

A waste and resource recovery facility with limited operational space

This example aims to help you apply the fire risk management principles outlined in [Management and storage of combustible recyclable and waste materials – guideline](#) (publication 1667) (i.e. the guideline) for a **waste and resource recovery facility with limited operational space**.

We have developed this example to help you, as a waste and resource recovery facility manager, better understand how to manage the fire risk associated with combustible recyclable and waste materials (CRWM), and to comply with the [new Victorian environment protection laws](#).

This example:

- is intended for use as a guide only. Your own risk assessment and risk management process may require considerably more detail. Where appropriate, you may also need to obtain legal advice or consult with a fire safety specialist
- demonstrates how to follow four basic steps to assess and control the main fire risks present at facilities of varying size and type
- includes some measures you could introduce to eliminate or reduce the risk of fire so far as reasonably practicable, especially where the example shares things in common with your own site and operations
- includes a site map that illustrates the controls discussed within the text. This site map does not represent site layout plans for emergency management purposes
- focuses on critical risks and controls. It does not necessarily provide an exhaustive list of risks and controls in relation to every situation. You may need to seek additional or more tailored advice from a [suitably qualified person](#) or other trusted source if your activities are not covered, or are not adequately addressed, in this example.

About the site

Eric runs a resource recovery facility that is surrounded by other businesses and holds an [EPA registration](#):

- The total site capacity is less than 5,000 m³ of CRWM.
- Eric receives and sorts different waste streams from contracted council trucks for resource recovery. This includes general household recyclables, in addition to metal and e-waste.
- Eric has operated the facility for over 10 years. Other businesses surround Eric's facility, which prevents the facility from expanding.
- There is a small creek that flows between the western boundary of the property and the adjoining facility.
- Eric stores e-waste in a small shed, that is designated solely for e-waste storage. See Figure 1 for the layout of Eric's resource recovery facility.
- The site is powered and has access to mains water.



Example 2:
How to apply the CRWM guideline

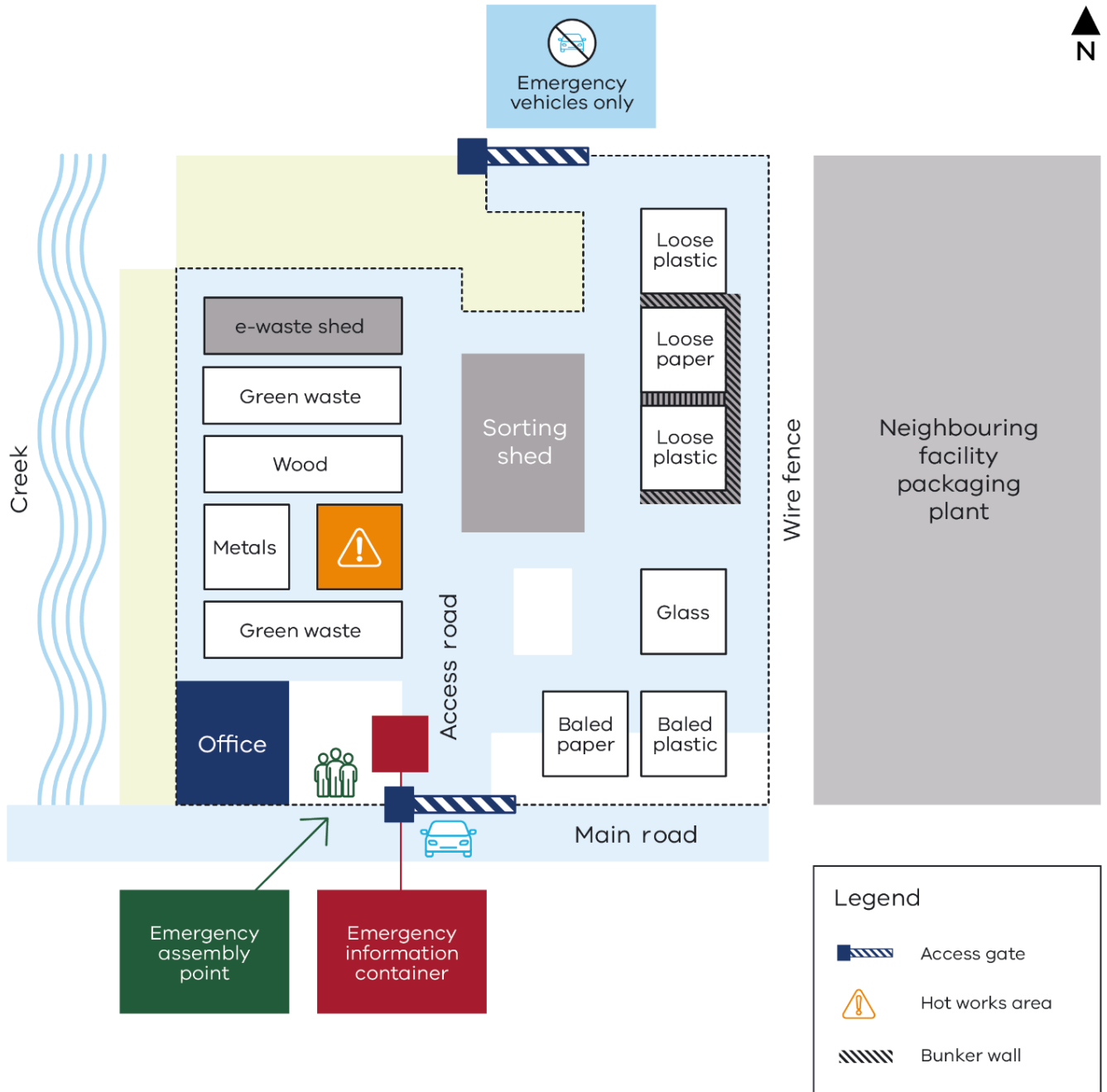


Figure 1: Eric's facility *before* completing his fire risk assessment. Note the figure is not drawn to scale.

Example 2: How to apply the CRWM guideline

Using the guideline to minimise risk and comply with the Victorian environment protection laws

To comply with [Victorian environment protection laws](#), Eric must:

- understand the fire hazards associated with his facility's activities
- conduct and document a fire risk assessment
- take all reasonably practicable steps to store and manage CRWM to minimise the risk of harm to human health and the environment
- prepare an emergency management plan
- comply with [conditions](#) stipulated in his registration.

Four-step process to manage risks to human health and the environment

There are four continuous steps Eric needs to follow to manage his risks. They form the fire risk assessment process.



Definitions

Hazard: Something that has the potential to cause harm through, for example, the air, water or soil.

Risk: The threat that a hazard poses to human health or the environment.

Control: Prevents harmful events from happening in the first place (preventative control) or limits the consequence or damage from a harmful event (mitigating control). The hierarchy of controls (Figure 8 in [the guideline](#)) can be used to support the identification and selection of controls by providing a prioritisation framework.

Example 2: How to apply the CRWM guideline



Eric follows the four steps and takes these actions:

Step	Action	What Eric does
1	Identify hazards – what hazards are present that might cause harm?	<p>Eric conducts a site walk with his staff to identify potential causes of fire. They note the hot works (welding, grinding) that occurs in the area designated for CRWM storage (due to limited space) is a hazard. Open flames or sparks could ignite the nearby CRWM and create a fire.</p> <p>They identify certain types of e-waste stored in the e-waste shed as hazardous. For example, batteries can leak toxic chemicals and be an ignition source. They also record the possibility of green waste self-heating, which could lead to spontaneous combustion. Eric also notes that he does not have any fire hydrants installed onsite.</p> <p>Eric identifies that in the event of a fire, water or foam used to fight the fire may transport contaminants from the waste piles. This run-off from any firefighting activities onsite is a risk to the nearby creek.</p>
2	Assess risks – what is the risk, based on the likelihood of the hazard occurring and causing harm, and the consequence of that harm (i.e. the impact)?	<p>For each hazard Eric has identified, Eric considers the likelihood and consequence associated with that hazard. Eric captures this information in the site risk register as documentation of this risk assessment process.</p> <p>He assesses that a fire would have a high potential of spreading throughout his facility and to neighbouring properties.</p> <p>He also assesses that there is a likelihood of contaminated run-off entering the creek, resulting in impacts downstream to human health and the environment.</p> <p>Eric determines that a fire in his e-waste shed could release pollutants into the air or as contaminated run-off into the creek.</p> <p>There is also a likelihood of the CRWM catching on fire due to the frequency of hot works activity and the limited available space to implement safe separation distances from the hot works.</p> <p>Eric notes the absence of installed fire hydrants, which means he has no control measures on site to prevent a small fire from growing and spreading.</p>
3	Implement controls – what controls are suitable and available to the business to eliminate or reduce a risk so far as reasonably practicable?	<p>Eric decides he needs an enclosed area for hot works to avoid the risk of sparks and molten metal igniting CRWM. He alters his CRWM storage layout to provide more separation distance between his hot works area and CRWM storage.</p> <p>Eric already separates his CRWM by material type and currently has 10 outdoor storage piles. He also has a small shed for storing e-waste.</p> <p>Eric has to show he is meeting the performance objectives and expected outcomes of effective storage management. Eric also installs containment walls around the western side of the stockpiles that are near the creek. This containment will help prevent loose waste from blowing onto nearby land or the creek.</p>

Example 2: How to apply the CRWM guideline



Step	Action	What Eric does
		<p>Eric refers to EPA's E-waste storage guidance for guidance on e-waste storage. Eric minimises how long he stores his e-waste, and identifies and separates e-waste types with a high risk of heating.</p> <p>His e-waste in the shed is stored in a bunded area on an impermeable surface, protected from the weather. This helps control the release of e-waste chemicals and dust particles that could contaminate land, surface water and groundwater.</p> <p>The e-waste shed is fitted with an automated smoke alarm. This will alert site occupants and the fire brigade of a fire.</p> <p>To minimise the risk of fire from his green waste stockpiles, Eric maintains smaller stockpile sizes and avoids long-term storage of this waste. Eric also regularly monitors and checks the pile temperatures and looks for signs of smouldering (smoke and odour).</p> <p>Eric does not have automated fire protection systems onsite. He will rely largely on the fire services to extinguish any fires. He does install fire extinguishers and fire hydrants (in accordance with AS2419) to ensure that there is sufficient water supply for fire services to control any fires.</p> <p>He consults with his local fire brigade and installs a lined catchment pit. It is located along the CRWM storage area on the western side of his site to prevent firewater and contaminated stormwater entering the creek.</p> <p>Emergency management plan</p> <p>As they work through site emergency procedures, Eric and his four staff nominate a site fire warden and roles for their emergency planning committee. The fire warden will liaise with emergency services in the event of a fire.</p> <p>Eric's emergency management plan now includes his updated site layout, inventory, and information about his run-off management (catchment pit) and automated smoke alarm system for e-waste. It also includes emergency procedures, noting evacuation points and emergency contact details. Eric makes sure to induct new visitors on his site and shows them the evacuation points and emergency procedures for the facility.</p> <p>He stores emergency information in the re-located Emergency Information Container. The Emergency Information Container has been moved and installed <i>in front of the boom</i> at the front gate, instead of inside the premises. This will allow fire services to easily access the container.</p>
4	<p>Check controls – review controls to ensure they are effective.</p>	<p>Eric has recorded his site hazards, risks and controls in the risk register, and has identified how the controls will be checked for effectiveness. This is documented evidence of his risk assessment.</p>

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Step	Action	What Eric does
		<p>He has also created a maintenance register where he will sign off on service records for his fire protection systems and track when equipment needs to be tested/serviced in accordance with the manufacturer's specifications.</p> <p>Eric now holds weekly toolbox meetings for his staff and keeps records of these meetings. They use the toolbox meetings to discuss current and emerging hazards and risks at the facility, and brainstorm controls to eliminate or mitigate the hazards identified. In the meetings they also sign off on routine housekeeping and identify any areas where site policies are not being followed, with the aim of correcting these practices.</p> <p>Eric plans to run emergency fire drill scenarios onsite every six months. These drills will help the fire warden convey important information to fire services. The drills will also ensure that all staff are aware of their roles during a fire, and that everyone is following evacuation procedures.</p>

Documenting the four-step risk management process

See Table 11 in [the guideline](#) for an example of how Eric might document the hazards, potential causes and impacts at his waste and resource recovery facility, and how he will effectively manage them.



Eric will review and update the hazard and risk register as part of his site fire risk assessment actions. He ensures the implementation of controls is proportionate to the risk that his business activities pose.

Meeting the performance objectives and expected outcomes

Eric demonstrates how he has taken reasonable steps to comply with the Victorian environment protection laws by meeting these performance objectives and expected outcomes in the guideline:

- Assessing the risk from fire – see Chapter 3.
- Controlling your fire hazards and risk – see Chapter 4.
- Effective storage management controls – see Chapter 5.

More information

- [Assessing and controlling risk: a guide for business](#) (publication 1695)
- [Combustible recyclable and waste materials](#)
- [Management and storage of combustible recyclable and waste materials – guideline](#) (publication 1667)
- [Fire prevention: combustible recyclable and waste materials factsheet](#) (publication 1759)
- [Industry guidance: supporting you to comply with the general environmental duty](#) (publication 1741.1)
- [Reasonably practicable](#) (publication 1856)
- [Permissions scheme – policy](#) (publication 1799.2)
- [Summary of waste framework](#) (publication 1756.2)
- [Management and storage of combustible recyclable and waste materials – indoor storage guideline](#)

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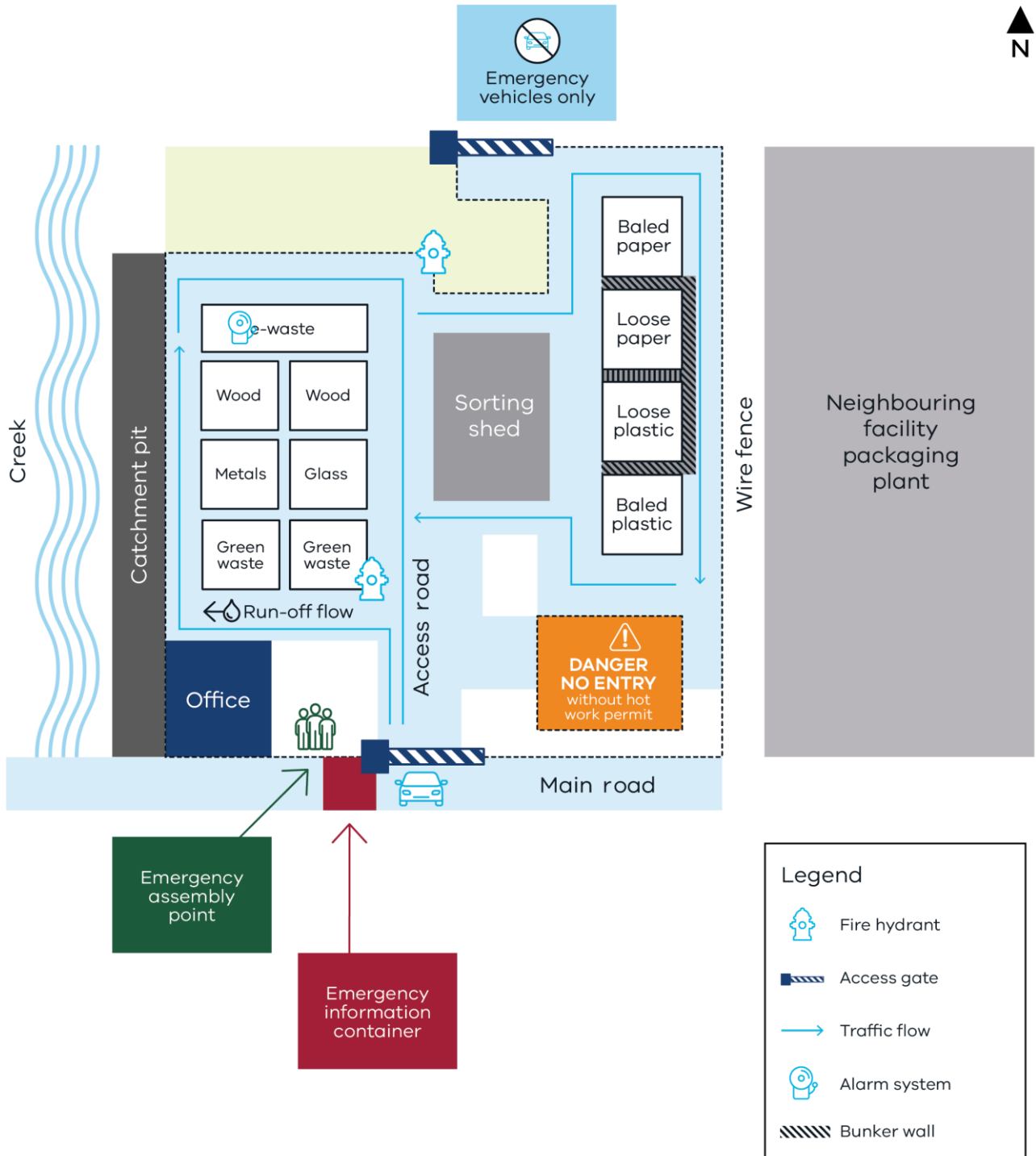


Figure 2: Eric's facility *after* controls have been implemented. Note the figure is not drawn to scale.

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As Victoria's environmental regulator, we pay respect to how Country has been protected and cared for by Aboriginal people over many tens of thousands of years.

We acknowledge the unique spiritual and cultural significance of land, water and all that is in the environment to Traditional Owners, and recognise their continuing connection to, and aspirations for Country.



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