Fire prevention plans (FPP): environmental permits

Read this guide in conjunction with the Fire prevention plan consultation: summary of consultation responses and decisions, and Appendix 1: review of guidance and test results.

1. Fire prevention objectives

The fire prevention measures in this guidance have been designed to meet these 3 objectives:

- minimise the likelihood of a fire happening
- aim for a fire to be extinguished within 4 hours
- minimise the spread of fire within the site and to neighbouring sites

Minimising the likelihood of fire occurring is the priority to prevent environmental harm.

You can have an enhanced pre-application discussion with us before submitting your fire prevention plan. We can explain the level of technical detail needed so we can assess whether your plan can meet the 3 objectives. If you wish to arrange enhanced pre-application discussions, contact the Environment Agency. *Link to enhanced pre-application service here*

If you think any measures in this guidance are irrelevant, or you want to propose alternative measures, you should discuss this with the Environment Agency.

.You can propose:

- alternative fire prevention measures – if you can demonstrate you will still meet the 3 objectives
- that you do not need to extinguish a fire within 4 hours at your site, for example because it is not close to sensitive receptors - but you must still meet the 2 other fire prevention objectives.

You should contact the Environment Agency as soon as possible if you want to propose either of these options. See section below for more details on alternative measures.

Your fire prevention plan must set out clearly what the alternative measures are and how they will ensure the 3 objectives are met.

We will ask you to demonstrate that your alternative measures can meet the 3 objectives of this guidance. In some cases we may ask you to carry out a physical demonstration.

We have provided some examples of alternative measures.

If you do not put in place and use your fire prevention measures, the Environment Agency may take enforcement action.

This guidance does not replace statutory requirements or other applicable legislation.

It's your responsibility to check which statutory requirements apply to you.

2. Who this guidance applies to

This guidance applies to operators that accept any amount of combustible waste, even if their existing permit does not have a specific condition requiring a fire prevention plan.

This guidance may apply to the storage of combustible waste that takes place as part of a storage and treatment process. If you are unsure whether it applies, contact the Environment Agency for advice.

It applies to operators from these sectors:

- waste metals (end of life vehicle (ELV) sites and scrap metal)
- non-hazardous waste
- waste electrical and electronic equipment (WEEE) - both hazardous and non-hazardous WEEE

It also applies to operators in any of these sectors but you may not have to include all of your activities in your fire prevention plan:

- biowaste treatment (open windrow, in-vessel composting and dry anaerobic digestion)
- agriculture (intensive farming only)
- incineration
- combustion
- paper and pulp
- cement lime and minerals

If you're in one of these sectors, contact the Environment Agency for more information.

We **will** request to see and approve your fire prevention plan if you are:

- making a new permit application
- varying an existing permit and this could lead to an increased fire risk

We **may** request to see and approve your fire prevention plan if:

- you are transferring a permit
- there is a fire incident on your site
- there is a serious risk of a fire occurring, or we have serious concerns about the fire risk posed by your operation.

You must send your fire prevention plan to the Environment Agency for approval and you must implement it as approved.

3. Who this guidance does not apply to

This guidance does not apply to:

- landfilling
- biowaste treatment (wet anaerobic digestion)
- biowaste use (land spreading)

This guidance also does not apply to the storage of coal, materials, or wastes that are:

- hazardous wastes – including hazardous waste batteries accepted as a separate waste stream and waste covered by Sector Guidance Note 5.06
- dangerous substances stored under the Control of Major Accident Hazards Regulations
- liquids

This guidance does not apply to non-waste materials such as gas cylinders, aerosols and combustible liquids. They are covered by 'Guidance for the storage and treatment of aerosol canisters and similar packaged wastes'. However, you must still consider these in your fire prevention plan because they can cause or increase the impact of fire on a site. For **example, you may need to use separation distances to manage the risk from these materials.**

If you are not sure if this guidance applies to you, please contact the Environment Agency.

3.1 Proportionality

Not all sites will present the same level of fire risk. We will assess each fire prevention plan on a site by site basis, according to the nature and scale of the waste management activity and its associated risks.

4. Types of combustible waste

Combustible waste includes:

- paper or cardboard

- plastics
- rags and textiles
- scrap metals contaminated or mixed with other waste such as oils or plastics
- de-polluted and un-depolluted ELVs
- refuse derived fuel (RDF) and solid recovered fuel (SRF)
- compost and plant material
- biomass
- mixed waste containing any combustible wastes
- WEEE

Where combustible waste is contaminated with non-combustible materials the whole pile of that waste will generally be regarded as combustible unless you can demonstrate that this is not appropriate.

The following are also types of combustible waste.

4.1 Rubber

This could be natural or synthetic and includes:

- whole tyres
- baled tyres
- tyre shred, crumb and fibre

4.2 Wood

This includes:

- planks
- boards
- sawdust
- shavings
- logs
- firewood or chips
- wood joined to form crates, pallets, casks or barrels

4.3 Fragmentiser waste

This includes waste from:

- processing ELVs
- plastics and metal wastes from materials recovery facilities

4.4 WEEE

WEEE, including:

- fridges
- computers and televisions containing combustible materials such as plastic (including any batteries within this equipment)
- **hazardous WEEE**

These lists provide examples of combustible waste and are not exhaustive. If you're not sure what to do contact the Environment Agency for advice about:

- other materials and activities not listed in this guidance
- whether you need a fire prevention plan

4.5 Persistent organic pollutants (POPs)

Persistent organic pollutants (POPs) can have potentially significant effects on human health and the environment. These can be present in waste. They are subject to the POPs regulations 2019 (UK SI.2019 No.1099, implementing Regulation (EU) 2019/1021) which specify appropriate treatment for recovery and disposal.
You should identify if any wastes on site contain POPs

If a waste type is likely to contain POPs, then you must assume that it does unless you have evidence to prove otherwise, for example, through analysis.

You should segregate waste containing POPs from other waste and store it separately. You should mark the location of POPs on your site plan.

If there is a fire, you must tell the Fire and Rescue Service (FRS) that there are wastes containing POPs on site. If there is a fire involving POPs waste then any residue from the fire may contain POPs and so will need to be segregated and treated in accordance with the POPs regulations (http://www.legislation.gov.uk/uksi/2019/1099/made). This could include firewater.

5. Using your fire prevention plan

Your fire prevention plan forms part of your management system. It sets out the fire prevention measures and procedures you must put in place and use on your site.

Your fire prevention plan should be a standalone document within your management system so that you and your staff can easily refer to it.

During an incident, you should make your fire prevention plan available to the FRS where it is practical to do so.

All staff and contractors working on site must understand the contents of the fire prevention plan so that they know what they must do:

- to prevent a fire occurring
- during a fire if one breaks out

When training staff, you must explain what the training will cover and how often it will happen in your fire prevention plan.

You must carry out regular exercises to test how well your fire prevention plan works. Set out in your fire prevention plan how often you'll carry out these exercises and what the training will consist of.

The exercises must include but not be limited to:

- what staff need to do to prevent a fire occurring
- what to do during a fire if one breaks out
- anything site specific you consider is required

Exercises will normally need to be more extensive than a simple fire evacuation drill and be designed to fully test your fire prevention plan.

You must keep your fire prevention plan under constant review and revise it where necessary for example if:

- **you have a fire or identify a near miss of a fire**
- **you change your activities**
- **the environment you are operating in changes, for example if a school or residential development is built nearby**
- **we ask you to revise it due to some concern over the risk posed by your operation**

You must send your revised fire prevention plan to the Environment Agency to approve and you must implement it as approved.

6. Fire prevention plan contents

Your fire prevention plan must set out all the measures you'll put in place to reduce the risk of a fire breaking out.

You must identify all the possible causes of a fire at your site. You must then set out the measures you will put in place to address those fire risks. These measures will depend on the activities you're carrying out. The Environment Agency expects your plan to include the measures covered in this guidance or alternative measures that still meet the 3 objectives.

You must consider any additional fire risks posed by planned or unplanned contingency events such as planned downtime or temporary site closure.

6.1 Activities at your site

Your fire prevention plan must provide details of the different types of activities you carry out at the site. You must explain where you do it, how you do it and what machinery is used. This includes your waste management activities but also any other activities that could be a fire risk.

6.2 Site plans and maps

Your fire prevention plan must include a site plan(s) that is drawn to a scale that is large enough to clearly identify:

- the layout of buildings
- any areas where hazardous and flammable materials are stored on site (location of gas cylinders, process areas, chemicals, piles of combustible wastes, oil and fuel tanks)
- all possible ignition sources on your site and show they are a minimum of 6m away from combustible and flammable waste.
- any areas where you are treating or storing combustible waste or combustible non-waste material
- all separation distances
- any areas where you are storing combustible liquid wastes
- main access routes for fire engines and any alternative access
- access points around the site perimeter to assist fire fighting
- hydrants and water supplies
- areas of natural and unmade ground
- drainage runs, pollution control features such as drain closure valves and fire water containment systems such as **bunded or kerbed areas (this may be easier to show on a separate drainage plan)**
- storage areas with pile dimensions and fire walls (where applicable) - includes wastes stored in a building, bunker, or containers include indicative pile layouts and ensure it is geographically representative.
- the location of fixed plant or where mobile plant is stored when not in use
- location of spill kits

- the quarantine area
- anything site specific you consider needs to be added

You must have plans showing all sensitive receptors within a 1km radius of your site that could be affected by a fire. Examples of sensitive receptors may include:

- schools, hospitals, nursing and care homes, residential areas, workplaces
- protected habitats, watercourses, groundwater, boreholes, wells and springs supplying water for human consumption- you can find some habitat information on the Defra MAGiC map website http://magic.defra.gov.uk/MagicMap.aspx
- roads, railways, bus stations, pylons (on or immediately adjacent to the site only), utilities, airports

Plans must have a compass rose showing north and the prevailing wind direction.

7. Manage common causes of fire

You should understand common causes of fire and the measures you can take to reduce the risk. Some of these risks may not apply to your site or there may be others you need to include in your fire prevention plan. It's your responsibility to identify all possible risks, depending on the activities you carry out on your site.

7.1 Arson

You must have security measures in place, such as security fencing, intruder alarms and CCTV. These must include arrangements for outside of working hours. **You must describe the location of CCTV and alarms.**

7.2 Plant and equipment

You must:

- have a maintenance and inspection programme for static and mobile plant and equipment
- fit vehicles with fire extinguishers
- keep mobile plant that is not being used away from combustible waste

7.3 Electrical faults including damaged or exposed electrical cables

Electrical equipment and electrical installations on site must be fully certified by a qualified electrician and you must have written procedures in place that set out regular maintenance.

7.4 Discarded smoking materials

You must apply a no smoking policy or have designated smoking areas away from combustible waste. This must apply to everyone using the site.

7.5 Hot works

You must ensure staff and contractors follow safe working practices, such as a permit to work system, when carrying out hot works such as welding and cutting. You must carry out a fire watch for a suitable period after hot works have ended, particularly at the end of a working day.

7.6 Industrial heaters

You must have written procedures that set out the use and regular maintenance of industrial heaters.

7.7 Hot exhausts

You must carry out a fire watch at regular intervals during the **operating hours** to detect signs of a fire caused by dust settling on hot exhausts and engine parts. Set out in your plan how regular these intervals are. You must also do this at the end of the **working** day. A fire watch can simply be carrying out visual checks.

7.8 Ignition sources

You must keep naked flames, space heaters, furnaces, incinerators and other sources of ignition 6 metres away from combustible and flammable waste

7.9 Batteries in ELVs

Batteries left connected in un-depolluted ELVs can short circuit and cause fires. You must disconnect or remove batteries from un-depolluted ELVs **as soon as they arrive and before the ELVs are stockpiled.**

7.9.1 Battery storage

You must check batteries for damage and chemistry type before allocating them to the storage area. You must store batteries must in either appropriate weatherproof containers, or in appropriate containers within a building. If they are damaged, you must isolate them from other batteries. You must not mix batteries of different chemistries.

You must store lithium batteries and Li-ion batteries from electric vehicles separately from other batteries. You must store them in a way that prevents them from:

- **coming into contact with any liquids**
- **being damaged**

You must quarantine damaged Lithium and Li-ion batteries and store them away from buildings and other combustible materials. You must store them in a suitable waterproof container filled with sand or similar inert material. ELV sites which accept electric vehicles must explain in their plan how they will identify and manage the risk from these batteries.

7.9.2 Depollution at ELV sites

You must set out in your fire prevention plan the areas of the site where you depollute ELVs. You must also set out how you minimise the risk of fire and explosion from the depollution activities you carry out.

You must also highlight areas where you store salvaged vehicles and the areas where you store un-depolluted and depolluted ELVs. You must also highlight on your FPP areas where you carry out crushing and baling of metals and ELVs. You must provide details in your plan about how you minimise the risk of fire and or explosion in all of these areas.

7.10 Leaks and spillages

You must prevent fuels and combustible liquids leaking or trailing from site vehicles and ELVs. For example, this includes from vehicles:

- being tracked around the site
- before or after the de-pollution process

Describe in your plan how you will deal with leaks and spillages.

7.11 Build-up of loose combustible waste, dust and fluff

Your plan must state how regularly you'll inspect and clean the site to prevent the build-up of loose combustible waste, dust and fluff and the procedures you will use.

7.12 Reactions between wastes

You must have written procedures for waste acceptance checks to prevent reactions between incompatible or unstable wastes, including lithium batteries. You must use a quarantine area where necessary.

7.13 Waste acceptance and deposited hot loads

When receiving waste it is critical that you identify waste at elevated temperatures or containing contaminants that could lead to ignition. You must mitigate the risks as soon as possible to reduce the risk of fire. You must tell us about your procedures for managing waste acceptance.

You must have a written procedure for identifying, isolating, monitoring, cooling and potentially extinguishing hot loads as soon as is practicable. You must have a quarantine area for hot loads received on site.

All waste streams can contain contaminants that could pose a risk of fire. Things to look out for include:

- **signs of heating, for example, steam or smoke**
- **batteries, in particular lithium-ion batteries**
- **oils or other contaminants, particularly if accepting metals**
- **rags soaked in oils or chemicals**
- **mixed waste streams contaminated with metals or oils**

7.14 Hot and dry weather

Explain in your FPP how you will check for any external heating of waste during hot and dry weather, and what you will do if it happens. Some examples may include:

- **shading waste from direct sunlight where practicable**
- **enabling heat generated within the waste to be released**
- **more frequent temperature monitoring**

- **minimising storage times**
- **rearranging site layout**
- **moving or covering any reflective surfaces to prevent sunlight reflecting onto waste**

8. Prevent self-combustion

Many **organic** wastes can self-combust under certain conditions. Self-combustion happens when a material which can self-heat generates heat at a faster rate than it can be lost to the environment. The temperature continues to rise until the auto-ignition temperature is reached and the material then self-combusts.

You can prevent self-combustion by carefully managing storage times, pile volumes and height, and the temperature of the wastes.

8.1 Manage storage time

To help prevent self-combustion your plan must define the maximum storage time of all materials on site and how you'll control and monitor this.

You must use good stock rotation for all stored materials. Your fire prevention plan must show that you have a clear method to record and manage the storage of all waste on site.

You must make sure that any combustible wastes are stored for less than 6 months (unless the material is compost and the Environment Agency has agreed that you can store it for longer).

Storing combustible wastes for longer than 6 months could increase the likelihood and duration of a fire. If you propose doing this, the Environment Agency is unlikely to approve your fire prevention plan **unless you can demonstrate that the 3 objectives can still be met.**

If you're storing combustible wastes in the maximum pile sizes for longer than 3 months, you must show what extra measures you'll use to prevent self-combustion. For example, this could include monitoring temperatures in the waste.

At these maximum dimensions, the possibility of self-combustion can increase when combustible wastes are stored for more than 3 months.

If there are seasonal variations in demand or supply for the combustible waste, you must demonstrate how you'll manage these variations. You must show how you will follow the 'first in, first out' principle so that wastes are stored for no longer than 6 months.

You must consider the reasonable worst case situation when storing waste for longer periods over the summer months. You must also consider planned and unplanned shutdown and how you manage waste during these periods.

8.2 Monitor and control temperature

Your **fire prevention plan** must show that you will control heat to prevent self-combustion **for any waste stored for more than three months. You must:**

- reduce the exposed metal content or proportion of 'fines' within the waste (exposed metals can oxidise which will generate heat, while fine particles are more prone to self-combustion)
- allow any heat generated during treatment such as shredding, chipping or producing crumb to be released so that the waste is cool before you form it into piles for storage
- monitor the temperature of the pile using a probe or other device as appropriate.

You must explain in your plan the triggers you will use in relation to temperature, **these may include temperature, rates of temperature change over time or visual signs of heating. Also explain** actions you will take in response – including ensuring staff are trained to detect and manage hotspots.

You must routinely turn piles to make sure the waste remains cold and any localised warming is dissipated quickly. **Where this method is not appropriate you must explain the reason.**

Surface temperature monitoring is unlikely to provide an accurate temperature at the core of a waste pile. However, you may use surface temperature monitoring to:

- **identify localised self-heating**
- **provide trend analysis to identify atypical temperature rises over time**

8.3 Waste bale storage

If you're storing waste in bales **(for example RDF, cardboard, paper) and they are** being stored on site for more than three months your plan must show:

- what sampling and testing protocol you will use to make sure you assess a representative number of bales (minimum 10%) during monitoring
- that you get representative temperature readings from the centre of the bales and from bales within the centre of a pile
- that you turn the bales to **minimise t**he risk of heating

8.4 Waste ELV bales

If you store waste ELV bales you must ensure that ELVs are fully depolluted before being baled.

9. Manage waste piles

If you manage waste piles carefully, you will:

- help prevent the risk of self-combustion
- limit the scale of a fire if one breaks out

You must:

- minimise pile sizes (small piles with appropriate separation are safer than one big one)

- store waste materials in their largest form

Here are measures you must use to manage piles of waste effectively.

9.1 Storing materials in their largest form

Treating waste to reduce particle size can increase the risk of fire due to self-combustion. To reduce the risk of self-combustion, you should store waste material in its largest form for as long as practicably possible before treating and moving it off site.

However waste material stored in its largest form may pose a greater fire risk from localised ignition and arson.

You should consider the different fire risks posed by self-combustion and localised ignition and explain how you intend to store your waste material taking these different risks into account.

9.2 Maximum pile sizes

Waste type	Loose and more than 150mm	30 to 150mm or baled	Less than 30mm
Tyres and rubber	450 cubic metres	300 cubic metres	300 cubic metres
Wood	750 cubic metres	450 cubic metres	300 cubic metres
Compost and green waste (excluding during the active composting process)	750 cubic metres	450 cubic metres	450 cubic metres
RDF and SRF	450 cubic metres	450 cubic metres	450 cubic metres
Plastics	750 cubic metres	450 cubic metres	300 cubic metres
Paper and cardboard	750 cubic metres	750 cubic metres	450 cubic metres
Textiles	750 cubic metres	750 cubic metres	400 cubic metres
WEEE containing plastics, including fridges, computers and televisions	450 cubic metres	450 cubic metres	450 cubic metres
Metals other than WEEE (including depolluted crushed ELVs, which are classed as ‘baled’ waste for the purpose of this table. For whole ELVs see below)	750 cubic metres	450 cubic metres	450 cubic metres

Waste type	Loose and more than 150mm	30 to 150mm or baled	Less than 30mm
Fragmentiser fluff	450 cubic metres	450 cubic metres	450 cubic metres

For all waste piles, the maximum height allowed is 4 metres.

When measuring height, you must use the longest measurement between the base of the pile and the top. This is to allow for any uneven ground beneath the waste.

For all waste piles, the maximum length or width allowed (whichever is the longest) is 20 metres.

If your waste piles contain a mixture of combustible wastes, you must work out the maximum limits based on the type of waste that makes up most of a mixed pile.

You must consider the design, access and layout of a building when storing waste so a fire can be extinguished easily.

Avoid using general terms such as wood and metal. You must describe the fraction sizes or grades of material and where they are stored in your plan.

10. Where maximum pile sizes do not apply

Maximum pile sizes do not apply for these types of waste.

10.1 Whole end of life vehicles (ELVs)

You must set out in your fire prevention plan how you will store ELVs. Each vehicle must be accessible from at least one side:

- to allow a fire to be fought
- so unburnt vehicles can be accessed and moved to prevent the fire spreading

These rules will limit any row to a depth of 2 vehicles.

Where you store vehicles one on top of another, or on racking, you must limit this to 3 vehicles high so the stack can remain stable during a fire. You must maintain a separation distance of 6 metres between rows or blocks of vehicles.

10.2 Waste stored in containers

For all containers that hold less than 1,100 litres (1.1m^3) of waste, the maximum pile sizes apply.

If you store waste in containers that hold more 1,100 litres (1.1m^3) then maximum pile sizes do not apply where containers can be moved. Each container must be accessible from at least one side to enable a fire to be extinguished. Examples of these types of containers include skips, roll-on roll-off skips, or shipping containers.

If you have a fire, you must be able to move containers as soon as is reasonably practicable to prevent the fire spreading. You must set out in your fire prevention plan the procedures you will put in place to enable this to happen.

10.3 Compost production

For composting activities, the maximum pile sizes do not apply when the waste is actively managed and monitored during the composting process. Waste stored before and after active composting must follow the maximum pile sizes.

11. Prevent fire spreading

There are 2 main ways to prevent a fire from spreading.

11.1 Separation distances

Separation distances between piles of waste can prevent fire spreading between waste piles and allow active firefighting to take place. An appropriate separation distance will depend upon the nature of the material being stored.

As an example, if you are storing materials of higher calorific values in piles, then you may need a greater separation distances or fire walls. Graphs in section *4.2 of the Waste industry safety and health forum (WISH) guidance* (*REDUCING FIRE RISK AT WASTE MANAGEMENT SITES*) may help you in choosing the appropriate separation distance.
Link here

You must:

- **store your combustible waste piles with a separation distance of at least 6 metres**
- **have a separation distance of at least 6 metres between waste (whether in piles or containers) and the site perimeter, any buildings, or other combustible or flammable materials**

These rules do not apply if:

- You are composting the waste through an actively managed process.

11.2 Fire walls and bays

You can reduce separation distances by using fire walls and bays. Fire walls and bays must be designed to:

- resist fire (both radiative heat and flaming)
- have a fire resistance period of at least 120 minutes to allow waste to be isolated and to enable a fire to be extinguished within 4 hours

You must show in your fire prevention plan how the specification, construction and dimension of the walls offer a thermal barrier. You must confirm you will adequately seal any joints.

If you store waste in a bay, your fire prevention plan must show how:

- you will carry out full and frequent stock rotation, ensuring you have a first in, first out policy, and how this will be monitored and recorded
- you will check the temperatures of all the waste within the bay so that you carry out representative checks on the entire volume of the pile
- you have taken into account the calculation of flame height and radiation in preventing the spread of fire between piles
- you will prevent brands or lighted material moving outside the bay walls and igniting other wastes
- you will keep a 'freeboard' space at the top and sides of the walls clear at all times to prevent fire spreading over the walls **– if you store waste at the maximum pile sizes as detailed in section 9.2 then you need a minimum freeboard space of 1m to reduce fire spread**
- you'll quickly and effectively remove wastes **at risk of ignition** to the quarantine area to isolate any bays with burning waste during an incident

12. Quarantine area

A quarantine area is somewhere you can place burning wastes to extinguish them. You can also move unburnt wastes into the quarantine area to isolate and prevent them catching fire.

The quarantine area must be within the boundary of the site for which you hold a permit.

You must have a quarantine area which is large enough to both:

- hold at least 50% of the volume of the largest pile, row or block of ELVs or containers on your site
- have a separation distance of at least 6 metres around the quarantined waste

You must set out in your fire prevention plan the location of this area and the volume of waste that it can hold.

For operational reasons you may want to keep the location of the quarantine area flexible. If so, you must identify on your site plan all the areas you could use.

You must keep at least one specified quarantine area clear at all times – unless it's being used in the event of a fire.

If you use your quarantine area to store material temporarily (for example, non-permitted wastes) you must make sure you remove those wastes as soon as is practicable. In the

event of a fire, you must remove it immediately. Your fire prevention plan must include details of the procedure you will use to do this.

You must set out how you will use your quarantine area in the event of a fire. You must be able to move waste to it as soon as possible or, at most, within 1 hour of a fire starting.

13. Detecting fires

You must have procedures in place to detect a fire in its early stages so you can reduce its impact. You must demonstrate in your plan how the detection system will raise the alarm if a fire is detected both **during working hours and when the site is closed.**

Your detection system must be proportionate to the nature and scale of waste management activities you carry out and the associated risks. **Your system may therefore be an automated or manual system.**

Appropriate automated systems may include:

- smoke and heat detectors including temperature probes
- CCTV visual flame detection systems
- spark, infrared and ultraviolet detection

The design, installation and maintenance must be covered by an appropriate third party certification scheme **such as UKAS, or meet an appropriate recognised standard such as a British Standard. You must provide evidence of certification in your fire prevention plan.** If you do not meet a **recognised standard or accreditation, you must demonstrate that you can still meet the 3 objectives.**

14. Suppressing fires

If you store waste in a building, you must install a fire suppression system. This system should be proportionate to the nature and scale of waste management activities you carry out and the associated risks.

You will need to consider the fire risk posed by your activity carefully to decide on an appropriate and proportionate system. Your system may therefore be an automated or manual system

Your system needs to enable a fire to be extinguished within 4 hours. When deciding what type of system to install you need to take into account that:

- the FRS may not be able to enter the building during a fire – they will decide whether to enter the building **at the time of an incident based upon their dynamic risk assessment**
- **a suppression system may not extinguish a fire, although it may prevent a fire spreading and then allow the FRS to fight the fire effectively**

Automatic fire suppression systems may include:

- sprinklers
- water spray (deluge) systems
- water curtains

- fire monitors
- powder

Manual fire suppression systems may include:

- water spray (deluge) systems
- hose reels
- fire blankets
- fire extinguishers

You must make sure the design, installation and maintenance of all your automated and suppression equipment is covered by an appropriate third party certification scheme **such as** UKAS. **You should provide evidence of certification in your fire prevention plan.**

Where you are proposing manual suppression, you must explain how this will be operated when the site is closed. You must describe when and how any manual equipment will be inspected and maintained.

If your suppression system does not meet an appropriate standard or is not accredited, you must explain in your plan how the suppression system will work effectively.

15. Firefighting techniques

You must design your site to allow for active firefighting. This will help allow a fire to be extinguished within 4 hours.

Active firefighting does not mean that you or your staff have to fight the fire. No one should put themselves at risk by trying to fight a fire.

Active firefighting means having the resources available at all times to fight a fire during **operating hours and when the site is closed.**

The resources needed include:

- plant you can use to move waste around the site, for example loaders, excavators, material handlers
- staff
- available water supply
- finances

A variety of firefighting techniques are used together or separately to extinguish a fire. These include:

- applying water to cool unburned material and other hazards
- separating unburned material from the fire using heavy plant

- separating burning material from the fire to quench it with hoses or in pools or tanks of water

Firefighting techniques may also include suffocating the fire using soil, sand, crushed brick or gravel. However, you can only do this if:

- the Environment Agency has agreed you can do this
- you remove and dispose of contaminated material as soon as it's safe to do so

All these techniques may be used by staff on site if they're suitably trained and are supervised by the fire and rescue service. However, protecting the health and safety of people on site must be your priority.

16. Water supplies

Where possible water supplies should be located within 100m of the waste pile to ensure easy access by the FRS. Where this is not possible you must explain how you will make sure you can achieve an adequate water supply. You must consider the practicality of pumping water to the site in the event of a fire, taking into account roads, fences and other obstructions.

You must have enough water available for firefighting to take place and to manage a **reasonable** worst case scenario. Depending on your site this could be water in storage tanks or lagoons on site, or access to hydrants or mains water supply.

A **reasonable** worst case scenario would be your largest waste pile catching fire.

With no other intervention, you must have a water supply of at least 2,000 litres a minute for a minimum of 3 hours for a 300 cubic metre pile of combustible material. You must show your calculation for the water supply required and confirm the source of water in your plan.

If you are storing ELVs, you will need to have 1800 litres of water to extinguish each vehicle.

Water supply to fire hydrants can vary by night and day due to fluctuating demands. Fire hydrants should be capable of delivering a reasonable flow of water if they:

- **conform to British Standard 750 or equivalent**
- **are within 100m of the waste pile**
- **are regularly serviced and maintained by the FRS or a recognised provider**

Where you are relying on water supply from open sources such as ponds, canals and rivers, you must to take into account seasonality to ensure an adequate supply is available. Your fire prevention plan must set out how you will ensure the water is available, for example, routinely checking the level in a pond is sufficient to deal with a fire.

You must consider the practicalities of the fire and rescue service in being able to access water supplies. You will need to consider features such as terrain, roads, topography and access.

You may be able to reduce the water supply requirements if you can demonstrate that:

- **a pile will not become fully involved in a fire due to early detection and intervention**
- **waste stored in a bunker would need no more water than the volume of the bunker**
- **waste stored in a container would need no more water than the volume of the container**
- **the FRS have confirmed they are prepared to recirculate firefighting water and are able to access your system**

It may not always be appropriate or safe to recirculate firefighting water.

17. Managing fire water

You must be able to contain the run-off from fire water to prevent it reaching sensitive receptors and causing pollution of the environment.

The containment facilities and pollution equipment you need will depend on the:

- size of your site
- amount of waste you store
- firefighting strategy

Read Containment systems for the prevention of pollution (C736F) to help you find out what facilities and equipment you need for your site.

You must take all the steps that are reasonably practicable to minimise pollution from fire water. For example, preventing fire water entering:

- surface waters, for example rivers, streams, estuaries, lakes, canals or coastal waters
- into the ground

If you do not you may be committing an offence and the Environment Agency may take enforcement action.

Secondary and tertiary containment facilities for fire water run-off include:

- impermeable bunds
- storage lagoons
- shut-off valves
- isolation tanks
- modified areas of your site such as a car park
- pollution control equipment such as fire water booms and drain mats to block drains or divert fire water

You must not plan to divert firewater to foul sewer as this can cause pollution - see Water UK position statement https://www.water.org.uk/wp-content/uploads/2019/07/Firewater-Position-Statement-Final-V2.pdf.

You must demonstrate in your plan that you can contain the amount of water required to put the fire out.

You need to understand the risk of contaminated fire water draining off site and polluting surface and ground water, this **is particularly relevant where POPs are present**.

You should not allow any firewater to enter the ground or surface water.

Your environmental permit may let you store combustible wastes on hard standing rather than an impermeable surface with sealed drainage. If so, you must assess the potential effect of fire water on:

- the local groundwater and surface water bodies
- any well, spring or borehole within 50 metres used for the supply of water for human consumption, including private water supplies

Your fire prevention plan must set out how you'll prevent fire water affecting these receptors, if applicable.

17.1 Waste storage on permeable hardstanding

You must use groundwater vulnerability and source protection zone (SPZ) maps to assess the risk to groundwater from fire water on the hardstanding areas of the site. You can access these maps at:

● https://www.gov.uk/government/publications/updated-groundwater-vulnerability-maps-improvements-to-methodology-and-data

● https://www.gov.uk/government/publications/groundwater-source-protection-zones

You need to consider whether:

● the site is located within a groundwater SPZ1, SPZ2 or SPZ3

● there any private drinking water abstractions within 50 - 100 metres of the site

● the groundwater vulnerability maps flag that the site is in a high, medium-high or medium risk category

In these circumstances, you will need to look at having additional measures to protect groundwater from firewater. These may include replacing hardstandings with impermeable surfacing, or containing firewater to impermeable areas of the site.

You need to consider the practicalities of using temporary containment measures such as booms and sandbags in the event of a fire. You must demonstrate how:

- **quickly you will be able to deploy these in a fire**

- **you will train staff so they know how to deploy these safely and where they are stored**
- **you will position them so they are far away enough to be unaffected by fire and in line with the manufacturer's specifications where appropriate**

It may be impractical and unsafe to deploy temporary containment measures in close proximity to a fire.

18. During and after an incident

Some waste material contain POPs and during a fire this may result in the release of POPs into the air or water course. Where you have waste material of this type you must ensure that clean-up operations take the presence of POPs into account.

Your plan must have contingency measures in place for dealing with issues during and after a fire. For example, these could include:

- diverting incoming wastes to alternative sites during a fire
- having a plan for how you will notify those who may be affected by a fire, such as nearby residents and businesses

You also need to set out in your fire prevention plan:

- how you will clear and decontaminate the site
- the steps you must take before the site can become operational again

If any POPs waste is involved in a fire, all residues from that fire may contain POPs and must be treated in line with the POPs Regulations (https://eur-lex.europa.eu/legal-content/en/TXT/?uri=CELEX:32019R1021).

19. Submit your fire prevention plan

If you intend to store, or are storing, any amount combustible waste you must submit a fire prevention plan for approval and then implement it as approved.

If you're applying for a permit to carry out a waste operation involving combustible wastes, you must send your fire prevention plan to the Environment Agency with your application.

For other types of permits, contact the Environment Agency to find out if you need to send them your fire prevention plan.

20. Further information

You can find background information to help you understand this guidance in these documents: Fire prevention plan consultation: summary of consultation responses and decisions, and Appendix 1: review of guidance and test results.