Hazard

Inaccurate situational awareness:
Fires in waste sites

Contents

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

Control measure - Establish scene safety and cordons: Fires in Waste Sites

Control measure knowledge

For further information, including strategic actions and tactical actions, refer to National Operational Guidance: [Incident command - Structuring an incident](#). During a waste fire incident stacked materials can collapse with little or no warning. Therefore the cordon distances should take the stack heights and their stability into consideration.

Strategic actions

Tactical actions

Incident commanders should:

- Restrict the number of personnel in hazard or restricted areas
- Record all access and egress into and out of the inner cordon, for fire and rescue service personnel and other agencies
- Brief all personnel entering the risk area on hazards and restricted areas
- Confirm the emergency evacuation procedure and signal

- Take external specialist advice from, for example:

  - The responsible person or site specialist
  - Environmental agency
  - Public health agency
  - Police
  - Local authority
  - Industry experts

🛡️ 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 - Personal protective equipment

Control measure knowledge

Personal protective equipment (PPE) is used to protect personnel against health or safety risks. It includes items such as:

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

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. PPE must be maintained in good working order and properly stored when not in use. Personnel should use PPE in accordance with the training they have received and report any loss, damage or faults.

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.

If PPE has become dirty, contaminated or damaged it may not perform to the standard required by the appropriate specification. PPE should only be worn if it has been subject to appropriate cleaning, decontamination and testing processes.

For legislative requirements, refer to:

- [Personal Protective Equipment at Work 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 employees with suitable personal protective equipment that fits the wearer correctly and adequately controls identified risks

- Ensure that personal protective equipment and respiratory protective equipment worn simultaneously is compatible and does not negatively impact other safety measures

- Provide appropriate accommodation (storage) for PPE when it is not being used

Fire and rescue services should:

- Specify the level of PPE for hazards identified through risk assessment and communicate to personnel

- 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

Tactical actions

Incident commanders should:

- Ensure that personnel have access to the appropriate PPE

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

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

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