



National
Operational
Guidance

Control measure

**Manage the radiation dose received
by firefighters**



NFCC
National Fire
Chiefs Council

Developed and maintained by the NFCC



Contents

Control measure - Manage the radiation dose received by firefighters 3



Control measure - Manage the radiation dose received by firefighters

Control measure knowledge

The radiation dose received by firefighters should be kept as low as reasonable practicable (known as ALARP). Exposure is reduced by managing these factors:

- Time
- Distance
- Shielding

Fire and rescue services may or may not be required to intervene; in any case, a hazard/exclusion zone should be established. Any members of the public or personnel should be immediately withdrawn until specialist advice is available. The perimeter should be set where the background reading is consistent with the normal background reading for that location or where recommended by site-/incident-specific specialist advice.

Should no intervention be required, the cordon should be managed appropriately until such time as the scene can be handed over to the appropriate authority.

If an intervention is deemed necessary, anyone entering the hazard zone must be equipped with a personal dosimeter and each team should be equipped with a dose rate survey meter. To ensure exposure is minimised, the incident commander should:

- Consider the location and type of the source (i.e. unsealed or sealed). An inventory and local rules should be available where radionuclides are held legally.
- Consider the potential of damage to the source(s)
 - Does any packaging or shielding appear to have been damaged?
- Make use of any transport index that may be available, whilst deploying monitoring equipment (The transport index is the maximum dose rate in micro Sieverts per hour divided by 10 when measured at one metre from the surface of the packaging)
- Keep crews committed to the hazard zone to a minimum
- Ensure each crew has one crew member dedicated to constantly monitoring the detection equipment – where the task can be performed by one crew member the minimum crew can remain at two
- Ensure the person deploying the survey meter is competent in using fire and rescue service radiation monitoring equipment

Strategic actions

Fire and rescue services should:

- Provide procedures and support arrangements regarding the hazards that may be encountered and actions to take when managing radiation doses at operational incidents
- Provide procedures and training for incidents declared as radiation emergencies, including authorisation for using informed volunteers
- Provide equipment to actively measure the dose rate from any potential radiation source. See A foundation for hazardous materials for further information on radiation instrumentation
- Ensure the dose limits and all other regulations are adhered to in all operational guidance
- Consider adopting a dose constraint below the legal dose limits
- Make arrangements with relevant organisations to ensure specialist advice is available from the scene of an incident. For further information on sources of specialist advice see A foundation for hazardous materials.

Tactical actions

Incident commanders should:

- Keep exposure to ionising radiation 'as low as reasonably practicable' (ALARP) in all cases
- Employ the principles of time, distance and shielding
- Where it is necessary to commit personnel to the hazard area, keep the number of personnel to a minimum
- Establish, record, communicate and continually monitor the level of background radiation
- Ascertain if the packaging or shielding for the radiation source has been damaged



- Determine whether or not the fire and rescue service are required to enter the radiation hazard zone
- Monitor radiation dose rates periodically and keep individual accumulated dose records of everyone who has entered the risk area