be kept in enclosed structures to minimise fugitive odours.
- Roads and surfaces, whether sealed or unsealed, should be managed to prevent dust. Loose aggregates should be swept daily or as needed to limit dust generation.

4.9 Excessive accumulation of waste materials

- Regulatory authorities (Council and the EPA) should implement a limit on the amount of waste allowed to be stockpiled on a site at any given time.
- A mass-balance should be completed to verify compliance with any regulatory limit imposed on the amount of waste received at a site annually. Regulatory authorities may impose conditions requiring annual verification of regulatory limit compliance.
- Contingency plans should be developed catering for changes in market demands.

5. References

EPA Victoria State Government of Victoria 2018, *Management and Storage of Combustible Recyclable and Waste Materials - Guideline*, <https://www.epa.vic.gov.au/about-epa/publications/1667-2>

State Government of New South Wales 2019, *Fire Safety Guideline – Fire Safety in Waste Facilities*, Fire and Rescue NSW, https://www.fire.nsw.gov.au/gallery/files/pdf/guidelines/guidelines_fire_safety_in_waste_facilities.pdf

ACT Environment Protection Authority 2019, *Guideline for Stockpile Management*, <https://files.accesscanberra.act.gov.au/legacy/4984/Guideline-for-Stockpile-Management.pdf>

WISH – Waste Industry Safety and Health Forum 2020, *WASTE 28 Reducing Fire Risk at Waste Management Sites Issue 3*, <https://www.wishforum.org.uk/wp-content/uploads/2020/05/WASTE-28.pdf>

EPA South Australia 2020, *Guideline for Stockpile Management*, https://www.epa.sa.gov.au/files/4771349_guidelines_stockpile.pdf



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