



National
Operational
Guidance

Training specification

Hazardous materials Health hazards



NFCC
National Fire
Chiefs Council

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Hazard - Exposure to materials with acute health effects

Knowledge and understanding

Hazard

Exposure to materials with acute health effects

Learning outcome

Understand all associated hazard knowledge



Control measure - Substance identification: Toxic materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Gather information and recognise symbols, labels and other marking to identify toxic materials

Learning outcome

Understand:

- Classification and labelling of toxic materials
- Signage identifying the presence of toxic materials
- Triangulation of information to confirm toxic material

Refer to – Substance identification – Hazardous materials training specification

Practical application



Control measure element

Learning outcome

Gather information and recognise symbols, labels and other marking to identify toxic materials

Demonstrate the ability to:

- Use signs, labels and markings to identify the presence of toxic materials
- Identify and interpret toxic materials incident information and where appropriate use detection equipment
- Use specialist advice to identify toxic materials information

Refer to – Substance identification – Hazardous materials training specification



Control measure - Cordon controls: Toxic materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Recognise the involvement of toxic materials and implement appropriate cordons

Understand:

- The importance of initial cordon controls to reduce exposure and contamination
- Instances when evacuation or shelter-in-place are necessary
- Limits and levels of exposure guidance to assist with tactical decisions
- Monitoring and/or modelling to determine protective actions
- Health monitoring protocols for people affected by toxic materials

Refer to – [Cordon controls – operations training specification](#)



Practical application

Control measure element

Learning outcome

Recognise the involvement of toxic materials and implement appropriate cordons

Demonstrate the ability to:

- Establish safe control and effective management of resources and the public
- Assess and monitor the effect of weather on airborne toxic materials
- Apply health surveillance procedures to monitor exposed responders

Refer to – [Cordon controls – operations training specification](#)



Control measure - Containment: Toxic materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Contain toxic materials

Understand:

- Key factors that determine how toxic substances are contained
- Alternative methods of managing toxic substances that cannot be contained
- Key properties that affect behaviour of toxic:
 - Solids
 - Liquids
 - Vapours

Refer to – [Containment – Environmental training specification](#)

Practical application



Control measure element

Learning outcome

Contain toxic materials	<p>Demonstrate the ability to:</p> <ul style="list-style-type: none"> • Assess the impact of a toxic substance release • Liaise with a specialist adviser to determine suitable methods of containment • Apply effective techniques to contain toxic substances • Reduce vaporisation by appropriate means • Effectively manage the mixing of toxic materials, containment systems and water <p>Refer to – Containment – Environmental training specification</p>
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Control measure - Safe method of work: Asbestos

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Apply Health and Safety Executive (HSE) approved safe methods of work once it is established asbestos is involved in an incident	<p>Understand:</p> <ul style="list-style-type: none"> • The common use of asbestos materials in buildings and structures • The three-step asbestos hazard identification process • The actions which should be taken in an asbestos work area • The precautions to be taken as part of the work method for asbestos containing materials • Fire and rescue service locally agreed safe method of work for asbestos incidents
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Practical application

Control measure element

Apply Health and Safety Executive (HSE) approved safe methods of work once it is established asbestos is involved in an incident

Learning outcome

Demonstrate the ability to:

- Identify and asses the risk from asbestos materials:
 - Three-step hazard identification process
- Instigate asbestos procedures
 - HSE agreed method of working



Hazard - Release or spill of corrosive material

Knowledge and understanding

Hazard

Release or spill of corrosive material

Learning outcome

Understand all associated hazard knowledge



Control measure - Substance identification: Corrosive materials

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Gather information and recognise symbols, labels and other marking to identify corrosive materials

Understand:

- Classification and labelling of corrosive materials
 - Signage identifying the presence of corrosive materials
 - Procedures for Litmus and pH scale testing of corrosive materials
 - Considerations when observing/monitoring for signs of corrosion
- Refer to – Substance identification – Hazardous materials training specification

Practical application

Control measure element

Learning outcome

Gather information and recognise symbols, labels and other marking to identify corrosive materials

Demonstrate the ability to:

- Use signs, labels and markings to identify the presence of corrosive materials
 - Identify and interpret corrosive material incident information and where appropriate use detection equipment
 - Use specialist advice to identify corrosive materials information
 - Assess the risk of fire from corrosive materials
- Refer to – Substance identification – Hazardous materials training specification



Control measure - Cordon controls: Corrosive materials

TRAINING SPECIFICATION



Knowledge and understanding

Control measure element

Learning outcome

Recognise the involvement of corrosive materials and implement appropriate cordons

Understand:

• Protection of personnel and public by effective and proportionate:

- Cordons
- Respiratory protection (RPE)
- Chemical protective clothing (CPC)

Refer to – [Cordon controls – operations training specification](#)

Practical application

Control measure element

Learning outcome

Recognise the involvement of corrosive materials and implement appropriate cordons

Demonstrate the ability to:

• Establish safe control and effective management of resources and the public

• Implement cordons based on:

- Quantity
- Location
- Physical state

• Establish contingency arrangements for contamination assessment and decontamination

• Apply health surveillance procedures to monitor exposed responders

Refer to – [Cordon controls – operations training specification](#)



Control measure - Containment: Corrosive materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Contain corrosive materials

Understand:

- The four principal ways of dealing with spills or release of corrosives
- The potential additional hazards from a reaction of corrosive materials and containment material

Refer to – [Containment – Environmental training specification](#)

Practical application

Control measure element

Learning outcome

Contain corrosive materials

Demonstrate the ability to:

- Assess the impact of a corrosive substance release
- Liaise with a specialist adviser to determine suitable methods of containment
- Apply effective techniques to contain corrosive substances
- Reduce vapourisation by appropriate means
- Effectively manage the mixing of corrosive materials, containment systems and water

Refer to – [Containment – Environmental training specification](#)



Control measure - Treatment: Corrosive materials

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Treat corrosive materials

Understand:

- Neutralisation of a spill
- The adverse effects and potential hazards of neutral 'Salt'
- Biodegradability of neutralised spills
- Liaison protocols with environmental agencies to consult on neutralisation tactics

Practical application

Control measure element

Learning outcome

Treat corrosive materials

Demonstrate the ability to:

- Access specialist advice to inform decision making
- Apply safe and effective methods of neutralisation



Control measure - Dilution: Corrosive materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Dilute corrosive materials

Understand:

- The process and potential hazards when diluting corrosive materials, as a last resort
- The criteria for consideration prior to dilution
- The general rule for dilution
- The potential environmental impact of diluting corrosive materials
- The limitations of diluting corrosive materials as a tactic

Refer to – [Dilution – Environmental training specification](#)



Practical application

Control measure element

Learning outcome

Dilute corrosive materials

Demonstrate the ability to:

- Confirm the suitability of corrosive materials for dilution
- Apply safe and effective methods of dilution

Refer to – [Dilution – Environmental training specification](#)



Hazard - Biological agents not involved in fire

Knowledge and understanding

Hazard

Learning outcome

Biological agents not involved in fire

Understand all associated hazard knowledge



Control measure - Substance identification: Biological agents

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Gather information and recognise symbols, labels and other marking to identify biological agents

Understand:

- Classification and labelling of biological agents
- Signage identifying the presence of biological agents
- Situations where biological agents may be encountered
- Biological agent transport categories
- Triple packaging systems

Practical application

Control measure element

Learning outcome

Gather information and recognise symbols, labels and other marking to identify biological agents

Demonstrate the ability to:

- Use signs, labels and markings to identify the presence of biological agents
- Identify and interpret biological agent incident information and where appropriate use detection equipment
- Use specialist advice to identify biological agent information

Refer to – Substance identification – Hazardous materials training specification



Control measure - Hazard identification within a controlled site or uncontrolled location

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Identify hazards within a controlled site or uncontrolled location

- Understand:
- The process of gathering hazardous materials information, including additional hazards, within controlled sites or uncontrolled locations
 - Liaison protocols with hazardous materials advisers and on-site specialists

Practical application

Control measure element

Learning outcome

Identify hazards within a controlled site or uncontrolled location

- Demonstrate the ability to:
- Gather hazardous materials information, including additional hazards, within controlled sites or uncontrolled locations
 - Liaise with hazardous materials advisers and on-site specialists to obtain hazardous materials information
 - Carry out environmental impact assessment from hazardous materials



Control measure - Containment: Biological agents

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Contain biological agents

- Understand:
- Containment and control measures for premises using/storing biological agents
- Refer to – [Containment – Environmental training specification](#)



Practical application

Control measure element

Learning outcome

Contain biological agents

Demonstrate the ability to:

- Assess the impact of a biological agent release
- Liaise with a specialist adviser to determine suitable methods of containment
- Apply effective techniques to contain corrosive substances
- Safe methods of working at a biological

Refer to – [Containment – Environmental training specification](#)



Control measure - Personal protective equipment (PPE): Biological agents

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Use personal protective equipment for biological agents

Understand:

- The minimum requirements for PPE and RPE in the absence of specialist advice

Refer to – Personal protective equipment (PPE): Hazardous materials – Hazardous materials training specification

Practical application

Control measure element

Learning outcome

Use personal protective equipment for biological agents

Refer to – Personal protective equipment (PPE): Hazardous materials – Hazardous materials training specification



Control measure - Firefighter decontamination: Biological agents

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Decontaminate firefighters who have been contaminated by biological agents

Learning outcome

Understand:

- Decontamination procedures for all levels of biological agent
- The capabilities and limitations of decontamination procedures
- The term 'contact time'
- The considerations of using disposable personal protective equipment (PPE)

Practical application

Control measure element

Decontaminate firefighters who have been contaminated by biological agents

Learning outcome

Demonstrate the ability to:

- Adopt and prepare decontamination procedures prior to entering the hazard area
- Refer to – Contaminated responders – hazardous materials training specification



Hazard - Biological agents involved in fire

Knowledge and understanding



Hazard

Learning outcome

Biological agents involved in fire

Understand all associated hazard knowledge



Control measure - Life saving actions: Biological agents

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Life saving actions: Biological agents

Understand:

- The process of assessing life risk at biological incidents
- The actions necessary to save life (including animals) where there is risk of biological agents

Practical application

Control measure element

Learning outcome

Life saving actions: Biological agents

Demonstrate the ability to:

- Asses the existence of life risk at biological incidents
- Implement procedures to perform life saving actions (including animals) in the hazardous material environment
- Establish safe areas to minimise contamination



Control measure - Appropriate intervention: Biological agents involved in fire

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element	Learning outcome
Appropriate intervention: Biological agents involved in fire	<p>Understand:</p> <ul style="list-style-type: none"> • Containment of biological agents – See control measure – Containment: Biological agents • How biological agents may react in a fire situation • Appropriate intervention techniques without increasing risk of firespread • The importance of identifying risk information where biohazard symbols are displayed

Practical application

Control measure element	Learning outcome
Appropriate intervention: Biological agents involved in fire	<p>Demonstrate the ability to:</p> <ul style="list-style-type: none"> • Communicate with on-site specialist to inform operational decision making • Assess incident information to determine appropriate intervention tactics • Implement appropriate intervention actions relative to the situation



Control measure - Controlled burning: Biological agents

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Controlled burning of biological agents

Understand:

- The importance of specialist advice when performing a controlled burn of biological hazards
- The limitations of control systems to prevent escape of biological hazards
- Pollution control procedures to prevent spread of contamination

Practical application

Control measure element

Learning outcome

Controlled burning of biological agents

Demonstrate the ability to:

- Perform a controlled burn in a safe, efficient and effective manner
- Implement pollution control procedures and communicate to relevant agencies

Refer to – Controlled burning – Fires and firefighting training specification



Hazard - Radioactive contamination

Knowledge and understanding

Hazard

Learning outcome

Radioactive contamination

Understand all associated hazard knowledge



Control measure - Substance identification: Radioactive materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Gather information and recognise symbols, labels and other marking to identify radioactive materials

Learning outcome

Understand:

- Classification and labelling of radioactive materials
- Signage identifying the presence of radioactive materials

Practical application

Control measure element

Gather information and recognise symbols, labels and other marking to identify radioactive materials

Learning outcome

Demonstrate the ability to:

- Use signs, labels and markings to identify the presence of radioactive materials
- Identify and interpret radioactive material incident information and where appropriate use detection equipment
- Use specialist advice to identify radioactive materials information

Refer to – Substance identification – Hazardous materials training specification



Control measure - Cordon controls: Radioactive materials

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Recognise the involvement of radioactive materials and implement appropriate cordons

Understand:

- Initial assessment of contaminated areas to identify appropriate hazard zones
- Procedures to manage, monitor and maintain personnel and public safety

Practical application

Control measure element

Learning outcome

Recognise the involvement of radioactive materials and implement appropriate cordons

Demonstrate the ability to:

- Establish safe control and effective management of resources and the public
- Implement cordons appropriate to the potential source of radiation
- Apply monitoring and decontamination procedures

Refer to – [Cordon controls - operations training specification](#)



Control measure - Warn, inform and advise people

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Warning, informing and
advising people

Understand:

- The legislation regarding the requirement for responders to:
- Make information available to the public about civil protection matters
- Maintain arrangements to warn, inform and advise the public in the event of an emergency
- Why information to the public may have to be restricted
- How information communicated to, or withheld from people can influence their behaviour
- The characteristics of appropriate warnings, information and advice
- Methods for providing warnings, information, and advice

Practical application

Control measure element

Learning outcome

Use the most effective methods for communicating with people who are either directly or indirectly involved in the incident

Demonstrate the ability to:

- Use effective methods to warn, inform and advise people
- Provide information that is:
 - Specific and clear
 - Timely and accurate
 - Credible and verifiable
 - Appropriate to the nature and extent of the danger

Consider the use of media, social media and other methods to communicate with people

Demonstrate the ability to:

- Choose appropriate methods to communicate with people



Control measure element

Learning outcome

Establish a media liaison point and brief a nominated media liaison officer

- Demonstrate the ability to:
- Establish a media liaison point
 - Brief the nominated media liaison officer



Control measure - Evacuation and shelter

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Evacuation of people

- Understand:
- The definition of evacuation
 - Why the evacuation or shelter of people may be required
 - The planning that is required for evacuation or shelter of people, and who is responsible for this
 - The need to develop a joint understanding of risk for operational and fire control personnel for evacuation, shelter or 'stay put'
 - The roles and responsibilities of the:
 - Police
 - Local authority
 - Strategic Co-ordinating Group (SCG)
 - The hazards and risks associated with emergency evacuation
 - The behaviour of people in emergency situations
 - The factors that influence evacuation plans
 - The considerations for incorporating evacuation procedures into incident plans
 - The wider impact of dealing with significant numbers of evacuated people
 - How to access information on evacuation plans



Control measure element	Learning outcome
Fires in buildings	Understand: <ul style="list-style-type: none">• Evacuation plans for buildings• Evacuation strategies for buildings• Categories of evacuation procedure
Total evacuation	Understand: <ul style="list-style-type: none">• What is simultaneous evacuation• What is phased evacuation
Progressive evacuation	Understand: <ul style="list-style-type: none">• What is progressive horizontal evacuation• What is zoned evacuation
Evacuation or escape strategies	Understand: <ul style="list-style-type: none">• The types of evacuation or escape strategies• The purpose of 'stay put' or 'defend in place'• The factors that should be considered when determining the evacuation strategy
Evacuation of medical facilities	Understand: <ul style="list-style-type: none">• The types of evacuation used in medical facilities• The role of the fire and rescue service when assisting with evacuation at medical facilities
Hazardous materials	Understand: <ul style="list-style-type: none">• The need for an evacuation or shelter plan• The role of a hazardous materials adviser when determining the appropriate course of action to protect the public
Practical application	



Control measure element

Learning outcome

Determine whether people should be advised to evacuate, shelter in place or 'stay put'

Demonstrate the ability to:

- Determine whether evacuation, shelter in place or 'stay put' is appropriate:
 - Record rationale for decision
 - Ensure the fire control room understands the decision
 - Inform the people affected

Establish communication arrangements to allow information to be gathered from and passed to fire control rooms

Demonstrate the ability to:

- Establish appropriate and resilient communication arrangements between the incident ground and the fire control room

Identify the most appropriate evacuation plan and record rationale for decision

Demonstrate the ability to:

- Develop an evacuation strategy using available information

Establish the availability of pre-arranged evacuation strategies and policies

Demonstrate the ability to:

- Identify and access available pre-arranged evacuation strategies and policies
- Liaise with the responsible person to obtain advice relating to evacuation arrangements

When evacuation is necessary, identify the number of people affected and develop a plan

Demonstrate the ability to:

- Identify the number of people that require to be evacuated and develop a plan

Consider people who need assistance to evacuate, for example, disabilities or medical needs

Demonstrate the ability to:

- Gather information to identify any people who need assistance to evacuate, or may be unaware of the need to evacuate



Control measure element

Learning outcome

Establish a safe evacuation point and consider safe egress routes and refuge points or areas

Demonstrate the ability to:

- Identify and establish safe evacuation points, safe egress routes and refuge points
- Be prepared to revise locations of evacuation points and refuge points
- Be prepared to revise safe egress routes at any time

Assess the suitability of the location for people to shelter in place

Demonstrate the ability to:

- Determine a suitable location for people to shelter in place
- Be prepared to revise the location for people to shelter in place

Review the use and effectiveness of evacuation, shelter in place or 'stay put' plans throughout the incident, to ensure they remain valid

Demonstrate the ability to:

- Review the use and effectiveness of evacuation, shelter in place or 'stay put' plans throughout the incident
- Be prepared to revise the evacuation, shelter in place or 'stay put' plans at any time

Consider the impact of the incident on the local community and consider a shelter in place strategy

Demonstrate the ability to:

- Take into account the impact of the incident on the surrounding area
- Consider the need to develop a shelter in place strategy for the local community

Assess the likely impact of people on emergency responders

Demonstrate the ability to:

- Identify where the behaviour of people may affect an evacuation
- Assess the impact of people, including those evacuating, on emergency responders



Control measure element

Learning outcome

Make contact with the relevant authorities for advice on evacuation arrangements and progress

Demonstrate the ability to:

- Recognise where the involvement of other agencies is required to assist with evacuation
- Work with multi-agency partners to conduct an effective evacuation



Control measure - Containment: Radioactive materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Learning outcome

Contain radioactive materials

Understand:

- The hierarchy of pollution control to contain unsealed sources of radiation
- Procedures to manage and maintain control of radioactive materials

Practical application

Control measure element

Learning outcome

Contain radioactive materials

Demonstrate the ability to:

- Apply the hierarchy of pollution control to contain unsealed sources of radiation
- Establish procedures to manage and maintain control of radioactive materials
- Liaise with a specialist advisers/agencies to manage risk from radioactive materials



Control measure - Firefighter decontamination: Radioactive materials

TRAINING SPECIFICATION

Knowledge and understanding

Control measure element	Learning outcome
Firefighter decontamination: Radioactive materials	Understand: <ul style="list-style-type: none">• Firefighter decontamination procedures for radioactive materials• The need for medical intervention when personnel have been exposed to radioactive materials

Practical application

Control measure element	Learning outcome
Firefighter decontamination: Radioactive materials	Demonstrate: <ul style="list-style-type: none">• Firefighter decontamination procedures for radioactive materials• The need for medical intervention when personnel have been exposed to radioactive materials



Control measure - Decontamination: Radioactive materials

TRAINING SPECIFICATION



Knowledge and understanding

Control measure element

Learning outcome

Decontamination: Radioactive materials

Understand:

- Public decontamination procedures for radioactive materials

Refer to control measure – [Firefighter decontamination: Radioactive materials](#)

Practical application

Control measure element

Learning outcome

Decontamination: Radioactive materials

Demonstrate the ability to:

- Establish public decontamination procedures for radioactive materials

Refer to control measure – [Firefighter decontamination: Radioactive materials](#)



Hazard - Exposure to radiation

Knowledge and understanding

Hazard

Learning outcome

Exposure to radiation

Understand all associated hazard knowledge



Control measure - Substance identification: Radioactive materials



TRAINING SPECIFICATION

Knowledge and understanding

Control measure element

Gather information and recognise symbols, labels and other marking to identify radioactive materials

Learning outcome

Understand:

- Classification and labelling of radioactive materials
- Signage identifying the presence of radioactive materials

Practical application

Control measure element

Gather information and recognise symbols, labels and other marking to identify radioactive materials

Learning outcome

Demonstrate the ability to:

- Use signs, labels and markings to identify the presence of radioactive materials
- Identify and interpret radioactive material incident information and where appropriate use detection equipment
- Use specialist advice to identify radioactive materials information

Refer to – Substance identification – Hazardous materials training specification



Control measure - Manage the radiation dose received by firefighters

TRAINING SPECIFICATION

Knowledge and understanding



Control measure element

Learning outcome

Manage the radiation dose received by firefighters to as low as reasonably practicable (ALARP)

Understand:

- The factors for managing exposure to radiation:
 - Time
 - Distance
 - Shielding
- The use of personal dosimeters
- The use of dose rate survey meters
- The considerations prior to an exposure event

Practical application

Control measure element

Learning outcome

Manage the radiation dose received by firefighters to as low as reasonably practicable (ALARP)

Demonstrate the ability to:

- Assess the need for fire service exposure to radiation source(s)
- Employ the principles for managing exposure to radiation:
 - Time
 - Distance
 - Shielding
- Use personal dosimeters
- Use dose rate survey meters
- Monitor and record radiation exposure information