Guideline – Prevention of fires in waste stockpiles

Owner: Compliance Support, Enforcement Services **ESR/2020/5409**

Last Reviewed 02/12/2020 **Version 1.00**

This guideline has been developed to assist environmental authority (EA) holders that undertake waste and recycling activities to ensure they are meeting their general environmental duty and reducing the risk of environmental harm from fires in stockpiles.

1. Purpose

The Queensland Government is committed to reducing the risk of fires at waste facilities[1]. Stockpiling of combustible waste is an inherent feature associated with waste facilities. This guideline is intended to assist operators of waste facilities with the management of fire risks associated with stockpiles of combustible waste and reduce the impacts upon the environment of a fire at their premises. The advice provided is applicable to a wide variety of waste facilities, but it does not cover every aspect of the operation of a waste facility.

2. Impact of a fire in a waste stockpile

Waste fires, when they occur, are a threat to the environment and human health. The consequences of fire at a waste facility include:

- Environmental harm via:
  - Release of contaminants into the air including smoke, asbestos and particulate matter.
  - Release of run-off of firewater, combustion products and firefighting chemicals that may impact ground and surface waters.
- Impact upon human health caused by the toxic nature of smoke and contaminants released into the environment by the fire.
- Significant costs associated with the clean-up following a fire.
- Compliance actions for offences under relevant legislation including the *Environmental Protection Act 1994* (EP Act) and the *Waste Reduction and Recycling Act 2011* (WRR Act).

2.1 Stockpile

'Stockpile' is a term that generally refers to any vertically piled storage of material, whether loose, baled, sorted or not, accumulated for future use. Stockpiles are not limited to solid materials. Liquid wastes accumulated for future use are also considered to be stockpiled.

[1] A *'waste facility'* is defined in the *Waste Reduction and Recycling Act 2011* as a facility for the recycling, reprocessing, treatment, storage, incineration, conversion to energy, sorting, consolidation or disposal (including by disposal to landfill) of waste.

2.2 Waste

Waste is defined in section 13 of the EP Act, as follows:

> *(1) Waste includes anything, other than an end of waste resource, that is—*
> *(a) left over, or an unwanted by-product, from an industrial, commercial, domestic or other activity; or*
> *(b) surplus to the industrial, commercial, domestic or other activity generating the waste.*

Waste may be present in various forms at a waste facility including unprocessed waste, processed waste, materials for recycling or reuse purposes and materials required for the operation of the facility.

3. Obligations of a waste facility operator

The operation of a waste facility is regulated by both the WRR Act and the EP Act. The operator must ensure that their activity is compliant with the requirements stipulated in their environmental authority (EA) **and** meets the general environmental duty (GED)[2]**.**

To determine whether all reasonable and practicable measures have been taken to prevent or minimise the harm from a waste facility the operator must consider:

- the nature of the harm or potential harm;
- the sensitivity of the receiving environment;
- the current state of technical knowledge relating to waste facilities;
- the likelihood of the successful application of the different measures to prevent or minimise environmental harm that might be taken; and
- the financial implications of the different measures as they would relate to a waste facility.

It is not an offence to not comply with the GED. However, meeting your GED is a defence against certain offences within the EP Act.

The following sections of this guideline contains advice as to how an operator may identify and manage potential fire risks at their waste facility. However, as the risks posed to environmental values from a waste fire will vary significantly in accordance with the physico-chemical properties, fire-rating and quantity of waste(s) involved in the fire and the proximity of the site to environmental values, it is recommended that an expert is consulted in conjunction with the use of this guideline.

Best practice environmental management techniques should be used when storing waste at a waste facility to ensure that all reasonable and practicable measures are taken to prevent environmental harm occurring from their activities. Best practice management strategies should be developed considering the hierarchy of controls and assessing the effectiveness of the controls. Table 1 provides an outline of the hierarchy of controls to assist in this consideration process.

[2] '*General environmental duty'* is defined in section 319 of the EP Act.

Table 1 Hierarchy of controls

Priority	Hierarchy of controls	Description
	Elimination	Remove the hazard completely
	Substitution	Substitute the hazard with something less hazardous
	Engineering	Modify/guard the process to prevent the contaminant entering the receiving environment/ prevent people from contacting the hazard
	Administrative Controls	Implement procedures/ training/ signage/ warnings to assist people to work with the hazard/ Regulator notification
	Personal Protective Equipment/Pollution Control Equipment	Provide equipment and clothing to protect people should they contact the hazard/ Pollution control equipment readily available on site.

4. Identification of hazards present at the waste facility

The fire hazards present at a waste facility are likely to be a combination of the presence and proximity of ignition sources, combustible wastes and oxygen sources at the site. Identification of ignition sources can be complex and must include those brought to the site by visitors as well as those present during normal working conditions. Table 2 provides examples of fire hazards at waste facilities.

Table 2 Examples of fire hazards at waste facilities

Ignition (heat) sources	Fuel Sources	Oxygen Sources
Lit cigarettes/ butts, matches, lighters Improperly stored batteries Bushfire Self-heating piles Hot loads/contaminated waste Hot work operations Arson Lightning Fires from neighbouring activities Faulty electrical wires	Flammable liquids, gases and solids Combustible goods and waste (e.g. CRWM[3]) Contamination in CRWM storage Dry and unmanaged vegetation	Oxidising chemicals such as oxy-acetylene sets, bleach, hydrogen peroxide, nitrates Physical introduction of oxygen through unbaling or turning of loose piles

[3] CRWM means Combustible Recyclable and Waste Materials

Ignition (heat) sources	Fuel Sources	Oxygen Sources
Poorly maintained equipment Naked flame		

(Environment Protection Authority Victoria, 2018)

The burn temperature, heat release rate and heat flux, total fire load and burn duration, ease of ignition and flame spread should be identified for each stockpile of combustible waste present onsite. Fire and Rescue NSW have published surface burning temperatures and fire risks which can be applied to certain types of combustible wastes. These are presented in Table 3.

Table 3 Typical burn temperatures of combustible waste material

Type of waste material	Burn Temperature	Fire risk
Paper and Cardboard	850°C	Ordinary
Wood Products	860°C	Ordinary
Plastic	1,200°C	High
Rubber	1,130°C	High
Refuse derived fuels	900°C	Ordinary
Solid recovered fuels	950°C	Ordinary

(Fire and Rescue NSW, 2020)

Where a stockpile contains a mixture of combustible wastes, the burn temperature and fire risk of the most predominant waste material should be applied to the stockpile. In the case of no clear majority, the worst-case fire risk should be applied.

5. Implementation of control measures

Measures to control the hazards onsite should be implemented in accordance with the hierarchy of controls illustrated in Table 1. Table 4 provides a high level summary of possible control measures and links to sources of further information to assist waste facility operators with identifying potentially suitable control measures for their site. Once control measures have been established, they should be documented in written procedures, a site plan and training manuals. This plan should be readily available to staff and the emergency services.

Table 4 Control measure considerations

Risk	Control measure

Ignition of a fire onsite	• Identify and mitigate potential ignition sources. For example:
	  ○ operation of heavy mobile plant – fit plant with heat shrouds and spark arrestors.
	  ○ discarded smoking materials - implement no smoking areas and butt bins.
	• Implementation of robust waste acceptance procedures that prevent unauthorised wastes from being accepted so far as possible and limiting their potential impact if received in error.
	• Segregation of wastes.
	  • Use of effective signage designating waste type and quantity to be stored in each location.
	• Stockpile construction, size and arrangement.
	• Maintain high standards of house-keeping to ensure the site is free from loose/discarded combustible wastes and dusts as possible.
	• Design and maintain trafficable areas to allow vehicles to manoeuvre within the area for the purposes of stockpile management and maintenance.

Spread of fire across the facility	• Placement of non-combustible waste (i.e. loose glass, non-reactive metals) between combustible wastes. • Use of structural firebreaks (i.e. masonry walls between stockpiles) • Limitations on stockpile size and volume. • Provisions for firefighting intervention. • Provision of assistance to firefighters. • Provision of information to Queensland Fire and Emergency Services.
Environmental harm	• Emergency procedures in place and staff trained. • Smoke management. • Provision of containment for fire water run-off. • Provision of clean up equipment and access to enable spills to be cleaned. • Ensuring buffer requirements within the EA and development approval (DA) are maintained

6. Written procedures

The department applies an outcome focussed approach to the assessment of EAs. As a result the majority of waste facilities contain conditions requiring written procedures or a site based management plan (SBMP) to be in place. Operators must consider the risks to the environment posed by the operation of their activity under normal operating conditions and during emergencies and incidents within these procedures. Operators should ensure that the risks associated with their activity have been identified and appropriate management measures or mitigation strategies to minimise the risks have been implemented.

Further to any requirements of the waste facility's EA, effective written procedures for a waste facility may include:

- a written operations plan outlining the daily operations of the waste facility, including describing the waste materials received and method of storage, handling or processing at the facility;
- a site plan that identifies the layout of the waste facility and all locations of storage, handling and processing of waste and recycled waste;

- the expected daily and holding inventory of waste material at the facility including daily capacities and maximum stockpile limits;
- separate and clearly designated areas for materials drop-off, transfer and storage method(s) of waste material including internal or external, sorted or unsorted, loose stockpile, bailed stockpile, binned, bundled, bunkered, container etc.;
- a fire risk assessment fire management plan and procedures to implement identified control measures for example
    - turnover of stockpiles to dissipate internal heat confinement, with the frequency determined by the waste material, storage environment and ambient conditions; and
    - close down procedures for the inspection of a site after work has ceased to reduce the risk of a smoulder being undetected and turning into a fire.

7. Segregation of wastes

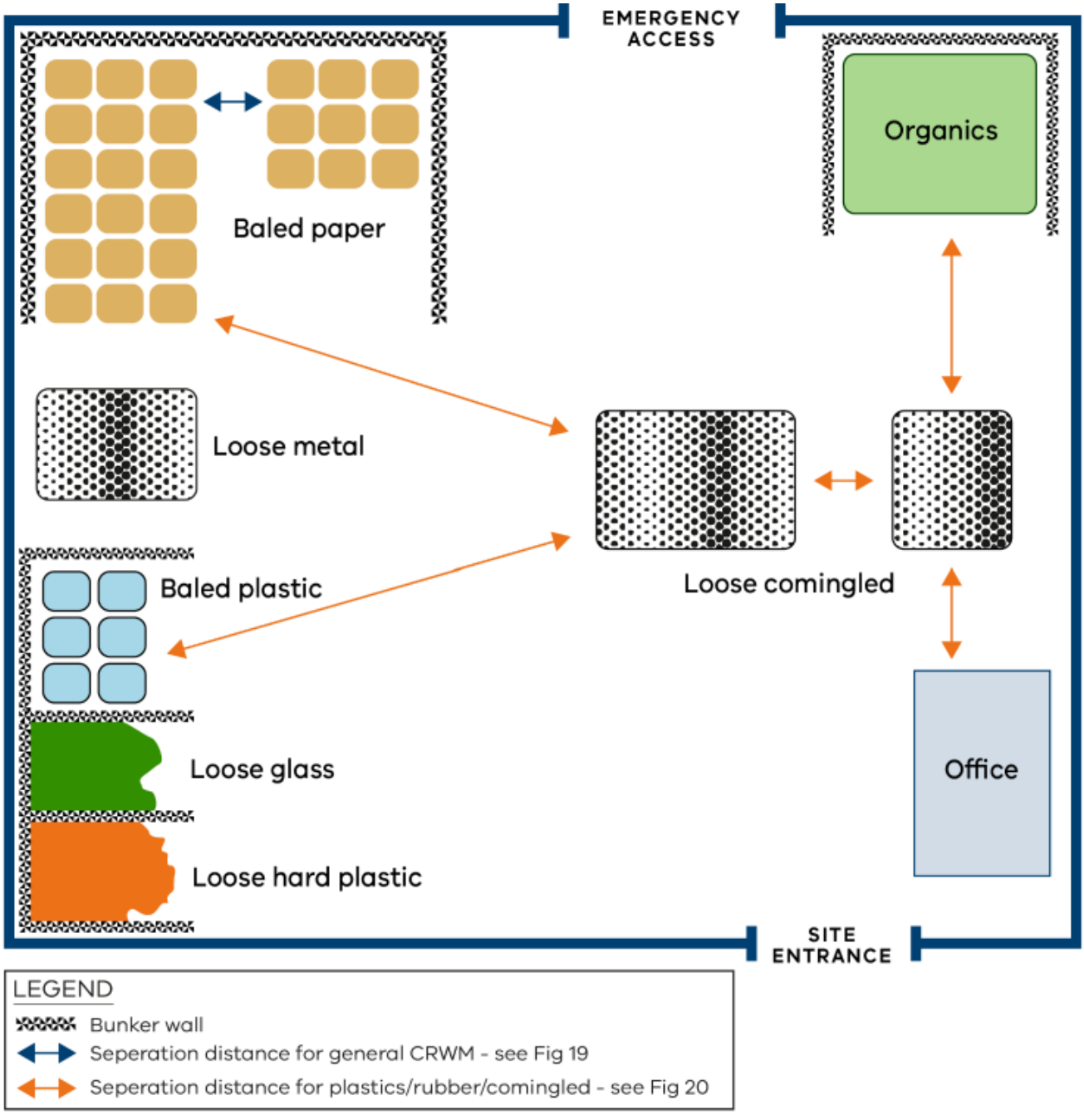
The arrangement of wastes at the facility can increase the combustion risk or facilitate the spread of fire across the site. Some wastes may have a low risk of spontaneous combustion when stored separately but become combustible when stored together. For example, storing paper, which is highly combustible adjacent to organic waste which has a high risk of self - combustion is not recommended. Non-combustible wastes such as glass and metals can be used to separate combustible wastes. An example of how to separate combustible wastes by type is provided in Figure 1.

8. Storage and stockpiles

Stockpiles can be constructed in a variety of ways, including freeform, partially walled or with full fire bunker walls. Guidance should be sought by technical experts in relation to a site-specific stockpile design to address site-specific risks, encompassing the properties of wastes stored, engineering design, site characteristics and environmental values.

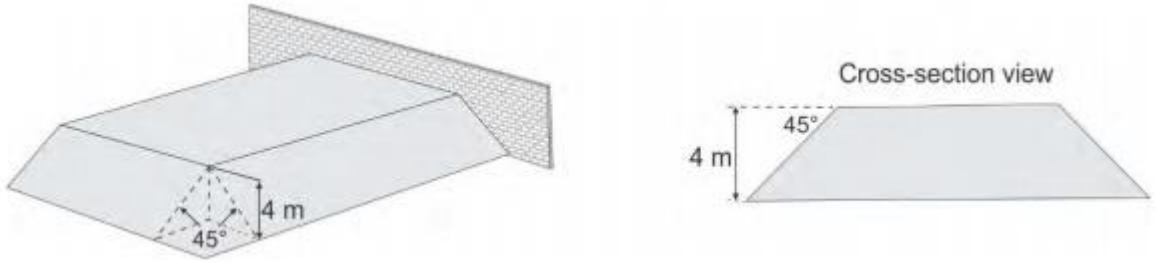
- Storage and stockpiles of combustible wastes should be limited in size and volume appropriate to the waste material, fire risks, building design and installed fire safety systems.
- The maximum height of any stockpile must not exceed 4 metres.
- The uncontained vertical face of any stockpile (i.e. any face not retained by a masonry wall) should recede on a slope no greater than 45° to minimise the risk of collapse and fire spread (See Figure 2).
- The storage method and arrangement of stockpiles should minimise the likelihood of fire spread and provide separation which allows for firefighting intervention.
- A separating masonry wall, revetment or pen should extend at least 1 metre above the stockpile height and at least 2 metre beyond the outermost stockpile edge (See Figure 3).
- The maximum width of an external stockpile should be 20 metres if access is provided for a Queensland Fire and Emergency Service (QFES) vehicle down both sides of the stockpile and 10 metres if access is provided down one side of the stockpile only (See Figure 4).
- Stockpile boundary limits should be permanently marked to identify limits, maintain separation distances and control stockpile volume.
- The separation distance between individual external stockpiles and between stockpiles and fire-risk features should be calculated in accordance with the storage method, length of stockpile and the fire risk of materials (See Figure 5 and Table 5).
- Covered areas attached to buildings or structures should not encroach into the separation distance unless protected by an automatic fire system (See Figure 6).

Figure 1 Separation of wastes at a waste facility



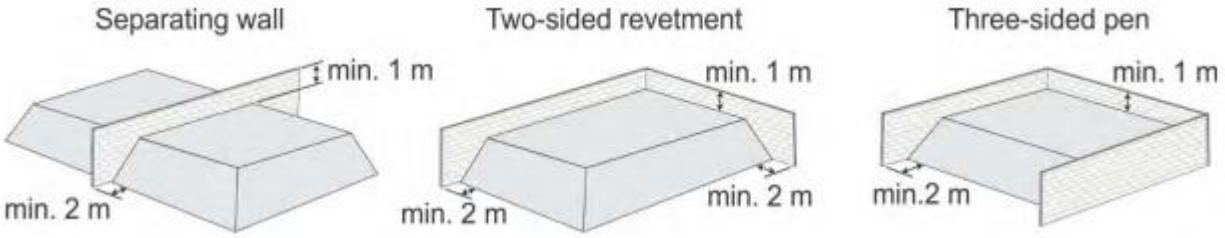
(Environment Protection Authority Victoria, 2018) (Distances and pile sizes are not to scale)

Figure 2 Maximum stockpile height and face angle



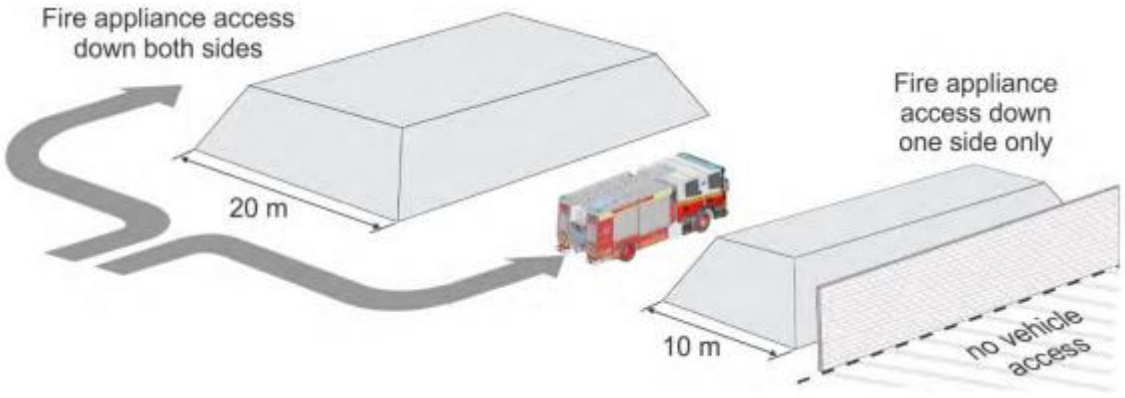
(Fire and Rescue NSW, 2020)

Figure 3 Example of separating masonry wall, revetment or pen



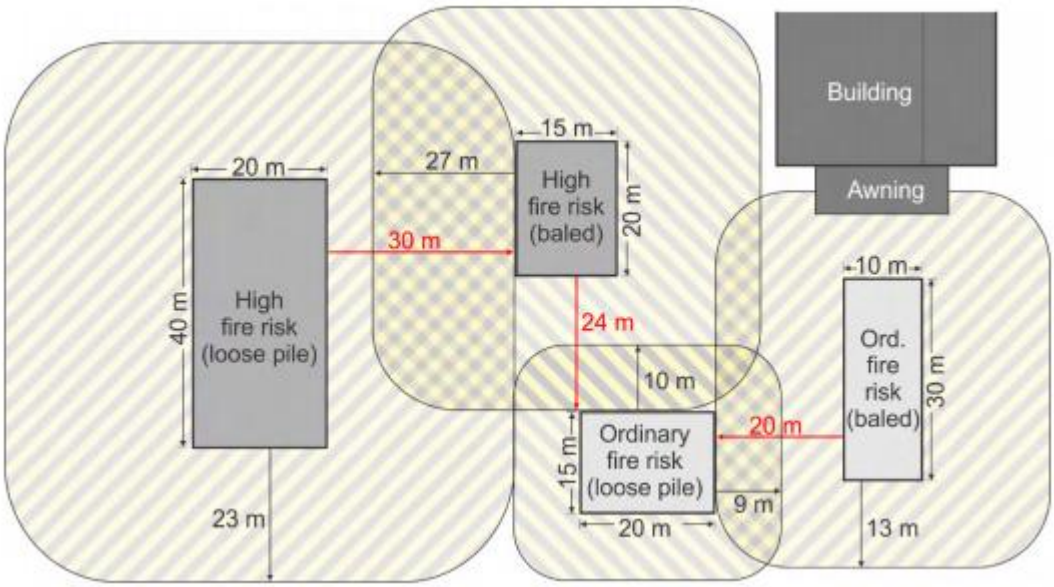
(Fire and Rescue NSW, 2020)

Figure 4 Maximum external stockpile widths



(Fire and Rescue NSW, 2020)

Figure 5 Examples of minimum separation distances between external stockpiles and buildings

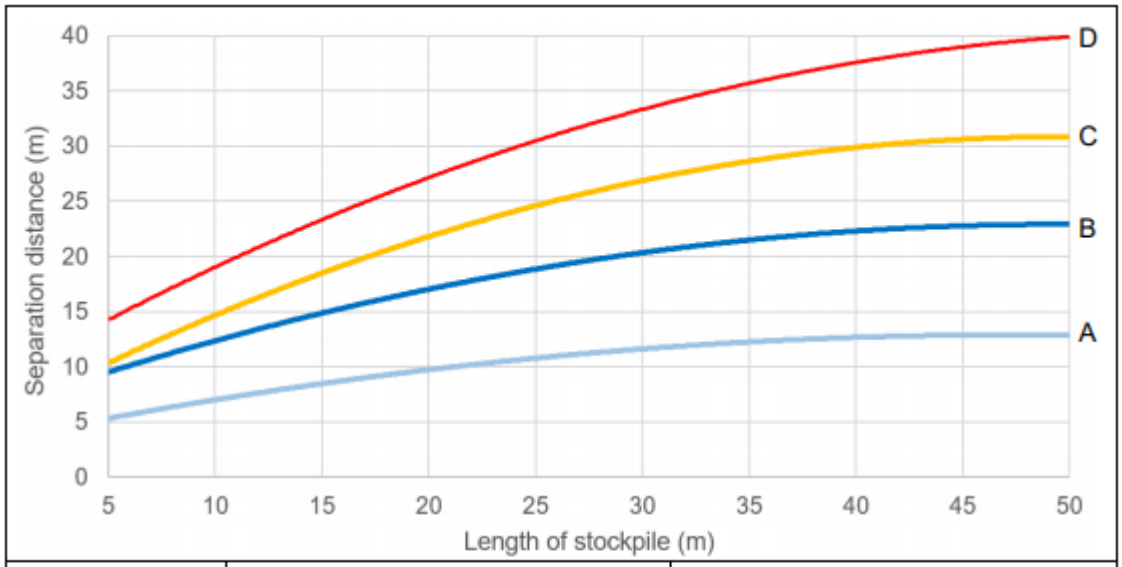


(Fire and Rescue NSW, 2020)

Figure 6 Example of separation between covered building part of structure

(Fire and Rescue NSW, 2020)

Table 5 Minimum separation distances between external stockpiles



Length of stockpile (m)	Ordinary fire risk (i.e. ≤ 1000°C)		High fire risk (i.e. >1000°C)	
	Loose pile (A)	Baled (B)	Loose pile (C)	Baled (D)
5	5 m	9 m	10 m	14 m
10	7 m	13 m	15 m	19 m
15	9 m	15 m	18 m	24 m
20	10 m	17 m	23 m	27 m
30	11 m	20 m	26 m	34 m
50	13 m	23 m	31 m	40 m

(Fire and Rescue NSW, 2020)

9. Storage of end-of-life tyres

Whilst end-of-life tyres are not susceptible to spontaneous combustion when end-of-life tyres become involved in a fire the combustion products formed have major environmental impacts. Equally important to these environmental impacts are the high temperatures at which end-of-life tyres burn which allow the fire to spread rapidly and make it difficult to extinguish. To address these risks QFES have published “Fire and Rescue Service Act Requisition (No. 1) 2011.” This requisition specifies measures to be implemented when storing end-of-life tyres. Failure to comply with the requirements of this requisition when storing end-of-life tyres is considered a failure to meet GED. Fire and Rescue Service Act Requisition (No. 1) 2011 is available in Queensland Government Gazette 72-78. Volume 356, pages 493-558 (1 April 2011). It is also available as Appendix 1 of this guideline.

10. Stockpile maintenance

Regular turning of stockpiles is recommended to allow excess heat to dissipate. The frequency a stockpiled is required to be turned will depend upon the waste type, storage environment and ambient conditions. Heat generation and self-combustion is more likely in periods of dry weather and hot ambient temperature. Stockpiles must only be turned by staff who are trained in the management of hot spots (a smouldering fire that flares during turning due to exposure to oxygen).

11. Fire water run-off containment

Consideration should be given to the potential environmental impacts of fire water. Potential contaminants likely to be present within the fire water should be identified for the waste types present onsite. Pathways by which fire water may reach sensitive environmental receptors should also be identified. Effective and automatic means of containing firewater run-off should be installed. The volume of fire water which may be generated in the event of a fire should be considered when designing this system. An urban fire appliance can pump 3,000L/min to 5,000L/min of water onto a fire.

The primary containment system should have a net capacity not less than the hydraulic demand of installed fire safety systems. Options for firewater containment systems include:

- Bunds;
- storage lagoons;
- drain shut -off valves and the use of equipment such as firewater booms and drain mats to divert firewater;
- isolation tanks; and
- modified areas of the site i.e. a bunded carpark.

It may be possible to recycle firewater during the tackling of the fire if it is not too hazardous to burn.

12. Smoke management

Information pertaining to the materials contained in stockpiles, is vital to informing an accurate hazard assessment of the smoke and must be available to QFES, the department and Queensland Health to ensure a response to potentially toxic gas and vapour releases can be coordinated.

Low temperature fires at waste facilities have the potential to burn for several weeks and may produce smoke and odour during this time which will be investigated by the department as an environmental nuisance.

An alternative to using water to extinguish the fire is to smother the fire using soil, sand, crushed brick and or gravel. This may be appropriate where there are limited water supplies and smoke is threatening local people. However, this method of extinguishing a fire does not come without risk to the environment. Consideration should be given to groundwater vulnerability and the likely timescales for the cooling and removal of the entombed waste as all the contaminated material must be removed and disposed of. Entombed waste fires may be able to reignite upon re-exposure.

13. Provisions for firefighting intervention.

Provision of safe, efficient and effective access to QFES to all areas of the site is required for the purposes of fire intervention. This may include a perimeter ring road around any large non-sprinklered building and access roads between stockpiles. Information published by QFES relating to vehicle access requirements have been published in 'Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots'.

A fire hydrant system should consider the facility layout and operations, with fire hydrants being located to provide coverage and safe firefighter access during a fire including to external stockpile areas. Where reticulated water is available, operable hydrants are to be provided. Hydrants are to be suitably identified so that firefighters can identify them at all hours and maintained to the minimum performance standard as per AS 2419.1.2005. Information published by QFES relating to the provision of fire hydrants has been published in 'Fire Hydrant and Vehicle Access Guidelines for Residential, Commercial and Industrial Lots'. Further information may be obtained from Fire Safety Guideline- Fire in waste facilities published by Fire and Rescue NSW.

Fire sprinkler systems, fire detection and alarm systems may be suitable for stockpiles of waste stored internally. Further information may be obtained from Fire Safety Guideline- Fire in waste facilities published by Fire and Rescue NSW.

14. Provision of assistance to firefighters.

The provision of relevant information to QFES regarding the site will enable the effective tackling of a fire. QFES should be provided with a copy of the emergency procedures developed for the site and a Local Action Plan (LAP) for the facility should be developed with QFES and updated as required.

Heavy mobile plant used in the daily operations of the site may be useful in tackling a fire for example by removing wastes which are not on fire away from the location of the fire to prevent fire spread and by pushing soils or other inert material over a fire to starve it of oxygen.

If heavy plant is to be used to provide assistance to firefighters you must ensure that operatives are trained and competent in the task to enable it to be completed without risk to the operative or to others and that the plant is suitable for use in this manner.

15. Duty to notify the department of environmental harm

A fire at a waste facility is likely to cause or threaten to cause serious environmental harm or serious environmental harm and must be reported to the department so appropriate action can be taken to prevent or limit possible environmental harm. The department's Guideline –The duty to notify of environmental harm (ESR/2016/2271) provides an explanation of the notification requirements stipulated in sections 320 to 320G of the EP Act.

During a fire the department will provide an incident response in line with its current incident response procedures to assist in minimising the impacts of that fire.

16. Relevant Legislation

The department is working in partnership with QFES. QFES have powers under section 69 the *Fire and Emergency Services Act 1990* to require the occupier of a premise to take measures for the purposes of reducing the risk of a fire occurring or reducing potential danger to persons, property or the environment in the event of a fire occurring on the premises.

17. Consequences of a fire at a waste facility

17.1 Offences

The cause of a fire at a waste facility and the resulting impacts upon the environment will require investigation and the appropriate compliance actions to be taken. Compliance actions for offences under the EP Act and the WRR Act must be taken in accordance with the department's Enforcement Guidelines. In addition to the compliance measures contained within the Enforcement Guidelines, actions to recoup unpaid waste levy will be applied where applicable.

17.2 Costs

Costs incurred by the department and other state government entities whilst responding to a fire at a waste facility can be recovered under various legislative provisions

1. Further information

Other sources of useful information include:

- Fire Safety guideline: Fire safety in waste facilities- Fire and Rescue NSW.
- Emergency Planning -QFES
- 1667.2: Management an storage of combustible recyclable and waste materials- guideline- EPA Victoria
- Guideline for stockpile management: Waste and waste derived products for recycling and reuse.

The Australian Fire Authorities Council is expected to release a national guideline on this subject by the end of 2020.

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Version history

Date	Version	Action	Description / comments
2 December 2020	1.00	Approved by Director, Enforcement Services	Initial upload

Appendix 1 – Fire and rescue Service Act Requisition (No.1) 2011.

Fire and Rescue Service Act 1990

FIRE AND RESCUE SERVICE ACT REQUISITION (No. 1) 2011

TABLE OF PROVISIONS

SCHEDULE

Short title

1. This requisition may be cited as the Fire and Rescue Service Act Requisition (No. 1) 2011.

Commencement

2. This requisition commences on 1st April 2011.

Requisition

3. The Commissioner, Queensland Fire and Rescue Service requires occupiers of premises to whom this requisition applies to take the measures specified in the schedule for the purpose of reducing the risk of fire occurring on the premises or reducing potential danger to persons, property or the environment.

Application

4. This requisition applies to any person who stores or stockpiles in excess of 500 tyres of any type and in any condition or their equivalent parts in the open.

SCHEDULE

THE STORAGE OR STOCKPILING OF TYRES IN THE OPEN

1. Preamble

Any person who stores or stockpiles, or intends to store or stockpile in excess of 500 tyres of any type and in any condition or their equivalent parts in the open must:—

(a) comply with any and all other statutory requirements and or approvals relative to land use, strategic planning and environmental protection requirements;
(b) comply with the undermentioned conditions.

The expression "tyre" shall refer to a tyre whether new, secondhand, re-conditioned, scrap, shredded or crumbed in whatever state of repair or condition.

The Commissioner, Queensland Fire and Rescue Service may vary any of the following conditions provided that he is satisfied such variations will not materially compromise the intent of the requisition, or to increase the risk to persons, property or the environment.

2. Scope

This requisition deals with the storage of vehicle tyres or parts of tyres in the open in numbers greater than 500 or equivalent parts where the parts have any dimension exceeding 100 millimetres.

Sections 3, 4 and 6 of this requisition will not be applied:—

to tyres in stable stacks of fewer than 500 tyres that are separated from other stacks of tyres or any combustible or flammable material including grass and weeds by a distance of 10 metres or more in any direction; or
to shredded or crumbed tyres (where the shreddings or crumbs have two dimensions less than 100 millimetre) stored in the open, where:

1. the base of the stockpile has an area less than 100 metres2;
2. the width of the stockpile does not exceed 5 metres at any point;
3. the height of the stockpile is less than 3 metres;
4. the stockpile is stable, with batters not exceeding the angle of repose of the material; and
5. there is a 10 metre separation distance in any direction to any tyres, parts of tyres, or any other flammable or combustible material including grass and weeds.

3. Stack dimensions

(a) Single Stacks (See Figure 1)

Maximum width of base	5 metres
Maximum length of base	45 metres
Maximum height	3 metres
Minimum distance between stacks	10 metres
Average side slope	1.1

Stacks must be stable

The longest dimension of a stack must be at right angles to the direction of the prevailing wind. (The prevailing wind is that wind direction which is the most dominant determined from annual wind statistics).

(b) Group Stacks (See Figure 2)

In lieu of a 10 metre separation distance stacks may be separated by a protective wall with a fire rating of 4 hours provided that:

(a) this protective wall protrudes 1.5 metres above the highest point and 1.5 metres beyond the widest point to each side:

(b) that only two stacks may abut on the longest axis and two Stacks on the shortest axis (i.e. four individual stacks in any one group);

(c) that any individual stack must not exceed the dimensions specified in this part (except that tyres may be stacked against such wall with a side slope batter only on the exposed sides); and

(d) that such group of stacks must not exceed an aggregate width of 10 metres and an aggregate length of 90 metres.

Such groups of stacks must be separated from any other group of stacks, individual stacks of tyres or any combustible or flammable material including grass and weeds by a distance of 10 metres or more.

4. Fire Fighting

Three methods of extinguishing a tyre fire are addressed in this guideline:

1. separation of tyres;
2. exclusion of oxygen by sand or soil; and
3. absorption of heat by water.

A combination of all methods is the most effective.

As a tyre fire cannot be fought effectively from the downwind side, fire fighting equipment and resources may need to be duplicated or be easily portable so that a fire in any stack can be fought from upwind no matter what the wind direction. The design and layout of the tyre stacks needs to be waned to facilitate this.

The resources for one or more methods as set out below must be available as directed by the Commissioner, Queensland Fire and Rescue Service.

4.1 Resources required for the separation of tyres method

Machinery capable of creating a break 10 metres wide between burning and unburnt tyres must be kept on site 24 hours a day. During maintenance down-time or breakdown a replacement machine must be on site so that a break in the tyres can be created at any time.

A competent operator for this equipment must be available 24 hours a day. A system to have the operator on site within 20 minutes must be in place 24 hours a day. This system must be approved by the Commissioner, Queensland Fire and Rescue Service.

4.2 Resources required for exclusion of air method

A stockpile of sand or soil and the resources to load and transport it to the tyre storage site, and to place it on the tyre stacks must be readily available. The volume of sand or soil must be sufficient to completely cover the largest stack to a depth of 1 metre over the entire exposed surface area of the stack.

Earthmoving equipment must be able to deposit any load of sand/soil on to the centre of any stack while remaining upwind of the fire and without having to drive on to the tyre stack.

4.3 Resources required for heat absorption by water method.

A water supply system capable of delivering high volumes of water with minimum delay is required. The source may be reticulated town water or a dam.

The on-site water reticulation system is to have the following characteristics:

1. a minimum of three standpipes with fittings approved by the Commissioner, Queensland Fire and Rescue Service are to be located so that at least one is no closer than 50 metres and no further than 90 metres from any part of any stack and is up-wind or cross-wind no matter what the wind direction; and

2. each standpipe is to be able to deliver 1800 litres/minute when any two are operating. This flow rate must be able to be continuously maintained for a minimum of 3 hours.

So that immediate action can be taken by staff whilst awaiting the Queensland Fire and Rescue Service, three 30 metre lengths of 64 millimetre hose and fittings, one branch and one nozzle must be kept readily available at a specified Fire Point.

This equipment is to be maintained in accordance with AS 1851 and to meet the specifications of the Commissioner, Queensland Fire and Rescue Service. This equipment and Fire Point are not to be used for any other purpose.

If water is to be drawn from a dam, a volume of 648,000 litres must always be available for pumping.

Provision should be made to contain firewater run off.

5. Fire break

The stacks of tyres are to be separated from the property lines or security fencing by a fire break of 10 metres. The fire break is to be kept clear of all flammable and combustible materials including grass and weeds at all times.

6. Vehicular access

More than one access point to the storage area shall be available to allow for varying wind directions. A perimeter road shall be developed to aid security and access. All roads to, and lanes between stacks, shall be maintained in a condition suitable for Queensland Fire and Rescue Service vehicles.

If water is to be drawn from a dam, a hard standing area of a design and location approved by the Commissioner, Queensland Fire and Rescue Service must be provided adjacent to the dam for the sole use of a Queensland Fire and Rescue Service pumping unit.

7. Equipment

All fire fighting equipment shall be regularly maintained and checked for serviceability in accordance with AS 1851. A firefighting equipment maintenance plan should be developed.

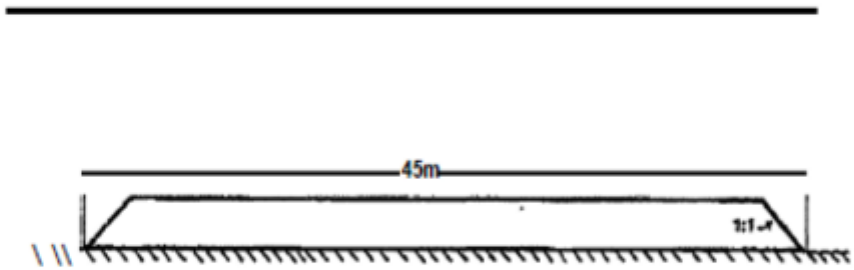
8. Security

A security system meeting the approval of the Commissioner, Queensland Fire and Rescue Service is to be provided. It is to include all or some of the following:

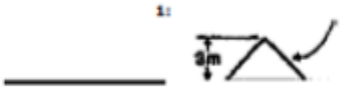
1. 2 metre Security Fencing complying with A.S. 1725-1975;
2. Security Guards;
3. Guard Dogs;
4. Lighting; and
5. Alarms.

9. Emergency plan

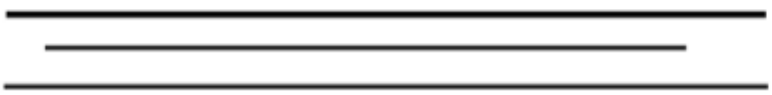
A plan of action for a fire emergency must be developed. This plan must be approved by the Commissioner, Queensland Fire and Rescue Service.



Side Elevation

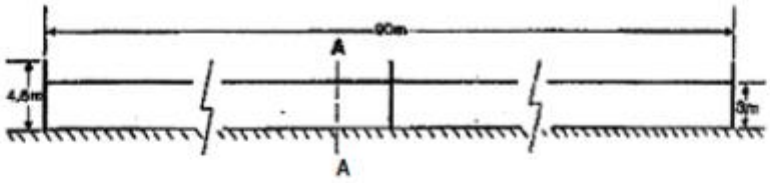


End Elevation

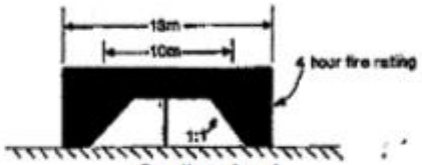


Plan

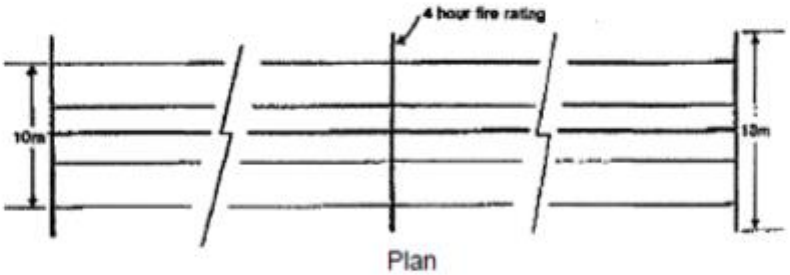
Figure 1



Side Elevation



Section A—A



Plan

Figure 2

ENDNOTES

1. Published in the Gazette on 1st April 2011.
2. The administering agency is the Department of Community Safety.