



National Operational Guidance

Section Introduction



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Contents

Introduction	3
<i>Relevant knowledge</i>	4
<i>Legislation</i>	6
<i>Risk management plan</i>	6
<i>Responsibility of fire and rescue services</i>	7



Introduction

This section of guidance examines the hazards encountered by fire and rescue service personnel, other responders and members of the public at hazardous materials incidents. It contains hazard and control measure knowledge relevant to the categories of physical hazards and health hazards as classified by the Globally Harmonised System (GHS) of classification and labelling of chemicals.

Hazard and control measure knowledge relating to generic hazardous materials incidents can be found in National Operational Guidance: Hazardous materials (tier one) and should be used in conjunction with this guidance.

This guidance is supported by supplementary information contained in A foundation for hazardous materials, which may support training or pre-planning.

See National Operational Guidance: [Foundation for hazardous materials](#)

Fire and rescue services respond to a wide range of incidents involving hazardous materials that have the potential to cause harm to firefighters, the surrounding community and the environment. Fire and rescue services may be called specifically to deal with emergency spillages or releases, or they may encounter hazardous materials at fires and other emergency incidents.

This guidance primarily deals with accidental hazardous materials incidents. The operational principles are essentially the same for deliberate, malicious or terrorist events. However, terrorist or CBRN(e) events require a more specific response because of:

- Increased security measures
- Increased risks to fire and rescue service personnel
- Complexity of multi-agency working
- Potential for multiple events caused by secondary devices
- Potential for perpetrators to use virulent agents that may be both persistent and difficult to identify
- Potential to change, remove or conceal safety signage and material information
- Potential to select locations that exploit the characteristics of the agent
- Need to exchange information with off-site intelligence and scientific advisers
- Potential for increased public exposure

For these reasons there is guidance in National Operational Guidance [Hazardous materials](#) for [Initial operational response \(IOR\)](#) and [Special operational response \(SOR\)](#) to a CBRN(e) incident.

The generic key roles of fire and rescue services at hazardous materials or CBRN(e) incidents are to:



- Save life
- Protect the public and other responders
- Fight and prevent fires involving hazardous materials
- Detect, identify and monitor hazardous materials
- Manage hazardous materials
- Protect the environment
- Mitigate damage from fires or firefighting and rescue
- Ensure the health and safety of fire service responders
- Ensure safety management inside the inner cordon, other than during the initial stages of terrorist incidents
- Provide health and safety management at incidents that involve other emergency responders
- Provide an urban search and rescue capability

This guidance does not give information on the specific hazards and control measures relating to environmental protection. Although these are integral to any hazardous materials response, they are covered separately in [National Operational Guidance: Environmental protection](#).



Relevant knowledge

The term 'hazardous materials' (also referred to as Hazmats or dangerous/hazardous substances or goods) means solids, liquids, or gases that can harm people, other living organisms, property or the environment. They include materials that pose a physical hazard such as:

- Explosives
- Flammables
- Oxidisers
- And those that pose a health hazard such as:
 - Corrosives
 - Toxic materials
 - Biohazards

The term 'hazardous materials' also includes materials with physical conditions or other characteristics that render them hazardous in specific circumstances, such as compressed gases and liquids or hot or cold materials. Non-fire and rescue service organisations and agencies may use more technical and specific definitions because of their own requirements, but the above definition is the most appropriate for fire and rescue services to base their risk assessments and planning assumptions on.

Another clear distinction relating to hazardous material operations is the difference between '*contamination*' and '*exposure*':

Contamination occurs when a substance adheres to or is deposited on people, equipment or the environment, creating a risk of exposure and possible injury or harm. Contamination does not automatically lead to exposure but may do so.

Exposure occurs when a harmful substance enters the body through a route, for example, inhalation, ingestion, absorption or injection, or when the body is irradiated

Due to the technical nature of hazardous materials operations, fire and rescue services must ensure their responders have the appropriate and specific skills, knowledge and understanding to maintain safety. 'FF5 - Protect the environment from the effects of hazardous materials' is the only specific hazardous materials National Occupational Standard (NOS) and is found in the Firefighters' Role Map. Incident commanders require a higher level of knowledge and understanding; this is not specified in the National Occupational Standard (NOS).

To support and manage their hazardous materials response, fire and rescue services may need personnel in specific hazardous materials roles. These may include hazardous materials adviser (HMA), decontamination director, mass decontamination subject matter adviser or tactical adviser (Tac Ad). The number, type and specification of these roles will vary according to the fire and rescue service's risk profile, risk management plan and equipment/appliances provided.

It should be noted that the term hazardous materials adviser (HMA) is a generic description for any person, with enhanced knowledge of emergency hazardous materials operations, used by a fire and rescue service to provide independent specialist advice to the incident commander. It includes such roles as the hazardous materials officer, hazardous materials and environmental protection officer/adviser (HMEPO/HMEPA), scientific adviser, etc. Their primary functions are to:

- Gather, filter and interpret technical information on hazardous materials for the incident commander
- Assess the risks posed by emergency hazardous materials incidents
- Advise the incident commander on developing a tactical response plan

Foundation material to enable fire and rescue service personnel to develop competence in hazardous materials operations includes:

[Fire and rescue service operational guidance - incidents involving hazardous materials, 2012, DCLG, TSO.](#)

[Fire service manual - volume 1, fire service technology equipment and media - Physics and chemistry for firefighters, 2001, Home Office, TSO.](#)



[The environmental protection handbook for the fire and rescue service, 2013, EA](#)

[Initial Operational Response to a CBRN\(e\) Incident](#), 2015, Joint Emergency Services Interoperability Programme (JESIP), Home Office.

[The dangerous goods emergency action code list 2017, 2017, NCEC, TSO.](#)

[The emergency response guidebook 2016 \(ERG\)](#), 2016, US Department of Transportation



Legislation

A hazardous materials response can be complicated by numerous pieces of legislation and regulation. In the main, legislation and regulation are the responsibility of those who produce, transport, use or store the substances. However, some do relate directly to fire and rescue services. All legislation relevant to fire and rescue services and industry is listed in A foundation for hazardous materials.

It is important for fire and rescue services to have personnel with specialist knowledge about hazardous materials to ensure that legal provisions designed to keep the community and responders safe are recognised, understood and maintained.



Risk management plan

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

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

Personnel who may be exposed to hazardous materials must be provided with suitable and sufficient information, instruction and training on:



- Possible risks to their health
- Precautions that must be taken
- Appropriate use of control measures



Responsibility of fire and rescue services

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

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