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UK fire and rescue services attend around 300 significant fires in waste sites each year. Fires occur at waste sites that are permitted or licensed by environmental agencies, that have an exemption from the relevant environmental agency, and also at waste sites that operate illegally.

Many waste sites are managed by professional operators, which strictly adhere to regulations and good practice in controlling hazards on site. However, other sites are managed badly or are illegal and have little regard for regulations or health and safety. Hazards at illegal sites may present an even greater risk to firefighters, as there may not be enough information on the content of the waste stored on site, or good operating practices may not be followed.

This guidance provides recommended good practice for dealing with hazards associated with waste fires. It takes lessons from many incidents and offers tactical advice and strategic considerations. It offers a range of control measures that can be used at waste fires.

This guidance should be read in conjunction with other guidance, in particular National Operational Guidance: Environmental protection and the Environment Agency and DCLG Environmental handbook. Where other guidance has details that are appropriate and relevant to the subject matter being discussed, this will be identified and signposted in this guidance.

Fires in waste sites are often difficult to extinguish, needing a lot of resources for long periods, and can have serious effects on public health, the environment, safety to firefighters and local communities. Impacts may be short term or long term, including:

- Public health impacts on responders and communities
- The public being evacuated or sheltering in place
- Environmental impacts
- Pollution of surface and groundwater
- Road closures
- High demand on fire and rescue services and other agency resources
- Large-scale financial losses and disruption

This guidance applies to waste fires that require more than one jet. It applies to fires at waste sites, renewable energy facilities and other sites where waste is handled, stored or transported as part of a wider operation.

The Waste Industry Safety and Health (WISH) forum code of practice on Reducing fire risk at waste management sites applies to sites storing more than 50m$^3$ of waste. This is approximately the size...
of a full double garage. The types of waste commonly encountered are:

- Paper, cardboard, plastics, wood and wood products
- Rubber (natural or synthetic), including whole, shredded or crumbled tyres
- Component waste, such as from vehicle dismantling
- Refuse derived fuels (RDF), solid recovered fuels (SRF) and similar fuels
- Waste electrical and electronic equipment (WEEE), containing combustible materials

Waste is generally considered hazardous if it (or the material or substances it contains) is harmful to humans or the environment. Examples of hazardous waste include:

- Asbestos
- Chemicals, such as brake fluid or print toner
- Batteries
- Solvents
- Pesticides
- Oils
- Equipment containing ozone depleting substances, such as fridges
- Hazardous waste containers

When dealing with waste fires, the fire and rescue service incident commander will have the ultimate say in how the incident will be managed and the strategy that will be used to bring the incident to a satisfactory conclusion.

However, there are often a number of conflicting views, pressures or powers from interested parties such as the public, the site operator, insurance companies, public health agencies, environment agencies and local authorities.

These conflicting views can be difficult to manage and can place the incident commander under considerable pressure to find a solution that fits the differing priorities from different organisations.

The hazards identified in this guidance focus on hazards to people (public and responding agencies) and hazards to the environment. This guidance identifies control measures that can help to reduce or remove the risk to people and the environment resulting from these types of fires.

Where appropriate, this guidance will direct the reader to other areas of guidance where the hazard and/or control measures are covered.

The following waste sites have been considered in developing this guidance; these sites may hold a permit, or have an exemption, from the relevant environmental agency or may be illegal sites.

Landfill
Landfill activities involve the development of land so that waste can be deposited in an environmentally safe manner. The waste is usually deposited in separate cells, which are filled with compacted waste materials, progressively covered and then sealed with a permanent cap. The waste handled may be inert, non-hazardous or hazardous, depending on the type of landfill or permit held.

Biodegradable materials degrade to release landfill gas, which is mainly composed of methane and carbon dioxide. Increasingly, this landfill gas is being collected for combustion and energy conversion.

Waste decomposing and water passing through the waste give rise to leachate - a mixture of organic degradation products, liquid wastes and rainwater. Leachate is extremely variable in composition, depending on the nature of the waste in the landfill, the landfill design and so on. Leachate is collected in a network of pipes, removed from the landfill and treated.

Thermal treatment

Thermal treatment technologies include incineration (energy from waste plants) and advanced conversion technologies such as anaerobic digestion, gasification and pyrolysis. These technologies use a variety of processes to convert waste into energy and/or by-product fuels to be used in associated power generation activities.

Note: The term 'waste' is generally considered to mean unwanted products for disposal, recycling or recovery. However, in advanced conversion sites (anaerobic digestion sites), some material used is grown exclusively for the process and is therefore not a waste product. For the purpose of this guidance the term 'waste' is used generically to describe all material.

Civic amenity sites

Civic amenity sites are controlled areas where the public can dispose of household waste. The waste accepted varies from site to site, but typically includes bulky household items and material for recycling. Civic amenity sites often also collect hazardous, explosive and flammable materials.

Transfer stations

Transfer stations are facilities where waste or recyclable materials from separate collection vehicles are combined into loads to be transported to waste treatment or disposal facilities. The waste or recyclable material may be compacted or bulked before transportation.

Waste treatment sites or facilities

These facilities collect and hold large quantities of waste received from transfer stations, to support the process of turning waste into a new substance or product. These sites would include, for
example, end of life vehicle (ELV) sites.

### Relevant legislation for fire and rescue services

Many pieces of legislation have an impact on fire and rescue services as they pursue their fundamental duties, including:

- **Fire and Rescue Services Act 2004**
- **Civil Contingencies Act 2004**
- **Civil Contingencies Act 2004 (Contingency Planning) (Amendment) Regulations 2011**
- **Dangerous Substances and Explosive Atmospheres Regulations 2002**
- **The Environmental Permitting (England and Wales) Regulations 2010**
- **The Environmental Damage (Prevention and Remediation) (England) Regulations 2015**
- **Water Act 2003**
- **Regulatory Reform (Fire Safety) Order 2005**

Fire and rescue services should also consider whether they need to refer to local acts for the storage of waste in their area.

### Risk management plan

Each fire and rescue authority must develop their strategic direction through their risk management plan. To determine the extent of their firefighting capability, strategic managers will consider their statutory duties and the foreseeable risk within their area.

Work to identify risk and prepare operational plans should be carried out with all stakeholders in mind, including local emergency planning groups and the fire and rescue service's risk
management plan.

Responsibility of fire and rescue services

Fire and rescue services are responsible, under legislation and regulations, for developing policies and procedures and to provide information, instruction, training and supervision to their personnel about foreseeable hazards and the control measures used to reduce the risks arising from those hazards.

This guidance sets out to provide fire and rescue services with sufficient knowledge about the potential hazards their personnel could encounter when attending incidents. Fire and rescue services should ensure their policies, procedures and training cover all of the hazards and control measures contained within this guidance.

Hazard - Inaccurate situational awareness: Fires in waste sites

Hazard Knowledge

The generic control measures for this hazard should be applied when dealing with any fire in a waste site or facility, whatever the size or complexity.

This guidance has been written to assist fire and rescue service personnel when responding to and dealing with a fire in a waste site. The hazards identified and their associated control measures are equally valid whether the site is a legal permitted site or an illegal site.

This guidance acknowledges that many legal waste and recycling sites comply with relevant regulations and are professionally managed. However, each year fires occur in permitted and illegal sites on a regular basis.

Some sites may have been altered since their original commissioning, leading to different material being stored or a larger quantity of material than the site can safely handle. These changes may have been unauthorised and could have a serious impact on the incident.

Stockpiling may be temporary or permanent, due to operators taking in more waste than permitted
or delays in processing the waste. Site-Specific Risk Information (SSRI) that was obtained before stockpiling began may not reflect the resultant hazards.

When dealing with any incident, illegal activities should be considered a possibility, such as hazardous materials, medical waste, large quantities of domestic waste or explosives being illegally stored. This can present significant hazards.

Fires in stacks can be particularly difficult to extinguish using conventional firefighting approaches. This is particularly the case at sites storing treated wastes such as tyre crumb, wood chip or compost, because of the small particle size of the waste and the density of the stack.

Direct application of water, with or without firefighting additives such as foam, to burning stacks is often ineffective and may generate large volumes of polluted fire water and/or increase the hazard from the smoke plume, due to lower combustion temperatures.

Fires in landfill sites will pose their own difficulties as there may be very deep seated fires that may have been burning for months. The nature of the waste held on these sites will prove difficult to deal with and may hide many hazards such as sharps, chemicals, hidden voids and bio hazards, all of which will need to be identified and managed by all personnel attending the incident.

The very nature of the waste site environment and the quantity of waste held on-site and/or involved in the fire, means that fire and rescue service personnel may be asked to undertake arduous and physical tasks. Waste sites, especially landfill, can also be exposed to extreme weather conditions from a lack of shelter.

Incident commanders must monitor personnel welfare. For more information refer to National Operational Guidance: Operations - Consider welfare.

Control measure - Apply situational awareness: Fires in Waste Sites

Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.
Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.
Tactical actions

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator

Control measure - Site-Specific Risk Information (SSRI): Waste sites

Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding
personnel

- Consider participating in multi-agency site visits to enhance information gathering

**Tactical actions**

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans

- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority

- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

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**Control measure - Cordon controls: Fires in Waste Sites**

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**Control measure knowledge**

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
  - Substations
  - Transmission towers
  - Oil or gas pipelines
- Weather conditions, which could:
  - Contribute to firespread
  - Dampen the waste, making it more prone to collapse
- Ground conditions
Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

- Appropriate exclusion and safety corridors should be established
- Precautionary measures should be taken
- Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

- Utilities and fuel - Isolate utility or fuel supply within the national grid
- Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.
Strategic actions

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites
- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

Tactical actions

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site
- Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site
- Restrict the number of personnel in the hazard area for a fire in a waste site
- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site
- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment
- Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site
- Provide a safety briefing to all personnel undertaking tasks within the waste site
- Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site
- Request police attendance to manage cordons outside of the waste site boundary
• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:

• Provide equipment that enables command team members to be readily identified on the incident ground

• Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

• Identify personnel who are competent to carry out the command support role
Have systems and methods in place to support the recording and communication of the tactical mode during an incident.

Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

Provide systems that enable the recording of decisions made and actions taken at an incident.

Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.

Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.

Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.

Have arrangements in place to provide the necessary vehicles and equipment for command support functions.

**Tactical actions**

There are no tactical actions associated with this control measure.

**Control measure - Carry out appropriate intervention: Fires in waste sites**

**Control measure knowledge**

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the
Environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

**Strategic actions**

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

**Tactical actions**

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
- Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  - At source
  - Close to source
  - On the surface
  - In drainage or along a pathway
  - Contain, manage, treat pollution at the receptor
- Ensure that protection measures are robust and sustainable
- Request any further resources required to maintain protection tactics
- Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
- Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
- Ensure regular communication with the environmental agency, preferably on-site if possible
- Consider the potential for undetected subsurface firespread creating hidden voids
- Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

Strategic actions

Fire and rescue services should:
- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process
Tactical actions

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

Control measure knowledge

Specialist advice should be sought to support the incident commander's operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: Hazardous materials.

Strategic actions

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
Detection, identification and monitoring (DIM) teams
- Site owners
- Hazardous materials advisers
- Specialist advisers for ammunition
- Scientific advisers

**Tactical actions**

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest
- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

**Control measure - Liaise with other organisations**

**Control measure knowledge**

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders
This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

**Strategic actions**

**Tactical actions**

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)

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**Control measure - Personal protective equipment**

**Control measure knowledge**

Personal protective equipment (PPE) is defined in regulations as:
All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective.

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer's instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.
For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls identified risks
- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together
- Ensure their workers have sufficient information, instruction and training on the use of PPE
- Maintain PPE in good working order
- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:

- Carry out risk assessments to define the specific PPE that will be required for an activity
- Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions
- Ensure that there are suitable arrangements to support the replenishment of PPE
- Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective
**Tactical actions**

Incident commanders should:

- Determine the level of PPE for hazards identified in a risk assessment

- Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

- Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE

- Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

- Check the condition of PPE when assessing its operational readiness for redeployment

  - Identify when dirt, contamination or damage may affect the performance of PPE

- Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type

All personnel must:

- Use PPE properly, following the training and instruction provided in its use

All personnel should:

- Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective
Hazard - Thermal radiation

Hazard Knowledge

This hazard should be read in conjunction with National Operational Guidance: Fires and firefighting - Fire and thermal radiation

The thermal radiation from waste fires can be intense. The type, quantity and storage method of waste affects the level of thermal radiation produced by the fire.

There is little research at this time on the heat flux values produced by different waste stack sizes and materials. However, at the time of producing this guidance, research is being undertaken on this topic, to assist with the waste industry recommended stack separation distance and firebreak methodology. Following the publication of the research findings, this guidance may require review.

Figure 1: Site showing stack separation - photograph courtesy of the Environment Agency

Thermal radiation has two key effects:

1. It makes it difficult for firefighters to get close enough to effectively apply extinguishing media
2. It can also cause firespread to other parts of the waste site, structures on or around the site and to vehicles, cylinders, fuel stores and other machinery
Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.
Strategic actions

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

Tactical actions

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator

Control measure - Site-Specific Risk Information (SSRI): Waste sites
Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

Control measure - Cordon controls: Fires in Waste Sites

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
• The type of waste and predicted firespread
• The presence of:
  ○ Overhead cables
  ○ Substations
  ○ Transmission towers
  ○ Oil or gas pipelines
• Weather conditions, which could:
  ○ Contribute to firespread
  ○ Dampen the waste, making it more prone to collapse
• Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

  ○ Waste fire tactical adviser
  ○ Responsible person or site specialist
  ○ Environmental agency
  ○ Public health agency
  ○ Local authority
  ○ Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

  • Appropriate exclusion and safety corridors should be established
  • Precautionary measures should be taken
  • Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

  • Utilities and fuel - Isolate utility or fuel supply within the national grid
Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to [Incident command – Emergency evacuation and tactical withdrawal of responders](#).

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to [Transport – Cordons: Moving vehicles on roadways](#).

**Strategic actions**

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites
- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site
- Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site
- Restrict the number of personnel in the hazard area for a fire in a waste site
- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site
- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment
• Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

**Control measure - Appoint safety officers**

**Control measure knowledge**

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.
Strategic actions

Fire and rescue services should:

- Provide equipment that enables command team members to be readily identified on the incident ground.
- Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.
- Identify personnel who are competent to carry out the command support role.
- Have systems and methods in place to support the recording and communication of the tactical mode during an incident.
- Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.
- Provide systems that enable the recording of decisions made and actions taken at an incident.
- Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.
- Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.
- Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.
- Have arrangements in place to provide the necessary vehicles and equipment for command support functions.

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Carry out appropriate
Control measure knowledge

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:
• Carry out an initial incident assessment and the resultant risk assessment
• Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
• Manage water run-off carefully, to avoid polluting watercourses and groundwater

• Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  ○ At source
  ○ Close to source
  ○ On the surface
  ○ In drainage or along a pathway
  ○ Contain, manage, treat pollution at the receptor
• Ensure that protection measures are robust and sustainable
• Request any further resources required to maintain protection tactics
• Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
• Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
• Ensure regular communication with the environmental agency, preferably on-site if possible

• Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes
undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

**Strategic actions**

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

**Tactical actions**

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

**Control measure knowledge**

Specialist advice should be sought to support the incident commander’s operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.
For further information, refer to National Operational Guidance: [Hazardous materials](#).

**Strategic actions**

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

**Tactical actions**

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest
- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

Control measure - Liaise with other organisations
Control measure knowledge

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: [Incident command](#) for details on tactical, operational and strategic management of an incident.

Strategic actions

Tactical actions

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)
Control measure knowledge

Thermal radiation can affect other parts of the site and equipment stored on the site, such as plant and machinery. Where possible, unaffected waste products, plant and machinery, if not being used for firefighting operations, should be moved to a safe location away from the effects of radiated heat.

Strategic actions

Fire and rescue services should:

- Identify suitable and secure off-site locations for plant and machinery in pre-planning site visits

Tactical actions

Incident commanders should:

- Arrange for plant and machinery to be moved to a safe location away from radiated heat
- As the incident develops, observe for the effect of radiated heat on buildings, equipment and waste products; this should be an ongoing process
- Create firebreaks by removing waste materials where possible

Control measure - Protect surroundings from thermal radiation

Control measure knowledge

Water curtains, jets, sprays or foam can be an effective method to protect firefighters and the surrounding structures, vehicles and hazardous materials from thermal radiation. For further information refer to National Operational Guidance: Fires and firefighting - Select
Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Hazard - Hidden or rapid fire growth

Hazard Knowledge

Due to the nature of the materials involved in waste site fires, when highly flammable materials or materials that burn easily are present, firespread can be rapid and accelerated. Weather conditions such as strong winds and hot dry summers will also have an impact on the speed at which the materials burn.

Depending on the material being recycled, stacks of baled waste up to five metres in height can cover an extensive area of a site. The density and condensed nature of the bales affect the speed at which fire will spread or burn through them.

On landfill sites, deep-seated fires can burn unnoticed for weeks or months, creating large underground voids within the site.

Sites may have specialist equipment such as heat probes, which may prove useful in detecting deep-seated fires. Use site employees to operate specialist equipment.

Control measure - Apply situational awareness: Fires in Waste Sites
Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

Strategic actions

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an
environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - [Scene survey](#)

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator

**Control measure - Site-Specific Risk Information (SSRI): Waste sites**

**Control measure knowledge**

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to [Environment Agency: Fire prevention plans](#).
Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

Control measure - Cordon controls: Fires in Waste Sites

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
  - Substations
  - Transmission towers
  - Oil or gas pipelines
- Weather conditions, which could:
Contribute to firespread
Dampen the waste, making it more prone to collapse

Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

- Appropriate exclusion and safety corridors should be established
- Precautionary measures should be taken
- Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

- Utilities and fuel - Isolate utility or fuel supply within the national grid
- Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.
If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

Strategic actions

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites
- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

Tactical actions

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site
- Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site
- Restrict the number of personnel in the hazard area for a fire in a waste site
- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site
- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment
- Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site
- Provide a safety briefing to all personnel undertaking tasks within the waste site
• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:

• Provide equipment that enables command team members to be readily identified on the incident ground
• Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

• Identify personnel who are competent to carry out the command support role

• Have systems and methods in place to support the recording and communication of the tactical mode during an incident

• Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

• Provide systems that enable the recording of decisions made and actions taken at an incident

• Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.

• Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.

• Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.

• Have arrangements in place to provide the necessary vehicles and equipment for command support functions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Carry out appropriate intervention: Fires in waste sites

Control measure knowledge

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and
immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

**Strategic actions**

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

**Tactical actions**

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
- Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  - At source
• Close to source
• On the surface
• In drainage or along a pathway
• Contain, manage, treat pollution at the receptor

- Ensure that protection measures are robust and sustainable
- Request any further resources required to maintain protection tactics
- Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
- Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
- Ensure regular communication with the environmental agency, preferably on-site if possible
- Consider the potential for undetected subsurface firespread creating hidden voids
- Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.
Strategic actions

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

Tactical actions

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

Control measure knowledge

Specialist advice should be sought to support the incident commander’s operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: [Hazardous materials](#).

Strategic actions

Fire and rescue services should:
• Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:

  ○ Environment agencies
  ○ Public health agencies
  ○ Detection, identification and monitoring (DIM) teams
  ○ Site owners
  ○ Hazardous materials advisers
  ○ Specialist advisers for ammunition
  ○ Scientific advisers

**Tactical actions**

Incident commanders should:

• Seek specialist advice

• Obtain a site manifest

• Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
• Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
• Deploy the minimum number of personnel required to safely complete the tasks required
• Fully brief all personnel entering the inner cordon on all known or suspected hazards
• Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information
• Ensure appropriate health and safety monitoring during and after the incident
• Document any exposure

Control measure - Liaise with other organisations

**Control measure knowledge**

Fire and rescue services should liaise with other organisations throughout the incident including:

• Environmental agencies
Public health agencies
Police
Local authorities
Industry experts
Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

Strategic actions

Tactical actions

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)

Control measure - Personal protective
Control measure knowledge

Personal protective equipment (PPE) for firefighting purposes is a key requirement for fire and rescue services. Services should provide PPE for firefighting that conforms to BS EN 469:2005 Protective clothing for firefighters — Performance requirements for protective clothing for firefighting.

Fire service personnel should be aware that in the event of flashover, structural firefighting PPE on its own is unlikely to provide adequate protection to the wearer.

Strategic actions

Fire and rescue services should:

- Ensure that the types of personal protective equipment (PPE) used comply with relevant standards and meet the requirements of their risk assessment for fires and firefighting

Tactical actions

Incident commanders should:

- Ensure that Firefighting PPE is worn in accordance with service risk assessment, procedures and training
- Consider the need for additional PPE where compatible with firefighting PPE (e.g. high visibility, eye protection)

Control measure - Consider using thermal imaging cameras or on-site thermal scanning equipment
Control measure knowledge

It may be appropriate to use thermal imaging cameras or on-site thermal scanning equipment to identify the extent of heat within large quantities of waste; this may reveal the effects of combustion that are not visible to the naked eye. For further information refer to National Operational Guidance: Fires and firefighting - Consider using thermal imaging or scanning.

Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Consider creating firebreaks

Control measure knowledge

Firebreaks prevent the spread of fire by physically removing the fuel from tactically chosen, limited areas, so that firespread is restricted. For further information refer to National Operational Guidance: Fires and firefighting - Firebreaks.

Strategic actions

Fire and rescue services should:

- Consider strategies for creating firebreaks as part of pre-planning activities

Tactical actions

Incident commanders should:

- Make a realistic assessment of the time taken to remove the fuel and consider the layout of the site and topography before initiating this tactic, as the direction and speed of firespread will determine where the firebreak should be constructed
Factor the type of fuel and weather conditions into a calculation of how wide an effective firebreak needs to be, considering the heat release rate and likelihood of flying embers, as the type of fuel and available personnel or machinery will impact on how long a firebreak will take to construct.

Consider using fire and rescue service personnel, competent people and specialist machinery (under the direction of the incident commander) to remove fuel, to prevent further fire growth.

Consider removing waste and plant from site or relocating it to a safe area.

Control measure - Consider removing waste and plant from site or relocating it to a safe area

Control measure knowledge

Thermal radiation can affect other parts of the site and equipment stored on the site, such as plant and machinery. Where possible, unaffected waste products, plant and machinery, if not being used for firefighting operations, should be moved to a safe location away from the effects of radiated heat.

Strategic actions

Fire and rescue services should:

- Identify suitable and secure off-site locations for plant and machinery in pre-planning site visits

Tactical actions

Incident commanders should:

- Arrange for plant and machinery to be moved to a safe location away from radiated heat
- As the incident develops, observe for the effect of radiated heat on buildings, equipment and waste products; this should be an ongoing process
- Create firebreaks by removing waste materials where possible
Hazard - Stacked materials

Hazard Knowledge

Stacked materials may present hazards including:

- Firespread
- Collapse of the stack
- Materials in the stack falling
- Falls from height
- Falls into the stacked materials

Stacked materials may be encountered at industries such as:

- Paper mills
- Timber yards
- Pallet manufacture and storage sites
- Warehouses and storage facilities
- Agricultural sites
- Waste sites

Waste sites store and stack materials in various ways:

- Sometimes the waste is heaped into a pile, which may collapse into itself as the material underneath burns away
- Other waste, such as scrap vehicles or baled products, may be stacked in such a way that it could fall over and create a hazard in the surrounding area

Further information published by the Waste Industry Safety and Health (WISH) Forum can be found in their publications, such as Reducing fire risk at waste management sites, membership to the forum is required and can be requested here.

Stacked materials may be stored inside buildings. If the stacks become unstable or fall, they may affect the structural stability of the building.

The materials and packaging in stacks may be affected by fire or water, resulting in a loss of integrity of the stack. There may also be hidden voids, making the stack non-load-bearing.
Control measure - Safe system of work: Stacked materials

**Control measure knowledge**

A cordon should be set up around a stacked materials if there is a danger of collapse or of materials falling. The radius of the hazard area should be big enough so that debris from the collapse does not fall outside it.

Access into the cordon should be prevented altogether, or limited to essential tasks only. Anyone entering the cordon should be aware of the hazards and the signs of collapse so they can withdraw if necessary.

When establishing a safe system of work the following information will be needed, and any changes monitored:

- The size of the stack
- The materials included in the stack
- The density and stability of the stack
- The likely impact on the materials or the stability of the stack by:
  - The incident
  - Fire and rescue service activity
  - Current and forecast weather

Fire and rescue service personnel should exercise caution when working near stacked materials. Unless unavoidable, they should not walk on or across stacked materials, or work on the stack

**Strategic actions**

Fire and rescue services should:

- Make appropriate risk information available to personnel regarding the size, type and locations of stacked materials

**Tactical actions**

Incident commanders should:
- Establish and communicate cordons and hazard areas around unstable stack and falling materials

- Identify the quantity, type and density of stacked materials

- Implement an appropriate safe system of work for crews working around stacked materials

- Monitor the effects of operational activity on the stability of stacked materials

- Monitor current and forecast weather conditions if they could affect the stability of stacked materials

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**Hazard Knowledge**

Waste sites can be difficult to access due to site security, and may not provide safe access for emergency fire vehicles. Ground conditions may be poor and may not provide safe access for the responding fire and rescue service vehicles. Using unsuitable routes for emergency fire vehicles should be avoided.

There may be limited space for vehicles and equipment on-site and height restrictions may apply due to overhead power lines, bridges and so on. Therefore, rendezvous points (RVPs) and marshalling areas may need to be positioned off-site.

Security features, locked gates, barriers and barbed wire can potentially cause harm, especially to firefighters attempting to gain access via ladders.

Poor access and egress may also increase manual handling risks, such as carrying hose and equipment.

Maintaining safe access and egress is essential, as fires can spread quickly due to the large amounts of waste, inappropriate stacks and poor firebreaks.

Consideration should be given to preventing situations from developing, such as personnel being unable to escape in vehicles or by foot if exit routes are cut off.
Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.
Strategic actions

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

Tactical actions

incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site
- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator

Control measure - Site-Specific Risk Information (SSRI): Waste sites
Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

Control measure - Cordon controls: Fires in Waste Sites

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
The type of waste and predicted firespread

The presence of:
- Overhead cables
- Substations
- Transmission towers
- Oil or gas pipelines

Weather conditions, which could:
- Contribute to firespread
- Dampen the waste, making it more prone to collapse

Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:
- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:
- Appropriate exclusion and safety corridors should be established
- Precautionary measures should be taken
- Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:
- Utilities and fuel - Isolate utility or fuel supply within the national grid
• **Utilities and fuel – Isolate pipelines**

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to *Incident command – Emergency evacuation and tactical withdrawal of responders*.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to *Transport – Cordons: Moving vehicles on roadways*.

**Strategic actions**

Fire and rescue services should:

• Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

• Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

• Establish and maintain cordons and safe access and egress routes for a fire in a waste site

• Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site

• Restrict the number of personnel in the hazard area for a fire in a waste site

• Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

• Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment
• Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.
Strategic actions

Fire and rescue services should:

- Provide equipment that enables command team members to be readily identified on the incident ground
- Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.
- Identify personnel who are competent to carry out the command support role
- Have systems and methods in place to support the recording and communication of the tactical mode during an incident
- Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.
- Provide systems that enable the recording of decisions made and actions taken at an incident
- Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.
- Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.
- Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.
- Have arrangements in place to provide the necessary vehicles and equipment for command support functions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Carry out appropriate
Control measure knowledge

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:
• Carry out an initial incident assessment and the resultant risk assessment
• Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
• Manage water run-off carefully, to avoid polluting watercourses and groundwater
• Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  ◦ At source
  ◦ Close to source
  ◦ On the surface
  ◦ In drainage or along a pathway
  ◦ Contain, manage, treat pollution at the receptor
• Ensure that protection measures are robust and sustainable
• Request any further resources required to maintain protection tactics
• Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
• Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
• Ensure regular communication with the environmental agency, preferably on-site if possible
• Consider the potential for undetected subsurface firespread creating hidden voids
• Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes
undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

**Strategic actions**

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

**Tactical actions**

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

**Control measure - Seek specialist advice for hazardous materials**

**Control measure knowledge**

Specialist advice should be sought to support the incident commander's operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.
For further information, refer to National Operational Guidance: [Hazardous materials](#).

### Strategic actions

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

### Tactical actions

Incident commanders should:

- Seek specialist advice

- Obtain a site manifest

- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site

- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials

- Deploy the minimum number of personnel required to safely complete the tasks required

- Fully brief all personnel entering the inner cordon on all known or suspected hazards

- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information

- Ensure appropriate health and safety monitoring during and after the incident

- Document any exposure

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Control measure - Liaise with other organisations
Control measure knowledge

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

Strategic actions

Tactical actions

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)
Control measure knowledge

Personal protective equipment (PPE) is defined in regulations as:

All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective.

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax
PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls identified risks
- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together
- Ensure their workers have sufficient information, instruction and training on the use of PPE
- Maintain PPE in good working order
- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:
• Carry out risk assessments to define the specific PPE that will be required for an activity

• Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions

• Ensure that there are suitable arrangements to support the replenishment of PPE

• Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective

**Tactical actions**

Incident commanders should:

• Determine the level of PPE for hazards identified in a risk assessment

• Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

• Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE

• Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

• Check the condition of PPE when assessing its operational readiness for redeployment

• Identify when dirt, contamination or damage may affect the performance of PPE

• Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type
All personnel must:

- Use PPE properly, following the training and instruction provided in its use

All personnel should:

- Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective

Control measure - Consider making a forcible entry: Fires in waste sites

Control measure knowledge

Making a forcible entry into a waste site may be required for a number of reasons, including:

- Time of day (for example, outside normal opening times) with no on-site security
- An illegal site that has no on-site security or has security personnel who are not able or willing to assist with access
- The normal access point is unusable for some reason or is securely locked
- A new access point needs to be created to gain access to part of the site for operational reasons

Strategic actions

Fire and rescue services should:

- Provide appropriate equipment to enable gaining access or entry by force with minimal damage

Tactical actions

There are no tactical actions associated with this control measure.
Control measure - Secure access and egress routes

Control measure knowledge

Depending on the site's access and egress, routes need to be identified that will be suitable for the resources required at the site, such as stable ground that can support the weight of the vehicles or equipment entering the site.

As the incident develops, routes can become compromised as plant and equipment are moved around the site, as well as waste being moved from one part of the site to another as part of the firefighting strategy.

To prevent escape routes becoming compromised, access and egress routes for firefighting teams should be identified and maintained. Sites may have a fire strategy or plan, which will include the identification and location of designated access and egress points and routes.

For further information, including strategic actions and tactical actions, see control measure Safe access and egress: Fires in buildings

Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - ARCHIVED - Highlight avoidance routes

Control measure knowledge
Before briefing personnel, incident commanders should consider all available sources of information. Team briefings should be based on incident needs and a plan should be constructed to achieve them. Continuous evaluation and review throughout the incident will determine whether the current objectives and subsequent plan are appropriate.

Consider the following sources of information throughout the incident:

- Building and site plans
- Premises information boxes (PIB)
- Responsible Person (or appointed competent person)
- Observation
- External scene surveys of the building and area
- Reconnaissance of the location reported to be involved
- Information from personnel operating in the building and/or risk area
- Witnesses
- Occupiers
- Other agencies

Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Hazard - Unstable ground

Hazard Knowledge

Depending on the waste site involved, ground conditions can become unstable for many reasons:

- Landfill sites - deep-seated fires, burning away waste deep under the crust, can create cavernous areas, resulting in underground voids appearing with little or no warning. These voids present a significant hazard to plant operators as well as to responding fire and rescue
service personnel.

- Illegal waste sites - as these sites are unlikely to have designated hard standing or purpose-made vehicle routes, ground conditions can quickly deteriorate as a consequence of firefighting operations and plant movement
- General wear and tear and poor maintenance of existing roadways and waste storage areas, especially under large areas of stacked waste
- Damage to concrete storage areas due to the intense heat created by the waste fire over many days

When working on landfill sites, constant observation of the waste surface should be maintained to spot any dipping; this may indicate subsidence and possible collapse into unidentified voids.

**Control measure - Apply situational awareness:**

**Fires in Waste Sites**

**Control measure knowledge**

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - [Organisation at an incident](#).

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).
They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
Control measure - Site-Specific Risk Information (SSRI): Waste sites

Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation
Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
  - Substations
  - Transmission towers
  - Oil or gas pipelines
- Weather conditions, which could:
  - Contribute to firespread
  - Dampen the waste, making it more prone to collapse
- Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:
• Appropriate exclusion and safety corridors should be established
• Precautionary measures should be taken
• Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

• Utilities and fuel - Isolate utility or fuel supply within the national grid
• Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

**Strategic actions**

Fire and rescue services should:

• Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

• Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

• Establish and maintain cordons and safe access and egress routes for a fire in a waste site

• Consider seeking specialist advice or assistance for determining appropriate cordons and
safe access and egress routes for a fire in a waste site

- Restrict the number of personnel in the hazard area for a fire in a waste site

- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment

- Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

- Provide a safety briefing to all personnel undertaking tasks within the waste site

- Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

- Request police attendance to manage cordons outside of the waste site boundary

- Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

- Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

- Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

- Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site
Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:

- Provide equipment that enables command team members to be readily identified on the incident ground

- Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

- Identify personnel who are competent to carry out the command support role

- Have systems and methods in place to support the recording and communication of the tactical mode during an incident

- Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

- Provide systems that enable the recording of decisions made and actions taken at an incident

- Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.
- Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.

- Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.
• Have arrangements in place to provide the necessary vehicles and equipment for command support functions

**Tactical actions**

There are no tactical actions associated with this control measure.

**Control measure - Carry out appropriate intervention: Fires in waste sites**

**Control measure knowledge**

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: *Fires and firefighting* and National Operational Guidance: *Performing rescues*.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the *Environment Agency and DCLG environmental handbook* and National Operational Guidance: *Environmental protection*. 
Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
- Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  - At source
  - Close to source
  - On the surface
  - In drainage or along a pathway
  - Contain, manage, treat pollution at the receptor
- Ensure that protection measures are robust and sustainable
- Request any further resources required to maintain protection tactics
- Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
- Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
- Ensure regular communication with the environmental agency, preferably on-site if possible
- Consider the potential for undetected subsurface firespread creating hidden voids
- Consider the use of aerial or reach appliances to avoid crews working on unstable ground
Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

Strategic actions

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

Tactical actions

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

Control measure - Seek specialist advice for hazardous materials
Control measure knowledge

Specialist advice should be sought to support the incident commander's operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: [Hazardous materials](#).

Strategic actions

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

Tactical actions

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest
- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory
protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: Operations for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

Control measure - Liaise with other organisations

Control measure knowledge

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

Strategic actions
Tactical actions

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)

Control measure - Personal protective equipment

Control measure knowledge

Personal protective equipment (PPE) is defined in regulations as:

All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective.

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its
use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to: Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls
identified risks

- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together

- Ensure their workers have sufficient information, instruction and training on the use of PPE

- Maintain PPE in good working order

- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:

- Carry out risk assessments to define the specific PPE that will be required for an activity

- Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions

- Ensure that there are suitable arrangements to support the replenishment of PPE

- Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective

**Tactical actions**

Incident commanders should:

- Determine the level of PPE for hazards identified in a risk assessment

- Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

- Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE
• Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

• Check the condition of PPE when assessing its operational readiness for redeployment

• Identify when dirt, contamination or damage may affect the performance of PPE

• Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type

All personnel must:

• Use PPE properly, following the training and instruction provided in its use

All personnel should:

• Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective

Control measure - Monitor the impact of firefighting activities on ground conditions

Control measure knowledge

In protracted incidents, large amounts of firefighting media and plant movements can result in ground conditions becoming very soft. This may cause a hazard for any vehicles parked in, or needing to drive through, the area.
Strategic actions

Fire and rescue services should:

- Consider using all-terrain vehicles as part of the pre-determined attendance
- Consider pre-planning to identify ground conditions and suitable access routes and egress routes
- Consider using on-site vehicles or plant to assist with operations

Tactical actions

Incident commanders should:

- Be aware of the impact of firefighting run-off water or foam on ground conditions
- Control firefighting run-off water to prevent ground conditions becoming unusable
- Divert water to holding areas or sacrificial areas that will not impede firefighting operations or movement around the site, where necessary
- Maintain vigilance when vehicle pumps are being used, to ensure that vehicles do not become bogged down in soft ground
- Be prepared to move vehicles if the ground is becoming unsafe, to avoid vehicle entrapment
- Monitor ground conditions where on-site plant is assisting with firefighting operations
- Consider using all-terrain vehicles, especially if ground conditions are expected to become unusable for non-four-wheel-drive vehicles

Control measure - Consider using aerial appliances

Control measure knowledge

An aerial appliance can allow the incident commander to create a safe working platform from which fire and rescue service personnel can perform some tasks, such as applying extinguishing media or investigating the scene of operations.
Strategic actions

Fire and rescue services should:

- Consider pre-planning to determine suitable locations for siting aerial appliances

Tactical actions

Incident commanders should:

- Choose a safe site to pitch the aerial appliance
- Monitor the scene to ensure that the siting of the appliance, particularly the jacks, is not adversely affected during the course of the incident
- Consider the likely development of the fire, possible changes to the ground as the extinguishing media is applied and alterations in the weather conditions, as these could compromise the safety of the deployed aerial appliance

Hazard - On-site machinery

Hazard Knowledge

Some industries use the word 'plant' to indicate specialist equipment, machinery or industrial premises. For the purposes of this guidance, the word 'plant' has purposely been avoided and is referred to as 'on-site machinery', 'on-site vehicles', 'sites' or 'facilities'.

Types of on-site machinery include:

- Generic
  - Automated equipment
  - Robotics - refer to supplementary information
  - Lifts
  - Hoists - refer to supplementary information
  - Cranes - refer to supplementary information
  - Conveyor belt systems - refer to supplementary information
  - Electric motors
  - Mixing machinery
  - Drilling machinery
  - Welding equipment
- Commercial and business
Escalators and moving walkways - refer to supplementary information

- Places of assembly and entertainment
  - Theme park and fairground rides - refer to supplementary information
  - Moving platforms and stages
  - Retractable roofs

- Medical facilities
  - Motorised wheelchairs
  - Motorised trolleys
  - Static or movable medical equipment
  - Beds that use electric motors to manoeuvre patients

- Agriculture
  - Machinery for feeding livestock
  - Automated (robotic) milking systems

- Waste sites
  - Compactors
  - Shredders

- Construction sites
  - Small equipment, such as handheld tools up to large-scale machinery

Machinery can present many types of hazards including:

- Drawing in
- Entanglement
- Friction and abrasion
- Cutting or shearing
- Stabbing or puncturing
- Impact or crush injuries
- Hazardous substances and emissions
- Noise and vibration
- Pressure or vacuum
- Extreme temperatures
- Electrocution
- Damage to eyes by intense ultraviolet light from welding equipment
- Damage to skin from ultraviolet (UV) radiation present in welding equipment
- Epidermal injection (hydraulic fluid)

Some machinery is highly automated and may be operated by remote control systems. Machinery may be time controlled and could start up automatically. Similarly, the robotic system may be in an inert phase, but reactivate on a timed or activity-triggered basis.

Machinery may be old or poorly maintained, resulting in the absence of safety equipment; this may increase the risk of entrapment or injury. Machinery may present hazards if not correctly secured,
controlled, earthed or isolated. Some machinery, for example, the jibs of cranes, may be purposefully unsecured to prevent damage to them in high winds.

Machinery may contain moving parts, such as exposed shafts or fan bearings. Some types of machinery have machine guards to offer some protection from moving parts. Safety devices may have been removed or compromised prior to the arrival of personnel.

Machine guards should not be removed until power to the machine has been isolated and confirmed. Where safety devices, such as brakes and interlocks have activated, they should not be overridden before the effect of doing so has been carefully considered. Releasing such devices could result in the uncontrolled movement of machinery.

If a machine is stopped suddenly, for example by a blockage, there may be residual stored energy within the system. When the blockage is removed, the energy released can cause the machinery to move.

On-site machinery may be located in confined or restricted areas, making access and egress difficult and potentially arduous.

Control measure - Restrict or prohibit movement of on-site machinery

Control measure knowledge

If on-site machinery has the potential to cause harm to personnel or other responders, it may be necessary to restrict or prohibit its movement.

On-site machinery operators should be made aware of the presence of personnel or other responders, and the extent of restriction or prohibition in place.

It may not be possible to restrict or prohibit movement of on-site machinery. If this is the case, all responders should be made aware of any on-site machinery that continues to operate and exclusion zones set up where necessary.

Strategic actions

Fire and rescue services should:
• Ensure that information about on-site machinery and its use is included in Site-Specific Risk Information (SSRI)

**Tactical actions**

Incident commanders should:

• Consider requesting that on-site machinery movements are restricted or prohibited

• Ensure on-site machinery operators are made aware of the presence of personnel and other responders

• Alert all responders to any on-site machinery that continues to operate and set up exclusion zones where necessary

**Control measure - Isolate power supplies for on-site machinery**

**Control measure knowledge**

On-site machinery may still be operating when the fire and rescue service arrives. Personnel should liaise with on-site staff to identify where and how to isolate the on-site machinery, and to consider the implications of isolating power supplies to it. Keeping processes going may support fire and rescue service operations, for example, by reducing the volume of material that could be affected by the incident.

Power supplies to on-site machinery may include:

• Electricity
• Gas
• Pneumatics
• Hydraulics
• Kinetic, for example, windmills and watermills

Industries will use various methods for isolating power supplies. Some types of machinery may take a considerable time to isolate and in some circumstances it may not be possible to prevent reactivation. Isolating power supplies to machinery may have an impact on the business – some
on-site machinery may be damaged by emergency isolation.

Isolating power supplies to machinery may have an impact on the business; some on-site machinery may be damaged by emergency isolation.

The power supply for the machinery may be remote from the equipment. Instructions may be displayed for isolating the power supply or using manual controls.

Isolating power supplies may involve using:

- A tag out system - where a warning tag is attached to the power controls once in a safe position (off or closed), but reactivation may be possible
- A lock out system - where a padlock or bolt is used to prevent reactivation

When on-site machinery has been isolated, a robust system should be implemented to ensure it is not restarted until agreed by the incident commander.

**Strategic actions**

Fire and rescue services should:

- Ensure details about power supplies are included in Site-Specific Risk Information (SSRI)
- Ensure that information about emergency isolation of on-site machinery is included in Site-Specific Risk Information (SSRI)

**Tactical actions**

Incident commanders should:

- Liaise with the responsible person (or nominated competent person) to assist with the isolation of on-site machinery

- Consider Isolating power supplies to on-site machinery

- Identify on-site machinery that will require a period of time to be isolated
- Seek specialist advice if there is any doubt about the isolation of machinery
- Implement a robust system to ensure on-site machinery that has been isolated is not inadvertently restarted
Control measure knowledge

On-site machinery may prove useful to move or separate materials during an incident, such as waste or items of stock; however, this should be done under the supervision of the fire and rescue service.

Any suitable on-site machinery would need to be identified and should be operated by a competent person. The responsible person may be able to identify appropriate machinery and operators. This activity could create additional hazards, as other people may not be used to working with fire and rescue service personnel. Detailed briefings should therefore take place and any actions should be closely monitored.

If a competent person will be working within the inner cordon, communication methods, including evacuation signals, should be implemented and understood before commencing operations.

If the incident may benefit from the use of additional or specialist machinery, this should be proposed to the site owner, who would need to arrange for its hire.

Strategic actions

Fire and rescue services should:

- Ensure that personnel are aware that on-site machinery should only be operated by competent people
- Consider identifying suitable on-site machinery in pre-planning and site inspection visits
- Consider establishing contingency arrangements about additional or specialist machinery with the site owner; this may need to be hired in the event of an incident

Tactical actions

Incident commanders should:
• Liaise with the responsible person (or nominated competent person) about on-site machinery, how it is used and who can use it

• Identify suitable on-site machinery that will achieve the objectives required
• Carry out a risk assessment before using on-site machinery

• Ensure appropriate personal protective equipment (PPE) and high-visibility clothing is worn in the area where on-site machinery is being operated

• Provide a full safety brief to fire and rescue service personnel and others
• Develop agreed communication methods between fire and rescue service personnel and others

• Consider arranging for a competent person to move any on-site machinery not being used in the incident to an agreed location

Control measure - Supervise on-site staff operating machinery in the hazard area

Control measure knowledge

When using on-site machinery, on-site staff should be closely supervised to ensure they are not taking unnecessary risks, they have the appropriate personal protective equipment (PPE) and they are aware of the presence of fire and rescue service personnel.

If the incident is fire-related, the incident commander has the final decision on what is used, how it is used and by whom.

On-site staff, who do not understand incident command protocols may require a high level of supervision when operating in the hazard area.

Strategic actions

Fire and rescue services should:

• Ensure that all fire and rescue service personnel understand that on-site machinery should only be operated under the supervision of the fire and rescue service
Tactical actions

Incident commanders should:

- Ensure on-site staff are closely supervised when operating on-site machinery in the hazard area
- Ensure detailed briefings and constant monitoring take place

Hazard - Pressurised containers, aerosols and gas cylinders

Hazard Knowledge

Waste management sites are likely to contain varying quantities and types of pressurised containers. These can vary in size from domestic aerosols to larger pressurised gas cylinders, and will present projectile and explosion risks if involved in fire.

Site staff in well-managed sites may be aware of the presence and location of pressurised containers, especially if they are used within a site process or used to power machinery such as forklift trucks.

At sites that are potentially involved in recycling pressurised containers, a large quantity of containers may be present. The storage conditions of the containers will vary from site to site.

At sites that are not so well managed, or used illegally as waste dumping sites, the presence of unknown or unexpected pressurised containers may be higher.

Many sites, such as scrap metal dealers and end of life vehicle sites, may have acetylene cylinders present. There may also be many types of vehicle components, such as pressurised boot or bonnet struts, that can explode if heated.

Information on pressurised containers can be found in National Operational Guidance: Hazardous materials.

In addition to pressurised containers, other sealed metal objects such as box-welded sections of skips, box-welded vehicle components or sealed radiators can become pressurised, resulting in a projectile blast hazard. For further information refer to National Operational Guidance: Fires and firefighting.
Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.
**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - [Scene survey](#)

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator

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**Control measure - Site-Specific Risk Information (SSRI): Waste sites**
Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

Control measure - Cordon controls: Fires in Waste Sites

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
• The type of waste and predicted firespread
• The presence of:
  ○ Overhead cables
  ○ Substations
  ○ Transmission towers
  ○ Oil or gas pipelines
• Weather conditions, which could:
  ○ Contribute to firespread
  ○ Dampen the waste, making it more prone to collapse
• Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:
  ○ Waste fire tactical adviser
  ○ Responsible person or site specialist
  ○ Environmental agency
  ○ Public health agency
  ○ Local authority
  ○ Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

  • Appropriate exclusion and safety corridors should be established
  • Precautionary measures should be taken
  • Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

  • Utilities and fuel - Isolate utility or fuel supply within the national grid
Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

Strategic actions

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

Tactical actions

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site

- Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site

- Restrict the number of personnel in the hazard area for a fire in a waste site

- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment
• Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

**Control measure - Appoint safety officers**

**Control measure knowledge**

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.
Strategic actions

Fire and rescue services should:

- Provide equipment that enables command team members to be readily identified on the incident ground

- Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

- Identify personnel who are competent to carry out the command support role

- Have systems and methods in place to support the recording and communication of the tactical mode during an incident

- Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

- Provide systems that enable the recording of decisions made and actions taken at an incident

- Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.

- Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.

- Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.

- Have arrangements in place to provide the necessary vehicles and equipment for command support functions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Carry out appropriate
Control measure knowledge

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:
• Carry out an initial incident assessment and the resultant risk assessment
• Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
• Manage water run-off carefully, to avoid polluting watercourses and groundwater

• Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  ○ At source
  ○ Close to source
  ○ On the surface
  ○ In drainage or along a pathway
  ○ Contain, manage, treat pollution at the receptor

• Ensure that protection measures are robust and sustainable
• Request any further resources required to maintain protection tactics
• Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
• Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
• Ensure regular communication with the environmental agency, preferably on-site if possible
• Consider the potential for undetected subsurface firespread creating hidden voids

• Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes
undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

**Strategic actions**

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

**Tactical actions**

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

**Control measure - Seek specialist advice for hazardous materials**

**Control measure knowledge**

Specialist advice should be sought to support the incident commander’s operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.
For further information, refer to National Operational Guidance: [Hazardous materials](#).

**Strategic actions**

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

**Tactical actions**

Incident commanders should:

- Seek specialist advice

- Obtain a site manifest

- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

**Control measure - Liaise with other organisations**
**Control measure knowledge**

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: [Incident command](#) for details on tactical, operational and strategic management of an incident.

**Strategic actions**

**Tactical actions**

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)
Control measure knowledge

Personal protective equipment (PPE) is defined in regulations as:

_all equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective._

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax
PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls identified risks

- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together

- Ensure their workers have sufficient information, instruction and training on the use of PPE

- Maintain PPE in good working order

- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:
• Carry out risk assessments to define the specific PPE that will be required for an activity

• Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions

• Ensure that there are suitable arrangements to support the replenishment of PPE

• Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective

**Tactical actions**

Incident commanders should:

• Determine the level of PPE for hazards identified in a risk assessment

• Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

• Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE

• Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

• Check the condition of PPE when assessing its operational readiness for redeployment

• Identify when dirt, contamination or damage may affect the performance of PPE

• Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type
All personnel must:

- Use PPE properly, following the training and instruction provided in its use

All personnel should:

- Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective

Control measure - Identify the presence of pressurised containers

Control measure knowledge

Firefighters should access available Site-Specific Risk Information (SSRI) and question the site management and staff. This should include establishing the location of any portable machinery and equipment that is powered using pressurised containers.

Strategic actions

Fire and rescue services should:

- Carry out pre-planning and site inspections to identify and record the type, quantity and location of cylinders that a site might hold
- Use site visits as an opportunity to discuss the likelihood of pressurised containers being located in stacks with the site managers
- Retain information as part of pre-planning documentation and risk information

Tactical actions

Incident commanders should:

- Liaise with site staff about the contents of the stack
- Identify whether there is any likelihood of illegal fly tipping on-site
- Brief crews on the possibility of cylinders being involved
- Use safety officers in all sectors to constantly identify the type of waste involved
Identify the presence of pressurised containers, gas cylinders and other hazardous materials

Control measure - Implement appropriate cylinder procedures

Control measure knowledge

Firefighters should access available Site-Specific Risk Information (SSRI) and question the management and workforce at the site. This should include establishing the location of any portable machinery and equipment that is powered using pressurised cylinders. For further information refer to National Operational Guidance: Hazardous materials.

Strategic actions

Tactical actions

Incident commanders should:

- Locate and identify the type, quantity and location of cylinders on-site
- Brief all personnel on the possibility of cylinders being present
- Ensure that firefighters implement the appropriate procedures if cylinders are known to be, or suspected to be, present on the site
- Deploy the minimum number of personnel to the hazard zone
- Establish an emergency evacuation procedure

Hazard - Hazardous materials, including biological hazards

Hazard Knowledge

Hazardous substances or materials, including chemicals, paints, batteries and oils, may be involved
in a waste fire. Some of these may be unknown by the site operator or not marked. At illegal waste sites, there may be a higher risk of finding hazardous substances and materials with little or no information about the contents.

Contact with hazardous substances and materials may have short and/or long term health risks depending on their nature. These risks may result from contact with substances that are:

- Toxic
- Corrosive
- Flammable
- Carcinogenic
- Mutagenic
- Explosive

These items can be particularly hazardous as there is an increased likelihood that there will be a mixture of various substances. It may be extremely difficult to assess the resultant effect when exposed to high temperatures.

There is the possibility that during firefighting actions, substances may mix and react together, resulting in other hazards such as toxic or flammable gas, volatile explosive mixtures or exothermic reactions.

Radioactive materials and discarded pyrotechnic devices or ammunition may also be present.

Additionally a number of biohazards may be present in refuse, including:

- Clinical waste, including hypodermic needles
- Animal waste
- Animal carcasses
- Human waste
- Bacterial and viral infections such as leptospirosis (Weil's disease), hepatitis C and tetanus

Some waste sites have special facilities for dealing with needles and bio-products. The presence of these hazards should be obvious at these sites and the operators should be able to advise on appropriate actions.

At non-specialist sites or illegal sites, the exact contents of waste are often unknown. It should be assumed that general household waste and other scrap materials might contain sharps and penetration hazards.

The enormous volume of waste produced by modern society and the restriction of landfill opportunities have encouraged widespread recycling. This includes processing organic waste material, which could be for composting, or for use in processes such as anaerobic digestion or
mechanical treatment.

Whenever organic waste material is treated and handled, bioaerosols (short for biological aerosol) may be generated. Bioaerosols are suspensions of airborne particles that contain living organisms or that were released from living organisms. This also applies to handling livestock manures and bio-solids. Exposure to bioaerosols can lead to respiratory sensitisation and respiratory diseases.


Control measure - Apply situational awareness: Fires in Waste Sites

Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.
Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site
- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

- Access and secure CCTV footage for subsequent investigations and debriefs
- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
Control measure - Site-Specific Risk Information (SSRI): Waste sites

Control measure knowledge

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to [Environment Agency: Fire prevention plans](#).

Strategic actions

Fire and rescue services should:

- Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
- Consider participating in multi-agency site visits to enhance information gathering

Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation
Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
  - Substations
  - Transmission towers
  - Oil or gas pipelines
- Weather conditions, which could:
  - Contribute to firespread
  - Dampen the waste, making it more prone to collapse
- Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:
Appropriate exclusion and safety corridors should be established
Precautionary measures should be taken
Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

- Utilities and fuel - Isolate utility or fuel supply within the national grid
- Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

**Strategic actions**

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site

- Consider seeking specialist advice or assistance for determining appropriate cordons and
safe access and egress routes for a fire in a waste site

• Restrict the number of personnel in the hazard area for a fire in a waste site

• Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

• Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment

• Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site
Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:

- Provide equipment that enables command team members to be readily identified on the incident ground
- Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.
- Identify personnel who are competent to carry out the command support role
- Have systems and methods in place to support the recording and communication of the tactical mode during an incident
- Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.
- Provide systems that enable the recording of decisions made and actions taken at an incident
- Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.
- Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.
- Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.
• Have arrangements in place to provide the necessary vehicles and equipment for command support functions

**Tactical actions**

There are no tactical actions associated with this control measure.

**Control measure - Carry out appropriate intervention: Fires in waste sites**

**Control measure knowledge**

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: *Fires and firefighting* and National Operational Guidance: *Performing rescues*.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the *Environment Agency and DCLG environmental handbook* and National Operational Guidance: *Environmental protection*. 
Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
- Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  - At source
  - Close to source
  - On the surface
  - In drainage or along a pathway
  - Contain, manage, treat pollution at the receptor
- Ensure that protection measures are robust and sustainable
- Request any further resources required to maintain protection tactics
- Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
- Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
- Ensure regular communication with the environmental agency, preferably on-site if possible
- Consider the potential for undetected subsurface firespread creating hidden voids
- Consider the use of aerial or reach appliances to avoid crews working on unstable ground
Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

Strategic actions

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

Tactical actions

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

Control measure - Seek specialist advice for hazardous materials
Control measure knowledge

Specialist advice should be sought to support the incident commander's operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: Hazardous materials.

Strategic actions

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

Tactical actions

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest
- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory
protective equipment (RPE) to deal with identified or suspected hazardous materials

- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: Operations for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

Control measure - Liaise with other organisations

Control measure knowledge

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

Strategic actions
**Tactical actions**

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)

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**Control measure - Personal protective equipment**

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**Control measure knowledge**

Personal protective equipment (PPE) is defined in regulations as:

*All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective.*

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its
use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls
identified risks

- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together

- Ensure their workers have sufficient information, instruction and training on the use of PPE

- Maintain PPE in good working order

- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:

- Carry out risk assessments to define the specific PPE that will be required for an activity

- Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions

- Ensure that there are suitable arrangements to support the replenishment of PPE

- Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective

**Tactical actions**

Incident commanders should:

- Determine the level of PPE for hazards identified in a risk assessment

- Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

- Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE
• Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

• Check the condition of PPE when assessing its operational readiness for redeployment

• Identify when dirt, contamination or damage may affect the performance of PPE

• Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type

All personnel must:

• Use PPE properly, following the training and instruction provided in its use

All personnel should:

• Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective

Hazard - Landfill gas or biogas

Hazard Knowledge

Landfill gas

Landfill gas is a complex mix of different gases, created when bacteria break down organic waste within a landfill site. Landfill gas is approximately 40% to 60% methane, with the remainder being mostly carbon dioxide. Trace amounts of other volatile organic compounds comprise a remaining 2% to 10% including nitrogen, oxygen, ammonia, sulphides, hydrogen and various other gases.

The amount of these gases depends on:
• The type of waste present in the landfill
• The age of the landfill
• Oxygen content
• The amount of moisture
• Temperature

For example, if the temperature or moisture content of the organic waste increases, gas production will also increase. The production of these gases generally reaches a peak in five to seven years, but the landfill process can continue to produce gases for more than 50 years.

Methane is a major component of natural gas; it is highly flammable and can form explosive mixtures with air if it concentrates in an enclosed space with poor ventilation levels. The range of air concentrations at which methane levels are considered to be an explosion hazard is 5% to 15% of the total air volume. Landfill gas explosions are not common occurrences, however.

Landfill gas can spread over large distances and can vent from cracks in the surface of the site, meaning that areas not filled with refuse can contain levels of gas.

A build-up of landfill gas in enclosed spaces, either above or below ground, can ignite. This will cause an explosion, and can result in structural damage above ground and possible subsidence over small or large areas of the landfill surface, if the build-up of gas is underground. Plant or personnel could become engulfed in a resultant underground void.

The gas poses an additional risk as it can burn with an invisible flame. Particular care should be taken if a fire is present on any site, especially in or around any excavations or trenches. In addition, people in close proximity to uncovered refuse can be at greater risk from a fire on the site.

On larger landfill sites gas extraction can power a gas turbine or internal combustion engine to produce electricity. The presence of these would indicate the hazards of high voltage electricity and gas pipelines on the site.

Biogas

Biogas is a product of anaerobic digestion (AD). Anaerobic digestion is a natural process where plant and animal materials (biomass) are broken down by microorganisms in the absence of air. On these sites the biomass is held and decomposed in large tanks that produce biogas. The tanks are oxygen deficient.

Biogas is a mixture of 60% methane and 40% carbon dioxide, with traces of other contaminant gases. The exact composition of biogas depends on the type of feedstock being digested.

Many forms of biomass are suitable for anaerobic digestion (AD), including food waste, slurry and manure as well as crops and crop residues.
Microbes feed off carbohydrates and fats, producing methane and carbon dioxide as metabolic waste products. This gas can be harnessed as a source of sustainable energy.

In anaerobic digestion facilities, biogas is produced in large digesters (tanks) and filtered off into pressurised holding spheres. On these sites the risk of a gas leak is always possible, but a fire on the site may require the protection of the gas infrastructure.

Biogas can be used to power a gas turbine or internal combustion engine to produce electricity. The presence of these would indicate the hazards of high voltage electricity and gas pipelines on the site.
Figure 2: Anaerobic digestion process
Digestate is a biologically active, aqueous liquid (typically 95% to 98% water) made from leftover indigestible material and dead micro-organisms. It contains valuable plant nutrients like nitrogen and potassium. It can be used as a fertiliser and soil conditioner and is stored in pits, tanks or lagoons. Health hazards may arise from contact with, or immersion in, digestate.

Control measure - Apply situational awareness: Fires in Waste Sites

Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.

Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.
To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
- Consider the responsible person (or appointed competent person) for the site

- Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - [Scene survey](#)

- Access and secure CCTV footage for subsequent investigations and debriefs

- Consider liaison and information sharing with others, for example:
  - Environmental agency
  - Environmental health
  - Local authority
  - Police
  - Ambulance service
  - Public health agency
  - Site operator
Control measure knowledge

Site-Specific Risk Information (SSRI) includes pre-planning of firefighting tactics. Further information can be found in National Operational Guidance: Operations.

Strategic actions

Fire and rescue services should:

- Assess the hazards and risks in their area, and establish site-specific risk plans for locations where hazards and risks are significant

Tactical actions

Incident commanders should:

- Refer to Site-Specific Risk Information (SSRI) during an incident, if available

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
Substations
Transmission towers
Oil or gas pipelines
- Weather conditions, which could:
  - Contribute to firespread
  - Dampen the waste, making it more prone to collapse
- Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.

Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

- Appropriate exclusion and safety corridors should be established
- Precautionary measures should be taken
- Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

- Utilities and fuel - Isolate utility or fuel supply within the national grid
- Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks,
there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

**Strategic actions**

Fire and rescue services should:

- Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

- Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

- Establish and maintain cordons and safe access and egress routes for a fire in a waste site

- Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site

- Restrict the number of personnel in the hazard area for a fire in a waste site

- Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

- Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment

- Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site
• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:
• Provide equipment that enables command team members to be readily identified on the incident ground

• Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

• Identify personnel who are competent to carry out the command support role

• Have systems and methods in place to support the recording and communication of the tactical mode during an incident

• Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

• Provide systems that enable the recording of decisions made and actions taken at an incident

• Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.
• Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.
• Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.

• Have arrangements in place to provide the necessary vehicles and equipment for command support functions

**Tactical actions**

There are no tactical actions associated with this control measure.

**Control measure - Carry out appropriate intervention: Fires in waste sites**
Control measure knowledge

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

Strategic actions

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

Tactical actions

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
• Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  ○ At source
  ○ Close to source
  ○ On the surface
  ○ In drainage or along a pathway
  ○ Contain, manage, treat pollution at the receptor
• Ensure that protection measures are robust and sustainable
• Request any further resources required to maintain protection tactics
• Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.
• Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
• Ensure regular communication with the environmental agency, preferably on-site if possible
• Consider the potential for undetected subsurface firespread creating hidden voids

• Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would
be useful to support operational priorities for the fire and rescue service.

**Strategic actions**

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

**Tactical actions**

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
- Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
- Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

**Control measure - Seek specialist advice for hazardous materials**

**Control measure knowledge**

Specialist advice should be sought to support the incident commander’s operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: [Hazardous materials](#).
Strategic actions

Fire and rescue services should:

- Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
  - Scientific advisers

Tactical actions

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest

- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: Operations for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

Control measure - Liaise with other organisations
Control measure knowledge

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.

Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: [Incident command](#) for details on tactical, operational and strategic management of an incident.

Strategic actions

Tactical actions

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)
Control measure knowledge

Personal protective equipment (PPE) is defined in regulations as:

All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person's health or safety, and any addition or accessory designed to meet that objective.

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax...
PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:

- The Personal Protective Equipment at Work Regulations
- The Personal Protective Equipment at Work (Amendment) Regulations
- Personal Protective Equipment at Work Regulations (Northern Ireland)

For further information on respiratory protective equipment refer to Respiratory protective equipment.

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls identified risks
- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together
- Ensure their workers have sufficient information, instruction and training on the use of PPE
- Maintain PPE in good working order
- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:
• Carry out risk assessments to define the specific PPE that will be required for an activity

• Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions

• Ensure that there are suitable arrangements to support the replenishment of PPE

• Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective

**Tactical actions**

Incident commanders should:

• Determine the level of PPE for hazards identified in a risk assessment

• Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

• Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE

• Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

• Check the condition of PPE when assessing its operational readiness for redeployment

• Identify when dirt, contamination or damage may affect the performance of PPE

• Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type
All personnel must:

- Use PPE properly, following the training and instruction provided in its use

All personnel should:

- Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective

Control measure - Consider using thermal imaging to detect hot fire gases

Control measure knowledge

For further information, including strategic actions and tactical actions, refer to National Operational Guidance: Fires and firefighting - Consider using thermal imaging or scanning. Landfill gas can burn with an invisible flame, the use of thermal imaging cameras or on-site thermal scanning equipment can be effective.

Hot fire gases in landfill sites can travel horizontally, as waste is layered and compressed over many years. A full site assessment using thermal imaging cameras or on-site thermal scanning equipment may be required.

Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Use detection and monitoring
Control measure knowledge

Sites where landfill gas is produced, or facilities where biogas is produced, should have gas detection and monitoring equipment.

Portable gas monitoring equipment will differ throughout the fire and rescue service; using this equipment may prove valuable in controlling this hazard.

Strategic actions

Fire and rescue services should:

- Record, and make available, Site-Specific Risk Information (SSRI)
- Obtain site information held by the relevant environmental agency

Tactical actions

Incident commanders should:

- Identify low lying areas where gas might pool
- Identify buildings that might be affected by a build-up of gas
- Liaise with the site operator to determine the type, location and function of on-site equipment
- Use on-site and/or fire and rescue service portable gas monitoring equipment
- Consider deploying detection, identification and monitoring (DIM) teams to assist with gas monitoring activities
- Consider using gas monitoring equipment belonging to specialist teams such as Urban Search and Rescue (USAR) or other agencies

Hazard - Impact on the environment and health

Hazard Knowledge

Fire and rescue services attending any fires in waste sites should be aware of two serious issues
that can impact on the environment, the health of those attending the incident and the wider community.

Incident commanders should liaise with the environmental agency and public health agency early in the incident, to assess the level of hazard and agree a tactical plan to manage the hazards of:

- Smoke plumes - waste fires can produce large smoke plumes that carry airborne particles long distances
- Fire water run-off - the fire water run-off from waste fires is likely to be particularly toxic and damaging to the environment

Well-managed and regulated waste sites should have drainage systems fitted with pollution control features that can prevent or limit fire water or pollutants leaving sites or soaking away. These can assist firefighters in controlling the impact of fire water on watercourses and groundwater.

Illegal or poorly-managed sites may have drainage systems that discharge directly into foul water, storm water drains or directly into water courses. If a drainage system is present it is unlikely to have any pollution control systems fitted.

If there is no drainage system, or if a system is blocked, fire water may soak away, posing a threat to the groundwater. It may also create run-off, posing a threat to adjacent property and sites.

These issues are extensively covered in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection - Smoke plumes and Fire water run-off.

Hazard - Running or pooling fuel fires

Hazard Knowledge

On some waste sites, such as end of life vehicle sites, there may be large quantities of waste fuel and oil stored. If involved in fire these may create running fuel fires.
Some waste fires that involve chipped rubber, plastics or tyres can produce the same characteristics as running or pooling fuel fires. The intense heat from these types of fire can result in the waste becoming molten within the stack. The outer layer can form a hardened crust, either as a result of cooling by firefighting media or by being exposed to cooler atmospheric temperatures.

If the outer crust splits or becomes damaged by other forces, the molten fuel will run freely away, following the contours of the ground. This places fire and rescue service personnel and equipment, particularly in low-lying locations, at risk.

Control measure knowledge

Situational awareness concerns the perception and understanding of a situation, along with anticipating how the situation may develop in the near future.

Understanding the site design, construction, nature of use and occupancy will assist incident commanders in making safe, informed decisions.

Depending on the size and complexity of the incident, other agencies may attend, making effective joint working critical for safety on the incident ground.
Shared situational awareness is a multi-agency common understanding of the circumstances and immediate consequences of the emergency, together with an appreciation of the capabilities available and the priorities of the emergency services.

For more information refer to National Operational Guidance: Incident command - Organisation at an incident.

So that fire and rescue service personnel can operate safely and effectively at incidents involving fires in waste sites, they should develop an appropriate understanding of site design and layout, the type of materials being stored and the method of storage (for example, stacked and on-site processes).

They should also appreciate the effects of the fire and of firefighting activity on the material involved, the local community and the environment.

Information about fire behaviour and firefighting techniques can be found in National Operational Guidance: Fires and firefighting.

Guidance on environmental issues can be found in the Environment Agency and DCLG Environmental handbook and National Operational Guidance: Environmental protection.

To make a judgment on the effective deployment of resources, incident commanders should also be aware of the capabilities of the resources at the scene, specialist knowledge available and specialist equipment on-site that might assist in the creation of a successful tactical plan.

**Strategic actions**

Fire and rescue services should:

- Carry out pre-planning site visits and inspections to gain risk information that can be made available to responding personnel at a fire or other type of incident.
- Gather this information through joint inspection with other agencies, such as an environmental agency wherever possible. Joint visits may help fire and rescue services build a better picture of the challenges an incident may present at a particular site. Joint visits should also allow other agencies to identify concerns they may have about the potential hazards that may need to be dealt with during an incident.

**Tactical actions**

Incident commanders should:

- Consider site use and occupancy
- Consider the local community and their need to shelter in place or evacuate
• Consider the responsible person (or appointed competent person) for the site

• Consider the outcomes from scene surveys - refer to National Operational Guidance: Fires and firefighting - Scene survey

• Access and secure CCTV footage for subsequent investigations and debriefs

• Consider liaison and information sharing with others, for example:
  ◦ Environmental agency
  ◦ Environmental health
  ◦ Local authority
  ◦ Police
  ◦ Ambulance service
  ◦ Public health agency
  ◦ Site operator

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**Control measure - Site-Specific Risk Information (SSRI): Waste sites**

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**Control measure knowledge**

Well-managed sites should have a site plan. If storing combustible waste, a permitted site must have a fire prevention plan. For information about contents of these plans refer to Environment Agency: Fire prevention plans.

**Strategic actions**

Fire and rescue services should:

• Hold Site-Specific Risk Information (SSRI) and make this readily available to responding personnel
• Consider participating in multi-agency site visits to enhance information gathering
Tactical actions

Incident commanders should:

- Access and review any onsite environmental and fire prevention and mitigation plans
- Consider other site-specific information that may be available through other agencies, such as environmental agencies or local authority
- Obtain a site manifest and any Control of Substances Hazardous to Health (COSHH) documentation

Control measure - Cordon controls: Fires in Waste Sites

Control measure knowledge

Cordon distances for fires in waste sites should take into account factors such as:

- The height of any stacked materials
- The stability of stacked materials
- The type of waste and predicted firespread
- The presence of:
  - Overhead cables
  - Substations
  - Transmission towers
  - Oil or gas pipelines
- Weather conditions, which could:
  - Contribute to firespread
  - Dampen the waste, making it more prone to collapse
- Ground conditions

Personnel need to be vigilant when attending fires in waste sites. This could involve working around stacks, which may be or become unstable. Personnel should avoid walking on or over them, or working on them. For more information refer to Safe system of work: Stacked materials.
Care should be taken when moving vehicles across waste or landfill sites or when crossing them on foot, as deep-seated fires beneath the surface can create hidden voids, which will be prone to collapse with little or no warning.

It may be necessary to seek specialist advice or assistance from:

- Waste fire tactical adviser
- Responsible person or site specialist
- Environmental agency
- Public health agency
- Local authority
- Industry experts

If there is any high-voltage equipment, such as overhead cables or transmission towers, in the vicinity of the waste site:

- Appropriate exclusion and safety corridors should be established
- Precautionary measures should be taken
- Advice and assistance should be requested from the electricity supplier

If any of the high-voltage equipment is or could be damaged by the fire, these steps should be taken urgently. For more information refer to Utilities and fuel – Safe system of work: High-voltage electricity.

If there are any oil or gas pipelines present, the fuel supplier should be contacted for advice as they may need to isolate the supply. For more information refer to:

- Utilities and fuel - Isolate utility or fuel supply within the national grid
- Utilities and fuel – Isolate pipelines

Due to the nature of the hazards, such as rapid firespread, unstable ground or unstable stacks, there should be plans for emergency evacuation and tactical withdrawal of responders. For more information refer to Incident command – Emergency evacuation and tactical withdrawal of responders.

If wider cordons are required outside of the hazard area, for example to transport networks beyond the waste site boundary, it may be necessary to request the assistance of the police. For more information refer to Transport – Cordons: Moving vehicles on roadways.

**Strategic actions**

Fire and rescue services should:
• Consider identifying or developing specialist personnel to be waste fire tactical advisers who can be mobilised to or provide advice for fires in waste sites

• Maintain a directory of specialists who can provide advice or assistance for fires in waste sites

**Tactical actions**

Incident commanders should:

• Establish and maintain cordons and safe access and egress routes for a fire in a waste site

• Consider seeking specialist advice or assistance for determining appropriate cordons and safe access and egress routes for a fire in a waste site

• Restrict the number of personnel in the hazard area for a fire in a waste site

• Record all access and egress into and out of the inner cordon, for personnel and other emergency responders at a fire in a waste site

• Restrict access on or over waste or landfill sites to the minimum personnel, vehicles and equipment

• Prevent personnel from walking across stacked waste or unstable ground at a fire in a waste site

• Provide a safety briefing to all personnel undertaking tasks within the waste site

• Consider appointing a safety officer to control cordons and monitor ground and stack conditions at a fire in a waste site

• Request police attendance to manage cordons outside of the waste site boundary

• Establish appropriate exclusion and safety corridors if there is any high-voltage equipment in the vicinity of the waste site
• Request advice and assistance from the electricity supplier if there is any high-voltage equipment in the vicinity of the waste site

• Request advice and assistance from the fuel supplier if there are any oil or gas pipelines in the vicinity of the waste site

• Ensure all emergency responders are aware of the emergency evacuation or tactical withdrawal for the fire in a waste site

Control measure - Appoint safety officers

Control measure knowledge

Appoint a safety officer as soon as reasonably practical and use safety observers in all sectors. Safety officers should monitor the working practices of the firefighters. They should be fully briefed about their role and liaise with the incident commander. They should initiate a tactical withdrawal or emergency evacuation if the need arises, for example, if stacks or piles of waste show signs of collapse.

Strategic actions

Fire and rescue services should:

• Provide equipment that enables command team members to be readily identified on the incident ground

• Have procedures for the effective control of communications at incidents of all sizes. These procedures should be scalable to allow for incidents that develop in size and complexity and take into account that other agencies will also be communicating at the incident.

• Identify personnel who are competent to carry out the command support role

• Have systems and methods in place to support the recording and communication of the tactical mode during an incident
• Consider the need to provide specific training for personnel who provide command support arrangements and for those who may fulfil the role of command support officer.

• Provide systems that enable the recording of decisions made and actions taken at an incident

• Have procedures to allow defined areas on the incident ground to be identified and understood by all personnel. This is generally referred to as sectorisation.

• Have policies for limiting access of personnel to the hazardous areas of an incident ground and for briefing and identification of those involved. This policy should include any equipment and procedural guidance necessary to implement it safely.

• Establish joint working protocols with neighbouring fire and rescue services and other agencies to ensure the policy can be safely implemented and effectively controlled.

• Have arrangements in place to provide the necessary vehicles and equipment for command support functions

**Tactical actions**

There are no tactical actions associated with this control measure.

**Control measure - Carry out appropriate intervention: Fires in waste sites**

**Control measure knowledge**

The timing and level of intervention will be determined through having knowledge of the site and the materials involved, whether there are rescues to be carried out, the extent of the fire and immediate risk to life or property, and the environmental impact of fire service operations. It is important to gain knowledge of any fire protection systems and facilities for firefighters within the site, including how they are operated and whether they are functioning.

To make an effective deployment, incident commanders should be aware of all the capabilities of available resources. Appropriate intervention should not be delayed, whilst seeking advice from the environmental or other agencies.

Priority objectives include saving life, preventing the incident from escalating, extinguishing the fire.
and protecting people and the environment. Guidance to determine appropriate intervention and tactical actions can be found in National Operational Guidance: Fires and firefighting and National Operational Guidance: Performing rescues.

Early liaison with the environmental agency and public health agency is recommended, as a decision will need to be made as to whether the fire should be extinguished or allowed to burn, taking into account the impacts of that decision. Guidance on environmental issues can be found in the Environment Agency and DCLG environmental handbook and National Operational Guidance: Environmental protection.

**Strategic actions**

Fire and rescue services should:

- Assess the level of risk within their service ground and provide fire and rescue service personnel with suitable and sufficient equipment and firefighting media to deal with fires in waste sites
- Gather information and pre-plan for incidents on waste sites, making relevant and up to date risk information available for attending personnel

**Tactical actions**

Incident commanders should:

- Carry out an initial incident assessment and the resultant risk assessment
- Use risk-critical information to identify priority actions, where intervention will be required, as part of the overall tactical plan
- Manage water run-off carefully, to avoid polluting watercourses and groundwater
- Implement environmental protection measures to control, reduce or eliminate environmental damage or pollution, using pollution control hierarchy:
  - At source
  - Close to source
  - On the surface
  - In drainage or along a pathway
  - Contain, manage, treat pollution at the receptor
- Ensure that protection measures are robust and sustainable
- Request any further resources required to maintain protection tactics
- Consider the possible recirculation of fire water run-off, to reduce water used, as well as the quantity of water being disposed through the foul water drainage system. Refer to the Environment Agency and DCLG environmental handbook and National Operational Guidance:
Environmental protection.

- Develop a media strategy, in liaison with other agencies, to achieve clear and concise communication to the local community
- Ensure regular communication with the environmental agency, preferably on-site if possible
- Consider the potential for undetected subsurface firespread creating hidden voids
- Consider the use of aerial or reach appliances to avoid crews working on unstable ground

Control measure - Liaise with the responsible person (or appointed competent person)

Control measure knowledge

A responsible person (or appointed competent person) should have the appropriate level of knowledge and skills to be able to provide accurate and relevant information on their specific area of work.

They should have intimate and comprehensive knowledge of the site and the processes undertaken within the site. They should also have access to other subject matter experts regarding processes and procedures carried out on-site, as well as to their business continuity plan, which may hold additional information that could be useful to the incident commander.

They should also be able to interpret and translate such understanding into information that would be useful to support operational priorities for the fire and rescue service.

Strategic actions

Fire and rescue services should:

- Engage with site operators as part of the Site-Specific Risk Information (SSRI) process

Tactical actions

Incident commanders should:

- Identify and record the details of the responsible person (or appointed competent person)
• Attempt to engage with the responsible person (or appointed competent person), to seek accurate, timely and relevant information
• Assess, record and consider using the knowledge gained from the responsible person (or appointed competent person)

Control measure - Seek specialist advice for hazardous materials

Control measure knowledge

Specialist advice should be sought to support the incident commander’s operational plan. Advice should be used to identify the type of waste, appropriate actions and the level of personal protective equipment (PPE) and decontamination required.

Incident commanders should consider seeking advice from specialist tactical advisers and/or third party scientific advisers. Staff at specialist waste treatment facilities may also be able to provide advice.

If substances are not known, detection, identification and monitoring (DIM) teams may be able to assist.

For further information, refer to National Operational Guidance: [Hazardous materials](#).

Strategic actions

Fire and rescue services should:

• Understand which specialist advisers may be able to assist and how to contact them in the event of hazardous materials being, or suspected of being, present at a fire in a waste site. These may include:
  - Environment agencies
  - Public health agencies
  - Detection, identification and monitoring (DIM) teams
  - Site owners
  - Hazardous materials advisers
  - Specialist advisers for ammunition
Scientific advisers

**Tactical actions**

Incident commanders should:

- Seek specialist advice
- Obtain a site manifest
- Obtain any Control of Substances Hazardous to Health (COSHH) documentation held on-site
- Implement an appropriate level of personal protective equipment (PPE) and respiratory protective equipment (RPE) to deal with identified or suspected hazardous materials
- Deploy the minimum number of personnel required to safely complete the tasks required
- Fully brief all personnel entering the inner cordon on all known or suspected hazards
- Ensure that a clean area for resting and standby teams has welfare and hygiene provision - refer to National Operational Guidance: [Operations](#) for further information
- Ensure appropriate health and safety monitoring during and after the incident
- Document any exposure

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**Control measure - Liaise with other organisations**

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**Control measure knowledge**

Fire and rescue services should liaise with other organisations throughout the incident including:

- Environmental agencies
- Public health agencies
- Police
- Local authorities
- Industry experts
- Community leaders

This is not an exhaustive list as other organisations may be involved throughout the incident. Fires in waste sites may attract interest from the local community and, depending on the size of the incident, its location and impact on the community, they may attract attention at a national level.
Therefore, it is important that the responding fire and rescue service liaises closely with all interested parties throughout the incident. It is also important to develop a good working relationship with other organisations to develop a joined-up tactical and strategic plan to conclude the incident satisfactorily.

Refer to National Operational Guidance: Incident command for details on tactical, operational and strategic management of an incident.

**Strategic actions**

**Tactical actions**

Incident commanders should:

- Be aware of the importance of liaising with other organisations
- Make contact with the relevant agencies at the earliest opportunity via the fire control room
- Develop tactical plan in consultation with relevant agencies (e.g. public health, environmental agencies)
- Document and share information given by the other organisations
- Record tactical decisions that are made as a result of advice given by other organisations on the incident log
- Ensure other responders receive a full safety briefing and wear appropriate personal protective equipment (PPE) and respiratory protective equipment (RPE)

**Control measure - Personal protective equipment**

**Control measure knowledge**

Personal protective equipment (PPE) is defined in regulations as:

All equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects the person against one or more risks to that person’s
health or safety, and any addition or accessory designed to meet that objective.

If an employer finds PPE to be necessary after a risk assessment, they have a duty to provide it free of charge. It includes items such as:

- Helmets
- Gloves
- Eye protection
- High-visibility clothing
- Safety footwear

If PPE is required, employers must ensure their workers have sufficient information, instruction and training on its use. All workers must use the PPE properly, following training and instruction in its use from their employer. If the PPE the employer provides is lost or becomes defective, the worker should report that to them. It should be noted that a worker can be an employee or anyone who carries out casual or irregular work for one or more organisations, as long as they are not self-employed.

Equipment, such as chemical protective clothing (CPC), respiratory protective equipment (RPE) and safety harnesses, are also types of PPE and are covered in more detail elsewhere in guidance. PPE should be regarded as a last resort if risks to health and safety cannot be adequately controlled in other ways.

To avoid unsuitable selection, fire and rescue service risk assessments should define the specific PPE required for an activity. If more than one item of PPE is to be worn, they must be compatible with each other and adequately control the risks when used together. This information should be communicated to relevant personnel.

During protracted incidents, or when making up equipment, personnel may be inclined to relax PPE; incident commanders should be vigilant and base any decision to downgrade the need for PPE on an assessment of residual risk.

PPE must be maintained in good working order and correctly stored when not in use. If PPE has become dirty, contaminated or damaged it may not perform to the standard required or expected. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes that are in accordance with the manufacturer’s instructions.

Fire and rescue services should ensure they have suitable arrangements in place to replenish supplies of PPE that are no longer in good working order, or are of a disposable type.

For legislative requirements, refer to:
• **The Personal Protective Equipment at Work Regulations**
• **The Personal Protective Equipment at Work (Amendment) Regulations**
• **Personal Protective Equipment at Work Regulations (Northern Ireland)**

For further information on respiratory protective equipment refer to [Respiratory protective equipment](#).

**Strategic actions**

Fire and rescue services must:

- Provide workers with suitable PPE that fits the wearer correctly and adequately controls identified risks
- Ensure that any PPE worn simultaneously is compatible and adequately controls the risks when used together
- Ensure their workers have sufficient information, instruction and training on the use of PPE
- Maintain PPE in good working order
- Provide appropriate storage facilities for PPE when it is not being used

Fire and rescue services should:

- Carry out risk assessments to define the specific PPE that will be required for an activity
- Have suitable arrangements for the cleaning and maintenance of PPE in accordance with the manufacturer's instructions
- Ensure that there are suitable arrangements to support the replenishment of PPE
- Ensure personnel understand the procedures for notifying an appropriate person or department if the PPE provided is lost or becomes defective
**Tactical actions**

Incident commanders should:

- Determine the level of PPE for hazards identified in a risk assessment

- Determine if more than one item of PPE is required, and if so, ensure they are compatible and adequately control the risks when used together

- Communicate PPE requirements to relevant personnel and ensure they have access to the appropriate PPE

- Ensure the appropriate level of PPE is maintained throughout the incident based on an assessment of residual risk

- Check the condition of PPE when assessing its operational readiness for redeployment

  - Identify when dirt, contamination or damage may affect the performance of PPE

- Request that supplies of PPE are replenished if items are no longer in good working order, or are of a disposable type

All personnel must:

- Use PPE properly, following the training and instruction provided in its use

All personnel should:

- Follow service procedures to notify an appropriate person or department if the PPE provided is lost or becomes defective
Control measure - Provide safety jets or other appropriate firefighting media

Control measure knowledge

Dedicated safety jets, or other appropriate firefighting media provided for the protection of personnel and equipment, should be laid out and kept charged, available and ready for immediate use. For information on firefighting media and techniques refer to National Operational Guidance: Fires and firefighting.

Strategic actions

Tactical actions

There are no tactical actions associated with this control measure.

Control measure - Create bunded areas

Control measure knowledge

In areas of the incident where a running fuel fire or pooling fuel fire could occur, creating small bunded walls using suitable waste from the site may control and contain running fuel fires. This may also protect fire and rescue service personnel and equipment.

Strategic actions
Tactical actions

Incident commanders should:

- Develop a tactical plan that takes this occurrence into account
- Monitor fire and rescue service personnel undertaking tasks in hazard areas
- Where possible, use plant and equipment to avoid manual handling issues when building small bunded areas
- Use suitable waste from the site to build these containment areas
- Identify any risk of running or pooling fuel fires

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