Managing combustible recyclable and waste materials at resource recovery centres

This fact sheet supports the Environment Protection Authority Victoria's (EPA's) *Waste Management Policy (Combustible Recyclable and Waste Materials).* **It summarises the EPA's supporting guideline:** *Management and Storage of Combustible Recyclable and Waste Materials* **(Publication 1667.2, October 2018).**

Key points

Under the policy, managers of waste and resource recovery must:

› Understand the fire hazards associated with their activities

› Take reasonably practicable steps to reduce the fire risk associated with those hazards

› Store combustible recyclable and waste materials in a manner that minimises the risk of harm to human health and the environment

› Keep records of materials.

› Develop an emergency management plan and a fire risk management framework,

› For further information see Management and storage of combustible recyclable and waste materials – guideline (publication 1667.2) (the guideline) was developed by EPA, Country Fire Authority (CFA) and Metropolitan Fire Brigade (MFB) in consultation with a wide range of government and waste industry representatives.

It is written for occupiers/facility operators of waste and resource recovery facilities (WRRFs), including transfer stations, that store combustible recyclable and waste materials (CRWM) and any business wishing to apply best practice to managing CRWM.

CRWMs are defined as recyclable and waste materials that could create a fire hazard. These include, but are not limited to:

› paper
› wood
› rubber
› textile
› refuse-derived fuel (RDF)
› combustible by-products of metal processing activities
› cardboard

› plastic
› tyres and/or tyre-derived waste*
› organic material
› specified electronic waste (e-waste)
› municipal waste.

*The CRWM policy applies to all WRRFs in Victoria regardless of size, other than licensed waste tyre storage premises and licensed landfills.

Why develop this policy?

The Department of Environment Land, Water and Planning (DEWLP) updated the interim Waste Management Policy (Combustible Recyclable and Waste Materials) (WMP CRWM) in August 2018, adding content on the safe storage of CRWM due to numerous outbreaks of fire at resource recovery centres.

The EPA's supporting guideline, *Management and storage of combustible recyclable and waste materials* (the CRWM guideline) was developed in collaboration with the Country Fire Authority (CFA), Metropolitan Fire Brigade (MFB), Emergency Management Victoria, WorkSafe Victoria and DEWLP. The EPA also consulted the community, industry members, local government and waste and resource recovery groups to better support compliance with the new WMP CRWM.

The policy and regulatory responses reduce the risks associated with stockpiling and ensure that Victoria's waste and resource recovery system remains robust, effective and safe. It provides advice on how to manage and store CRWM to minimise risks of fire and the subsequent harm to human health and the environment.

Role of the occupier

Under the Environment Protection Act 1970, an occupier is a person who occupies or has control of the premises, whether or not that person is the owner of the premises. Occupiers are responsible for minimising harm to human health and the environment from fire at their sites, irrespective of how the fire starts. Even if it starts elsewhere and spreads to your facility, controlling the fire is your responsibility.

Demonstrating compliance with the WMP CRWM

One way to demonstrate compliance with Clause 7 of the WMP CRWM is by following the advice and specifications in the EPA's CRWM guideline. Alternatively, you can manage and store CRWM in a different manner, but you should show that you are minimising risks to a level at least equivalent to the guideline (see Figure 1).
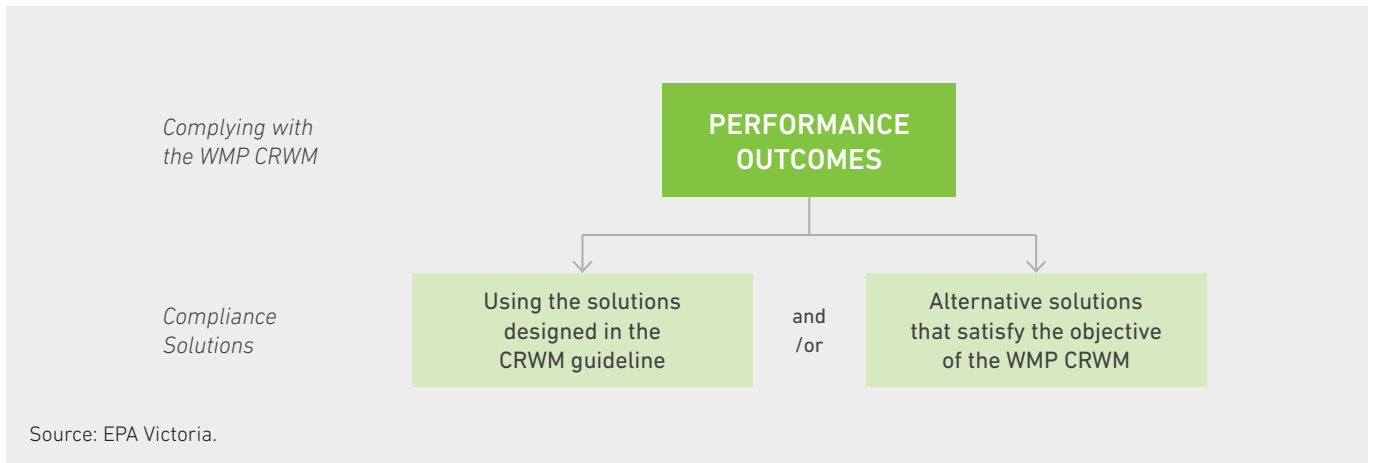
Sustainability Victoria

Figure 1
How occupiers can demonstrate compliance with the WMP CRWM

Record keeping/inventory guidelines

Keep records of CRWM both received at and sent from WRRFs for recycling. This enables tracking of resource recovery from the site, as well as helping to manage volumes being stored onsite.

Record keeping/inventory recommendations include:

› CRWM type
› location on site
› number of CRWM piles
› stack type (i.e. freestanding loose, freestanding baled, separated by walls, bunkered loose)
› access (from both sides, only from one side)
› stockpile measurement (m) (height, length, width)
› separation distance (m) to other stockpiles and to bunding (if applicable) (refer to the CRWM guideline notes on effective storage management).

Hazard identification and assessing the risk from fire

Sustainability Victoria's *Guide to Better Practice at Resource Recovery Centres* (Section 5.1: Managing onsite risks) and the EPA's CRWM guideline explain how to conduct a risk assessment. The CRWM guideline provides a fire specific risk management framework with a checklist template to identify gaps in a risk management framework system.

As a rule, risk assessments should be used to assess the threat of fire, identify potential hazards, check and implement controls and identify areas for continuous improvement. These should be completed at least every six months or after a significant event. Firefighting equipment and infrastructure should be site specific and tailored to your identified risks.

These plans should be made available to relevant fire authorities on request. Occupiers as a minimum should observe the relevant Australian/New Zealand or International Standards such as ISO Standard 31000: Risk Management, which addresses risk across all business activities.

One option for undertaking risk management is outlined in Figure 2 (taken from the EPA's CRWM guideline). This is a continuous and circular framework that can facilitate effective risk management.

Figure 2
Steps to control hazards and risks

Source: Image courtesy of EPA Victoria.

Table 1
Steps to control hazards and risks

Step	Action	Description
1	Identify fire hazards	What fire hazards are present that might cause harm to human health and the environment.
2	Assess risks from fire	What your understanding of the level or severity of a fire risk is, based on consequence and likelihood, and your understanding of why the risk exists.
3	Implement controls	What measures can be put in place to eliminate or reduce a risk (e.g. engineering, equipment, work processes or monitoring systems).
4	Check controls	Review controls to ensure they are effective. Independently check that monitoring activities are being conducted properly and verify that the activities are suitable (i.e. actively manage the risk).

Fire prevention, mitigation and response controls

A range of controls can be used to prevent, mitigate and respond to fires.

Occupiers must develop, implement and maintain all reasonably practicable safe working practices to minimise risk of fire. Emergency Management Plans must be prepared and put into practice. Controls should be maintained and must continue to be effective.

Activities that must be carried out as part of a facility's daily operations include, but are not limited to:

› ensuring safe and separate storage of gas cylinders, other combustible materials, hazardous materials, dangerous goods or any device or equipment that can easily ignite

› ensuring separate drop and/or designated areas for material drop off, materials processing and materials storage activities

› designating quarantine areas for any hazardous materials and hot loads/burning materials

› ensuring the site layout, including pile dimensions and separation distances, is optimal to prevent occurrence and spread of fire (refer to CRWM storage guidelines)

› ensuring adequate water supply and pressure to combat any fire scenario

› ensuring fire hydrants, sprinkler systems, fire extinguishers, etc. are regularly tested and maintained

› ensuring EMPs, risk assessments and risk registers are maintained

› ensuring bunding, drainage basins, catchment pits and other liquid run-off management controls (including fire water) are maintained

› ensuring equipment on site can manage and contain emergency situations (e.g. equipment used during fire has the right heat proof hydraulic fittings)

› obligations of occupiers in ensuring their staff are familiar with overall site emergency management procedures, including evacuation and alerting authorities

› staff are trained appropriately to operate equipment in the event of a fire and are suitably protected from hazards.

Combustion of stored CRWM

Stored CRWM has the potential to be ignited by external factors, ignition sources or by spontaneous combustion.

All CRWM will burn if the temperature exceeds their ignition point. Table 2 may help you effectively monitor their temperature and reduce the risk of spontaneous combustion.

Table 2
Ignition points for various CRWM

Material	Ignition Point (o C)	Material	Ignition Point (o C)
Compost	150–200	Nylon	424–532
Wood	190–260	Polyester	432–488
Paper	218–246	Polystyrene	488–496
Rubber	260–316	Acrylic plastic	560

Adapted from T.C Forensics www.tcforensic.com.au/docs/article10.html.

## Indoor and outdoor storage of CRWM

Good layout and management of CRWM storage will reduce the risk of fires starting and spreading. When designing site layout, consider:

› limiting the overall volume of piles

› the arrangement of different combustible and non-combustible materials

› leaving appropriate gaps between piles and buildings to limit fire spread

› maintaining access throughout the site, including access for firefighting authorities.

Mixing or poorly arranging different materials can increase risk of combustion or facilitate the spread of fire throughout your CRWM storage. Some materials may have a low risk when stored on their own but become combustible when stored alongside other materials.

Figure 3 illustrates how CRWM can be stored safely with consideration for free-air gaps (separation distances) and bunkers made from non-combustible material. Refer to the EPA's CRWM guideline for more information on indoor and outdoor recommendations.

Figure 3
An example of how CRWM can be stored safely with consideration for free-air gaps (separation distances) and bunkers made from non-combustible material. Distance/pile size are not to scale and are representative only.
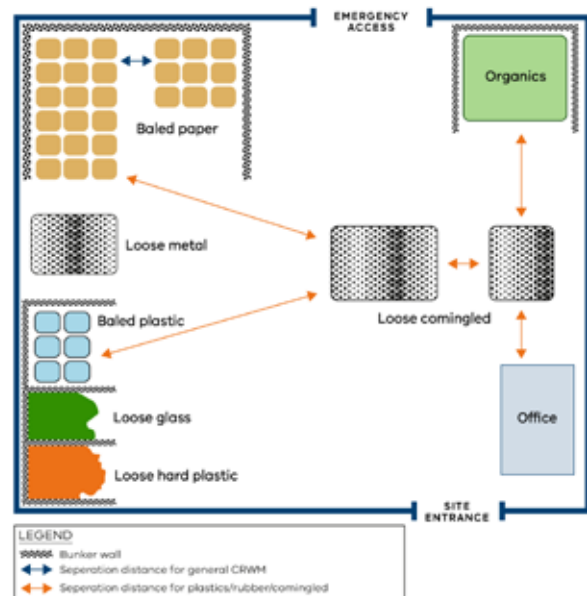
Source Image courtesy of EPA Victoria.

Emergency management plan

An Emergency Management Plan (EMP) is a written set of instructions outlining what WRRF owners, employees, contractors and visitors should do in any type of emergency. An effective EMP addresses all hazards, not just fire (e.g. chemical exposure, bullying, stress, falls, etc.), the consequence of the hazard, and the impact on human health and the environment. When developing a site-specific plan for your EMP for fire, include guidance for hardstand and emergency vehicular access for firefighting appliances. Consult *MFB GL-13 Hardstand and Emergency Vehicular Access for Fire Fighting Appliances*.

Factors to consider when developing your EMP include:

› general facility information
› nearby key infrastructure
› evacuation procedures
› fire procedures
› grassfire/bushfire procedures
› fire water run-off/containment procedures
› emergency equipment and resources
› fire protection systems and equipment
› fire water supply.

Site layout plan

To help emergency services, specific site information needs to include the following:

› general layout
› fire protection systems and emergency resources
› dangerous goods storages
› isolation valves and drainage systems
› first-aid stations.

Figure 4 shows an example of a simplified concept of a site layout plan with key site information.

Storing emergency information

An Emergency Information Book (EIB) gives important WRRF site emergency information to responding emergency services. It contains:

› site plans, including fire protection systems
› current inventory of materials at the premises
› contact details for facility personnel, emergency services, utility service providers, regulatory authorities and facility neighbours
› emergency management procedures (fire, spill leaks, etc.)

The EIB is stored in an Emergency Information Container (EIC) located at the entrances that responding emergency services would use. The EIC needs to be:

› painted red and marked EMERGENCY INFORMATION in white not less than 25 mm high
› installed at all vehicle entrances, including emergency access
› installed at a height of 1.2 to 1.5 m
› accessible with a fire brigade standard '0003' key
› kept clear of obstructions, including products, vehicles and vegetation.

The CFA has information on its website about storing and handling dangerous good, including the CFA Guideline for the Provision of Emergency Information.

Figure 4
Example of a simplified concept of a site layout plan including key site information
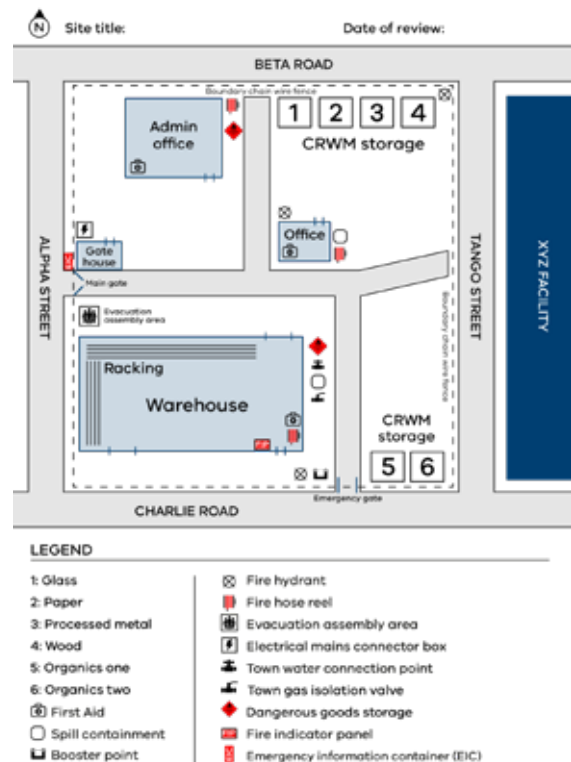
Source Image courtesy of EPA Victoria.

Resources

Australian Standards relevant to fire protection systems and equipment for WRRFs

AS 1851 – 2012	Routine Service of Fire Protection Systems and Equipment
AS/NZS 1688.1 – 2015	The use of ventilation and air conditioning in buildings – fire and smoke control in buildings
AS 1670.1 – 2015	Fire detection, warning control and intercom systems – system design, installation and commissioning fire alarm monitoring
AS 1670.3 – 2004	Fire detection, warning control and intercom systems – system design, installation and commissioning emergency warning and intercom systems
AS 1670.4 – 2015	Fire detection, warning control and intercom systems – system design, installation and commissioning fire alarm monitoring
AS 1905.1 –2015	Components for the protection of openings in fire-resistant walls, fire resistant door sets
AS 1905.2 – 2005	Components for the protection of openings in fire-resistant walls, fire resistant roller shutters
AS 2118 – 2017	Automatic Fire Sprinkler Systems – general systems
AS 2293.1 – 2005	Emergency escape lighting and exit signs for buildings – system design, installation and operation
AS/NZS 2293.2 – 1995	Emergency evacuation lighting for buildings – inspection and maintenance
AS/2293.3 – 2005	Emergency escape lighting for buildings – emergency escape luminaires and exit signs
AS 2304	Water Storage Tanks for Fire Protection Systems
AS 2419.1 – 2005	Fire Hydrant Installations – system design, installation and commissioning
AS 2441 – 2005	Installation of Fire Hose Reels
AS 2444 – 2001	Portable fire extinguishers and fire blankets – selection and location
AS 2665 – 2001	Smoke/heat venting systems – design, installation and commissioning
AS 2941	Fixed Fire Protection Installation – Pumpset Systems
AS 3745 – 2010	Planning for emergencies in facilities
AS 4072.1 – 2005	Components for the protection of openings in fire-resistant separating elements, service operations and control joints
AS 5062 – 2016	Fire protection for mobile and transportable equipment

EPA

The EPA's bunding guideline has replaced *Liquid storage and handling guidelines* (publication 1698). For more information on preventing stormwater infiltration and containing potential spills, see www.epa.vic.gov.au/business-and-industry/guidelines/liquid-storage-and-handling-guidance.

For more information

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