



**Fire Safety Guideline**  
**Metal Stockpile Management**

**MFS Fire Safety Guideline for Recyclable Metal Stockpile Management**

# Fire Safety Guideline

## Metal Stockpile Management

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4 Fire Hydrants for Outdoor Storage	Added

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## Metal Stockpile Management

### GLOSSARY

- AS Australian Standard
- LPG liquefied petroleum gas
- MFS South Australian Metropolitan Fire Service

### REFERENCED DOCUMENTS

The following documents are referred to in this Guideline:

- AS 2419.1 Australian Standard 2419 – *Fire hydrant installations, Part 1: System design, installation and commissioning*

South Australian Fire Authorities, *Built Environment Section Policy 014, Above ground water storage tanks for fire fighting purposes*, South Australian Metropolitan Fire Service and South Australian Country Fire Service.

Minister for Planning and Local Government, *Ministerial Building Standard MBS 002 – Maintaining the performance of essential safety provisions*, Government of South Australia.

# Fire Safety Guideline

## Metal Stockpile Management

### 1 PURPOSE

This document has been prepared by the South Australian Metropolitan Fire Service (MFS) in association with industry to address the fire risk issues of existing and proposed new sites for the outdoor storage of recyclable metal stockpiles.

### 2 GENERAL

Recyclable metal stockpiles often contain a percentage of mixed combustible material contained within the stored material such as cars, white goods and other (principally metal) products, stored in heaps prior to processing/material separation.

Adoption of this Guideline and implementation of the described procedures for material control/separation, storage and ongoing management should lessen the effects of fire outbreak, fire magnitude and assist in its containment.

For existing storage sites and where this Guideline is agreed to be adopted, it should be immediately implemented together with a program established to upgrade the management of the stockpiles. This will need to be addressed on a site-by-site basis relevant to specific areas of non-compliance and be cognisant of such constraints as the operational capacity of shredder plant and/or other on-site processes.

Nevertheless, it would be expected that existing stockpile volumes would achieve compliance within a period of approximately 12 months, subject to negotiation on specific site and operational provisions.

### 3 GENERAL FIRE SAFETY PROVISIONS

The following are fire safety procedures associated with the storage of new material and the modification or continued expansion of existing stockpiles.

#### 3.1 Fuel Hazard Reduction / Separation Prior to Storage

1. Car batteries should be removed.
2. Fuel tanks should be emptied.
3. LPG cylinders should be removed, separated from stockpiles, stored in a suitable location and processed off-site on a regular basis.
4. Following the above procedures, uncrushed car bodies should be stored separate from other materials if they cannot be immediately processed. Refer Section 8 Storage Limitations.

#### 3.2 Site Management

1. Internal roadways should be maintained for Fire Authority vehicle access at a minimum of 6m width or as appropriate to the type of vehicle assessed to be necessary to attend the site.
2. Stockpiles should be maintained within the storage limitations nominated further in this Guideline.
3. All stockpiles should be located at a minimum of 6m from site boundaries.
4. Sufficient working area(s) free of scrap should be maintained at all times to allow the moving and isolating of scrap that may have ignited, to enable its quarantine/separation from the general stockpiles.
5. After hours security should be provided to the site.
6. Security fences should enclose the site and minimise unauthorised entry.

7. Areas surrounding the piles and roadways between the piles should be kept free from scrap and other combustible materials, e.g. grass and weeds.
8. Emergency contact numbers should be posted on site at weighbridges and road entry points to assist attending fire crews prior to arrival of the site Operations Manager at times when the site is unattended (e.g. during public holiday periods).
9. Measures should be provided to prevent contaminated run-off from firefighting hoses affecting areas external to the site. Specific measures will need to be considered in consultation with an Environmental Engineer.
10. Hot works should not be permitted within 10m of a stockpile or vegetation.
11. Smoking should not be permitted within 10m of a stockpile or vegetation. Signs to this effect should be displayed and designated smoking areas established.

### 3.3 Emergency Response Procedures in the Event of a Fire

1. The relevant fire brigade should be immediately contacted by calling 000.
2. The Operations Manager should be immediately advised (whether on or off site).
3. An agreed site-specific emergency response procedure should be immediately implemented.
4. The agreed site-specific emergency response procedure should encompass issues such as contact numbers (EPA, Fire Brigade, Local Council and Key Site Staff), on-site staff actions and their training, and include a plan of the site showing drainage, accessible roads and hardstand areas, water mains (external and internal), firefighting equipment, easements and the like.

### 3.4 Staff Training

1. All staff, with a special mention of mechanical excavator operators, should be trained and understand their required role during a fire incident.

### 3.5 Response Equipment

1. A mechanical excavator(s) and operator(s) should be provided during a fire incident for separation of burning materials to reduce the spread of fire, minimise fire growth and enable the fire to be attacked at its source or close thereto.
2. Specific fire brigade appliance types likely to attend to meet site requirements should be identified (e.g. pumper(s), aerial appliance).
3. Suitable water supplies should be provided for fire brigade use. Suitable supplies may incorporate on-site fire water storage tanks (refer MFS Policy 014) and/or a hydrant system designed for “open yard protection” in accordance with AS 2419.1 and Section **Error! Reference source not found.** below.
4. Portable fire extinguishers should be provided, available for use at all times.

#### 4 FIRE HYDRANTS FOR OUTDOOR STORAGE

A fire hydrant system complying with AS 2419.1 shall be installed to provide firefighting water supplies to sites storing metal recyclable stockpiles.

Fire hydrant system design shall be in accordance with AS 2419.1 Clause 3.3 for Open Yard Protection, with the exception that the minimum number of hydrants flowing simultaneously shall be as follows:

##### 4.1 Small Storage Facilities

Notwithstanding the requirements of AS 2419.1, where the total storage volume on site is less than or equal to 750 m<sup>3</sup>, the facility shall have a hydrant system capable of providing simultaneous flows for at least two (2) hydrant outlets (10 L/s each).

##### 4.2 Large Storage Facilities

Where the total storage volume on site is greater than 750 m<sup>3</sup>, the site shall have a hydrant system capable of providing minimum simultaneous flows for at least three (3) hydrant outlets (10 L/s each).

Where the site is of a size that AS 2419.1 would require additional hydrants to flow (with respect to total yard areas), then the requirement of AS 2419.1 takes precedence.

#### 5 STOCKPILES

Stockpiles are considered as either dormant or active, the latter relating to both the development of new stockpiles and the modification of existing stockpiles for re-use, expansion or reduction.

Stockpiles should be arranged according to the types of materials to be stored in them be that material in either a processed or unprocessed state (see Section **Error! Reference source not found.** Storage Limitations).

#### 6 MANAGEMENT UPGRADE OF EXISTING STOCKPILES

Existing stockpiles, which are not dormant, should be altered to conform to the recommended storage limitations applicable to new stockpiles. Procedures for modification of existing stockpiles should comprise:

1. Provision of breaks through the existing stockpile to reduce its footprint area. The initial break should halve the pile; additional breaks should be made to further subdivide piles until the agreed footprint area is achieved.
2. Material removed to form the breaks should be transferred to independent stockpiles having the nominated area/volume limitations, or where applicable, to the shredder plant.
3. Provision of perimeter and internal site roadways for vehicular access.
4. Reduction in height of the stockpile following subdivision(s) into piles of appropriate footprint.
5. Upgrade of the site for fire brigade firefighting (e.g. provision of onsite water / hydrants).

Existing stockpiles are considered to represent a higher risk for fire outbreak because they likely contain both processed and unprocessed materials which do not meet the recommendations for new stockpile management.

The time period associated with any management upgrade of existing stockpiles will likely be dependent on plant turnover processing capacity and negotiation with the relevant authorities.

### 7 DORMANT STOCKPILES

Where an existing stockpile is dormant, meaning the site is unattended and the stockpile is not being modified for re-use, expansion or reduction; no action is considered necessary in respect of fire safety management unless appropriate distance from site boundaries and vehicular/firefighting access is unavailable to prevent satisfactory intervention by the Fire Brigade.

Where site boundary separation or access is not currently acceptable, as determined by the Fire Brigade, and where the stockpile is to be modified for re-use or reduction, fire safety management should be introduced (see Section **Error! Reference source not found.** Management Upgrade of Existing Stockpiles).

Where a dormant pile is close to an adjoining property and could either catch fire from that property or spread fire to it, then, irrespective of the risks, material will need to be removed from the pile to create a necessary firebreak (see Section 3.2 Site Management).

Dormant stockpiles are considered to contain all manner of processed or unprocessed materials that cannot meet the recommendations for new stockpile management. For existing dormant stockpiles, the risk of a fire occurring during the establishment of breaks/roadways into the pile may be greater than the risk of any fire development whilst in a dormant state. Risk is measured as the multiplication of probability of an event occurring and the consequence of that event occurring.

### 8 STORAGE LIMITATIONS

The following storage limitations should be applied in accordance with the nature of materials to be located on the site.

#### 8.1 Unprocessed Car Bodies

Car bodies should be contained to 6m in height and a footprint stockpile area of 6m x 24m as a single row, incorporating a separation distance of 6m to minimise further fire spread in the event of an incident. Firefighting access should be provided to at least one side and each end of a single row of stockpile in such configurations.

#### 8.2 Processed Car Bodies (Flats)

Car bodies are considered to be semi-flat when stockpiled by compression of the roof to mid door height, typically using the bucket of a front-end loader. This approximates to a height of 1m per body.

A typical acceptable footprint area for this type of scrap would be three (3) car bodies side-by-side (approximately 6m wide) and five (5) cars long (approximately 25m long). The next row of cars should be cross stacked on top to interlock vehicles and provide stability. Stacking should be to a maximum of six (6) vehicles high (approximately 6m).

Where cars have been hydraulically crushed into “flats”, piles should be limited to ten (10) flats in height and a footprint area as per unprocessed car bodies. Flats are considered to approximate 0.3m in height with a resultant stockpile height of 3m. Restrictions are not necessary for stockpile separation other than the provision of firefighting vehicular access to one side and each end of the stockpile.

#### 8.3 Processed Car Bodies (Bales)

No restrictions are necessary for the storage of processed car “bales” and/or their integration within a stockpile.



### 8.4 Light Gauge (Mixed) Scrap

Such stockpiles are those which incorporate all types of unprocessed metal materials (excluding unprocessed and processed car bodies). These should be limited to a 2,000m<sup>2</sup> footprint area having a maximum width of 20m and incorporate vehicular access to the total perimeter of the stockpile (maximum size would be 20m x 100m). Multiple piles should be provided with vehicular access/separation distances. A maximum height of 10m per stockpile is acceptable, subject to operational procedures for stockpile formation and stability.

### 8.5 Post Shredding (Flock)

Flock should be stored in three-sided open top bays. Bays should have a concrete floor and walls of concrete or masonry. Flock piles should not exceed the height of the bay walls. The practice of storing flock is not preferred and consideration should be given to its removal on a regular basis, after processing.

### 8.6 Storage of Vehicle Batteries

Storage of redundant vehicle batteries should be independently located on a concrete floor either undercover or within a bunded area to contain spillage. Batteries should be stored a minimum of 6m distance from stockpiles. Batteries should be stacked on standard timber pallets no more than three (3) batteries high. Stacked pallets should be plastic wrapped and strapped using non-metallic strapping.