National Operational Guidance

Hazard

Ineffective communications: Underground structures

NFCC National Fire Chiefs Council

Developed and maintained by the NFCC

Contents

Hazard - Ineffective communications: Underground structures

Hazard Knowledge

Normal fire service radio telecommunications may be rendered ineffective when operating in subsurface environments and infrastructure.

Communications used for fire and rescue service purposes at an incident will be greatly enhanced by pre-planning and testing the range and extent of signals, including joint testing with other agencies and infrastructure managers.

In some circumstances limited installed infrastructure can support communications with existing fire and rescue service systems. For example, a relatively short tunnel that allows good, uninterrupted radio coverage in all reasonably foreseeable circumstances should not require the additional provision of a fire and rescue service 'leaky feeder'.

Fire and rescue services should take care when accepting the use of the infrastructure's own communication equipment, particularly if this is hardwired telephone communications to a control point. The potential implications, including the loss of communication at a critical time, require careful examination.

In some circumstances, it may be beneficial for fire and rescue services to enter into local agreements with other responding agencies and organisations who can provide communications support.

Noise can also cause unnecessary harm and interfere with communication or emergency signals.

Communications with other agencies

Incidents involving tunnels and underground structures can present some significant challenges for communications infrastructure. There are no simple rules that can be applied and the communications problems found in individual locations need to be considered and overcome using operational fire and rescue service and multi-agency methods as well as the fixed systems supplied in many modern structures.

Historically, communications, both internal and external, have been identified as areas of weakness in post-incident investigations and debriefs. Therefore, fire and rescue service incident commanders should carefully consider their methodology for communicating with other responders, including:

- AIRWAVE radio system, using interagency radio channels
- The potential danger of reliance on mobile telephone networks
- Field telephones between emergency service control vehicles
- Runners if appropriate
- Inter-agency liaison officers
- Any mutually agreed method to overcome local difficulty
- Silver meetings to confirm the incident situation and inter-service communications structures and limitations.

Control measure - Effective communications

Control measure knowledge

Incident commanders should establish resilient telecommunications arrangements and carry out regular testing to confirm that contact has not been lost with crews operating in subsurface environments and infrastructure.

For incidents, particularly in older infrastructure, it may be appropriate to mobilise or request an attendance to more than one location. This will assist where:

- There is limited or no smoke ventilation or fire stopping
- There is limited or no effective communication system

The incident commander will need to consider establishing and maintaining:

- Communications with the tunnel operator
- Communications with fire control
- Using UHF radios, assign channels, and agree on call signs
- Communications with other agencies
- Communications within the subsurface environment

Strategic actions

Fire and rescue services should:

- Ensure that they have resilient telecommunication arrangements for any subsurface environments and infrastructure identified as risks within their service area

Tactical actions

Incident commanders should:

- Establish and regularly monitor the effectiveness of communications with personnel operating in subsurface environments