



National  
Operational  
Guidance

# Training specification

**Hazardous materials Health hazards**



**NFCC**  
Fire Central  
Programme Office

Developed and maintained by the NFCC

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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

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### Control measure element

Recognise the involvement of toxic materials and implement appropriate cordons

### Learning outcome

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

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## TRAINING SPECIFICATION

### Knowledge and understanding

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#### Control measure element

Contain toxic materials

#### Learning outcome

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

Demonstrate the ability to:

- 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 vapourisation by appropriate means
- Effectively manage the mixing of toxic materials, containment systems and water

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



## 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

Understand:

- 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



## Practical application

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### 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

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### Knowledge and understanding

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#### Hazard

Release or spill of corrosive material

#### Learning outcome

Understand all associated hazard knowledge



## Control measure - Substance identification: Corrosive materials

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## 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

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### 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

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### 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

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## TRAINING SPECIFICATION

### Knowledge and understanding

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#### 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

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#### 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

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## 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

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### 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

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## Knowledge and understanding

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### Hazard

### Learning outcome

Biological agents not involved in fire

Understand all associated hazard knowledge



## Control measure - Substance identification: Biological agents

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## 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	<p>Demonstrate the ability to:</p> <ul style="list-style-type: none"> <li>• Assess the impact of a biological agent release</li> <li>• Liaise with a specialist adviser to determine suitable methods of containment</li> <li>• Apply effective techniques to contain corrosive substances</li> <li>• Safe methods of working at a biological</li> </ul> <p>Refer to – <a href="#">Containment – Environmental training specification</a></p>



## 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	<p>Understand:</p> <ul style="list-style-type: none"> <li>• The minimum requirements for PPE and RPE in the absence of specialist advice</li> </ul> <p>Refer to – Personal protective equipment (PPE): Hazardous materials – Hazardous materials training specification</p>

#### Practical application

Control measure element	Learning outcome
Use personal protective equipment for biological agents	<p>Refer to – Personal protective equipment (PPE): Hazardous materials – Hazardous materials training specification</p>



## 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

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#### Control measure element

Appropriate intervention: Biological agents involved in fire

#### Learning outcome

Understand:

- 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

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#### Control measure element

Appropriate intervention: Biological agents involved in fire

#### Learning outcome

Demonstrate the ability to:

- 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

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## 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

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#### 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

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#### 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

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## 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



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**Control measure element**

**Learning outcome**

Warning, informing and  
advising people

Understand:

- The relevant legislation regarding emergency services obligations to warn, inform and advise the public
- The groups of people who may require warning, information, instruction and updates
- How appropriate warning, information, instruction and updates affect behaviours of people in emergency situations
- How lack of appropriate warning, information, instruction and updates affect behaviours of people in emergency situations
- The characteristics of appropriate warnings
- Methods for providing warnings, information, instruction and updates to people in emergency situations
- How to identify, control and manage the public's access in the vicinity of the incident

**Practical application**



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**Control measure element**

**Learning outcome**

Warn, inform and advise  
people

- Demonstrate the ability to:
- Use appropriate means to warn, inform, instruct and update public
  - Provide information that is
    - Specific
    - Comprehensible
    - Timely
    - Credible
    - Provides cues that are identifiable for action
  - Instigate appropriate procedures for warning public according to the environment and nature of warning and consider the use of:
    - Media
    - Social media
    - On foot/in person
    - PA announcements
  - Establish and maintain an appropriate contact in line with service procedure



## Control measure - Evacuation and shelter

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### TRAINING SPECIFICATION

#### Knowledge and understanding



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**Control measure element**

**Learning outcome**

Evacuation of people

Understand:

- The hazards and risks associated with emergency evacuation
- The potential behaviour of people in emergency situations
- The emergency evacuation procedures for differing situations
- The considerations for incorporating evacuation procedures into incident plans
- The impact of disruption to transport networks whilst dealing with large numbers of people at transport related incidents
- The wider impact of dealing with significant numbers of evacuated people

**Practical application**

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**Control measure element**

**Learning outcome**

Use appropriate systems to maintain the safety of people

Demonstrate the ability to:

- Liaise with the responsible person to obtain advice relating to evacuation arrangements
- Identify where 'evacuation' or 'stay put' is appropriate and record rationale for decision
- Perform an evacuation according to agreed service protocols
- Recognise where the involvement of other agencies is required to assist evacuation
- Identify the availability of emergency plans that support an evacuation
- Develop an evacuation strategy using available information
- Identify safe egress routes and refuge points
- Identify where the behaviour of people may affect an evacuation
- Put in place control measures to limit hazards to public and staff during evacuation
- Establish welfare arrangements for people evacuated from transport incidents





## Control measure - Containment: Radioactive materials

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### TRAINING SPECIFICATION

#### Knowledge and understanding

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Control measure element	Learning outcome
Contain radioactive materials	Understand: <ul style="list-style-type: none"><li>• The hierarchy of pollution control to contain unsealed sources of radiation</li><li>• Procedures to manage and maintain control of radioactive materials</li></ul>

#### Practical application

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Control measure element	Learning outcome
Contain radioactive materials	Demonstrate the ability to: <ul style="list-style-type: none"><li>• Apply the hierarchy of pollution control to contain unsealed sources of radiation</li><li>• Establish procedures to manage and maintain control of radioactive materials</li><li>• Liaise with a specialist advisers/agencies to manage risk from radioactive materials</li></ul>



## Control measure - Firefighter decontamination: Radioactive materials

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### TRAINING SPECIFICATION



## Knowledge and understanding

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### Control measure element

### Learning outcome

Firefighter decontamination: Radioactive materials

Understand:

- Firefighter decontamination procedures for radioactive materials
- The need for medical intervention when personnel have been exposed to radioactive materials

## Practical application

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### Control measure element

### Learning outcome

Firefighter decontamination: Radioactive materials

Demonstrate:

- Firefighter decontamination procedures for radioactive materials
- The need for medical intervention when personnel have been exposed to radioactive materials



## Control measure - Decontamination: Radioactive materials

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## 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

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### Control measure element

### Learning outcome

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

Understand:

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

## Practical application

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### Control measure element

### Learning outcome

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

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

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## TRAINING SPECIFICATION

### Knowledge and understanding



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**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**

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**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