LONDON FIRE BRIGADE

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Freedom of Information request: Reference number FOI2026/00544

Date of request: 13th May

Request:

1. Is there an airwave or radio policy in which you can disclose. Preferably policies surrounding the use of the Motorola airwave / fire link which discusses the use of San J radios etc and radio channels, use of radios and security etc

2. Do you also have any policy or documentation regarding the communication/air wave tactical advisor role. What is the airwave /communication tactical advisor role and responsibilities, training, CPD, equipment and if and when they get deployed.

   This is for a case study/revision.

Response:

1. Is there an airwave or radio policy in which you can disclose. Preferably policies surrounding the use of the Motorola airwave / fire link which discusses the use of San J radios etc and radio channels, use of radios and security etc

   The Brigade uses Airwave as the primary means to maintain contact between Brigade Control and an incident, both as a voice system and using data over mobile data terminals (MDTs). Airwave is also used by many partner organisations, and channels are allocated for multi-agency use. The channels or talk groups used include a mixture of operational, interagency, command, event, multi-agency and training ones. The relevant policy framework is not contained within a single document but spans a number of policies, including Policy 0336 (Mobile Communication Devices) and PN0977 (All Incident Consideration). Please note that Policy 0518 also forms part of this framework; however, the content of these policies includes information that we are not in a position to release in full.

2. Do you also have any policy or documentation regarding the communication/air wave tactical advisor role. What is the airwave /communication tactical advisor role and responsibilities, training, CPD, equipment and if and when they get deployed.

   The Brigade has a cadre of Communications Tactical Advisors who support operational communications and Airwave for both spontaneous and pre-planned events across London. They can be called upon at any time as required, as well as attending pre-planned event preparation in advance of an event. The Communications Tactical Advisor role is based on a College of Policing course, which requires three initial days of attendance and assessments, followed by annual refreshers and ongoing continuing professional development (CPD).

We have dealt with your request under the Freedom of Information Act 2000. For more information about this process please see the guidance we publish about making a request on our website: https://www.london-fire.gov.uk/about-us/transparency/request-information-from-us/

LONDON FIRE BRIGADE

Policy number: 977
Version date: 1 October 2025

All incident considerations

UPDATED POLICY

This policy should be read with:

All foundation documents
PN977a - Lithium-ion batteries - all incident considerations - SOP

Official

Policy summary

This foundation documents deals with the hazards and considerations that may be present at all types and sizes of emergency incidents.

- Responsible Head of Service is the Assistant Commissioner, Operational Policy
- Responsible team is Fire and Operational Support

Contents

1. Introduction

1.1 This policy provides guidance to assist with the response to and management of all operational incidents. It provides a generalised description of the hazards that are most commonly encountered during an incident and the control measures that can be implemented to remove or reduce risk to firefighters, other emergency responders and members of the public.

1.2 Clearly not all the hazards described in this policy will be present at every incident the London Fire Brigade (LFB) attends.

1.3 Based on an assessment of which hazards are present, the information that is described in this policy should be used in conjunction with the incident-specific guidance that is provided in the relevant Standard Operating Procedure (SOP), to either remove the hazard or reduce the risk to a level that is 'as low as reasonably practicable' ('ALARP').

1.4 The control measures which are selected for implementation during a particular incident should take into account the more detailed description of the hazards and tactical options which are set out in the SOP, based upon:

- The incident type, size and potential for escalation;
- the number of people involved;
- the location of the incident, the design and condition of any buildings or vehicles involved and the potential impact of the incident on the community; and/or
- the type, amount or volume and hazard presented by any materials that may be involved.

2. Key terms and concepts

2.1 The definitions and concepts described here apply to all LFB operational policies and procedures.

2.2 The term **'hazard'** is used to describe anything - such as an object, the property of a substance or an activity - which has the potential to cause harm or loss.

2.3 The term '**risk'** is a two-part concept. It is a combination of the likelihood that a harm or loss will occur together with an assessment of the severity of its impact or consequences.

Risk can be expressed as a numerical probability or frequency (such as when scores assigned to likelihood and severity are presented in a risk assessment) or they can be defined in a qualitative way, as when risk is described in operational policy.

2.4 A **'control measure'** is any action taken that is intended to remove or reduce the level of risk. It should be noted that most actions that LFB takes during an incident are designed to remove or reduce the likelihood of a harm or loss occurring.

2.5 For all the hazards that are identified in operational policies and their supporting risk assessments, the Brigade has identified the control measures that are available to reduce the risk.

2.6 The aim during an incident is for the Incident Commander (IC) to implement sufficient control measures to reduce the level of risk to 'as low as reasonably practicable' (which is often referred to as 'ALARP'). This should be achieved by taking those actions that are identified as being necessary to maintain the safety of firefighters, the public and other responders, and to minimise the impact of the incident on the community.

2.7 Health, safety, and welfare should be considered throughout an incident. The identification of hazards, assessment of risk and implementation of control measures should continue until the incident is closed to ensure that the actions being taken are suitable and sufficient to manage the prevailing situation.

2.8 For further information regarding managing risk, see the Operational Safety Management Framework and Policy number 673 – Risk assessment procedure.

2.9 The terms 'must', 'should' or 'may' are used to indicate whether actions are either mandatory, recommended or are to be considered as an option.

- The term **'must'** is used to indicate a mandatory requirement. Its use relates either to the requirement to comply with a statutory duty or to an action that has been determined by the Brigade as mandatory for operational reasons.
- The term **'should'** indicates a recommended action, in respect of which, there is a clear expectation that it will be adhered to, unless there are reasonable grounds to depart from it.
- The term **'may'** is used where there is choice of options to which there is an expectation that consideration will be given.

3. Hazards

The following hazards may be encountered when responding to or during any incident and they have been formally assessed as part of **Risk Assessment 1 – All incidents**.

Hazards that can potentially affect firefighters, personnel from other responding agencies and members of the public

3.1 **Moving traffic** – This hazard is present on all roadways until they are closed. The risk of personnel colliding with vehicles remains during all phases of the incident, up to and including leaving the scene.

3.2 **Restricted or difficult access and egress** – any restriction to access or egress for vehicles may lead to delay and insufficient resources being available to deal with the incident. Poor vehicular access/egress can also increase the risk of collision.

3.3 **Restricted or difficult access and egress** – access or egress for personnel may be delayed or made more dangerous by:

- Using inappropriate entrances (e.g. small windows);
- the presence of multiple doors or objects in corridors/stairways;
- code entry or other security systems;
- security doors or multi-lock systems;
- barbed wire or spikes on walls/fences;
- displaced cables;
- entrances being positioned at height (e.g. for aircraft); and/or
- any failure to gather information regarding alternative routes in or out.

Where access is limited to a single point, firefighters entering a building or other confined space/area may not be able to avoid any hostile conditions present at that location.

3.4 **Lack of familiarity with the incident location** – if firefighters or other persons are in a premises or place where they lack familiarity, they may:

- Lack the information or capacity to move around or evacuate;
- be unable to use available systems (e.g. those controlling ventilation);

- not be able to control or shut down the source of any hazards; and/or
- not understand or appreciate the significance of any hazards or occupants that may be present.

3.5 **Loss of communication** – radio and other communications systems can be adversely affected by building construction and/or the size and layout of an incident. The resulting 'blind spots' - together with any system or equipment failure - can prevent the gathering and sharing of information.

3.6 **Moral pressure to act** – public pressure may make firefighters, and other responders feel compelled to act in ways that create unjustifiable levels of risk for themselves and others. This can lead to pressure to act immediately – even though the incident may be beyond the capacity of resources available at the time – and can mean that conditions at an incident will worsen, if there is a delay in dealing with an incident. This risk can be increased when working at a remote location or where difficult access might delay the arrival of additional resources or incidents involving a person in crisis (see paragraph 3.29).

3.7 **Incident or event that exceeds an individual's capacity to respond effectively** – firefighters or other responders may be overwhelmed by an incident, particularly during situations that are dynamic, dangerous and/or emotionally charged. When this happens, personnel are likely to show signs of stress, such as by 'freezing' or by failing to decide or act in a timely manner; this creates a risk of stress and other mental health problems for the individual(s) concerned and can also lead to the severity/adverse impact of the incident becoming worse.

3.8 **Slips, trips and falls** – are typically associated by surfaces that are wet, muddy, covered in ice, uneven or unstable; they can also be caused by people coming into contact with obstacles, which includes LFB equipment and hose lines.

3.9 **Manual handling** – any activity that involves transporting or supporting a load by hand or bodily force (such as pushing, lifting or carrying) carries a risk of physical injury.

3.10 **Poor visibility at an incident** – where light levels are reduced by darkness or the presence of materials such as smoke there is a risk of colliding with obstacles, tripping or falling.

3.11 **Heat illness (including metabolic heat stress)** – can arise when firefighters and other people at an incident are in high ambient temperatures and/or high levels of humidity. The risk of heat illness is increased by a higher intensity work rate, when working in confined or unventilated spaces and when working for prolonged periods in Personal Protective Equipment (PPE).

3.12 **Exposure to weather** – when an incident is located in an open area, there is a risk for firefighters and others if they are exposed to either hot or cold weather conditions, particularly when this is for prolonged periods of time.

3.13 **Noise and vibration** – there is a risk of injury, such as damage to hearing or hand-arm vibration exposure, when working with or close to vehicles, equipment or machinery that generates excessive noise or vibration. Noisy environments also create a risk that persons may misunderstand or not receive verbal information or instructions.

3.14 **Oxygen deficient atmosphere** – the risk of asphyxiation (oxygen deprivation) can arise in environments where there is no or little ventilation (e.g. sewers) or due to the displacement of oxygen by systems (such as those used for fire suppression). As well as creating breathing difficulties and the risk of suffocation, a lack of oxygen can impair a person's ability to think and make decisions.

3.15 **Exposed or damaged utilities** – the presence and any damage to utilities such as electricity, gas or water can create a range of risks, including electrocution and electric shock, persons becoming trapped in displaced cables, irrespirable atmosphere, the possibility of explosion and the risk of drowning. Any loss of water supply can also adversely impact on the availability of water for firefighting or decontamination.

3.16 **Objects falling from height** – falling objects can injure people or damage vehicles/equipment. This risk is often at its greatest when an incident involves a tall building or mass transit (e.g. aircraft) where falling objects might be encountered when entering, exiting, or moving around or at construction sites.

As well as injury and damage, falling objects can cause structural collapse and, if the object is affected by mechanical shock, create a risk of explosion e.g. acetylene cylinders.

3.17 **Falling from height** – is often associated with the failure or non-existence of external walls, panels, guard rails or windows. This hazard can also be required when it is necessary to access or leave the scene of operations by ladder, when using line operations or when working adjacent to an elevated fragile surface e.g. a glass roof.

3.18 **Moving machinery** – when involved in an incident, machinery can create the risk of injury from persons becoming trapped, crushed or entangled, or sustaining burns, electric shock or electrocution from power supply and/or any hazardous substances that are present.

3.19 **Contamination (personnel)** – this can arise at any incident where substances that are hazardous to health are present.

3.20 **Contamination (appliances and equipment)** - this can arise whenever vehicles or equipment is used at any incident where substances that are hazardous to health and/or which would impair their safe and effective use.

3.21 **Structural deterioration** – can be encountered whenever the impact of events such as fire, explosion, collision, severe weather or flooding adversely affects the integrity of any structure or mode of transport. As well as the risk of crushing or penetrating injuries, there can also be a risk associated with particulate matter created by crushed building materials e.g. concrete.

3.22 **Penetration hazards** – the presence of needles, security fencing or spikes present a risk of laceration, penetration and/or contamination at an incident. Additionally, glass, cuts made to a vehicle during an RTC and/or any failure of high-pressure cutting equipment carries a risk of laceration and high-pressure injection injury.

3.23 **Deliberate, malicious or hostile acts or environments** – there are a wide range of acts or events that can create additional risk at any incident, including:

- Anti-social behaviour or any verbal or physical abuse directed towards personnel;
- vandalism or deliberate fire setting;
- objects dropped from height or the setting of traps;
- illegal use of a premises;
- unlawful or hostile activities such as terrorism; and/or
- self-harming, attempted or actual suicide.

Any of the above, either singularly or in combination, may threaten the safety of firefighters and others; some activities may also increase the risk of electrical hazards (due to illegal access to electricity supplies) or involve a risk of physical attack (using a knife or gun).

3.24 **Dangerous animals** – any animals encountered during an incident may behave in an unpredictable and dangerous manner (creating a risk of injury due to biting, clawing, or crushing) and can also pose a risk of infection from a virus or bacteria. Dogs used for security purposes can be either free to roam or held on long leashes.

3.25 **Radio frequency radiation** – the presence of radio, radar and/or microwave antenna or installations can create a risk from non-ionising radiation (such as burns or tissue damage).

3.26 **Adverse environmental impact of fire service operations** – operational activities can lead to contamination if materials that are stored, used, or being transported are disturbed or released during an incident. There can also be a risk created by any firefighting media LFB uses during an incident e.g. water run-off.

3.27 **Distressing or traumatic experience** – any emergency incident creates the potential to see or hear scenes or events that can an adverse effect on firefighters' and others well-being or mental health. This

risk is likely to be greatest when attending an incident but can also be experienced by those undertaking roles that are remote from the scene or indirectly when exposed to images or accounts of a traumatic event.

3.28 **Failure to properly review or investigate an incident or safety event in line with LFB procedures** – this risk can arise if there is any failure to gather, analyse and/or report information that is necessary to support LFB's organisational improvement. It should also be noted that if an incident results from a malicious or illegal act, any failure to make reasonable attempts to establish the cause of an incident could have an adverse impact on any subsequent criminal investigation.

3.29 **Person in crisis**

The term 'person in crisis' is used by the police to identify somebody who is threatening or considering suicide.

This tailored guidance for fire and rescue services dealing with a person in crisis is based on the JESIP publication, Dealing with persons in crisis: Guidance for Emergency Service First Responders for dealing with persons in crisis incidents at locations of obvious physical danger. It is essential that fire and rescue services use both sources of guidance when developing their policies, procedures and training.

London Fire Brigade employees, including operational or fire control personnel, may encounter people considering suicide for a variety of reasons. They may:

- Manage a call from someone considering suicide.
- Manage a call involving a fire and rescue service incident, during which the caller's or another person's thoughts of suicide are expressed or identified.
- Encounter a member of the public who is considering suicide or self-harm:
    - During a home visit, such as a fire safety check.
    - At a fire and rescue service premises.
    - At a community event.
- Attend an incident that involves a person who has the intention to self-harm, or who has attempted to self-harm.
- Be first in attendance at an incident, during which a person's thoughts of suicide are expressed or their potential actions identified.
- Attend a multi-agency incident involving a person considering suicide, when providing support to establish a safe system of work.

Indicators of a potential intent by a person in crisis to carry out self-harm or attempt suicide can include:

- Signs of hopelessness
- Aggressiveness
- Impulsivity
- A history of self-harm or suicide attempts
- Misuse or presence of alcohol or drugs
- The situation, such as standing on a ledge or being in a dangerous position
- That the location has a history of previous suicide attempts; this may be indicated by the presence of Samaritans campaign material crisis signs or captured in Site-Specific Information (SSI); these are referred to as 'locations of obvious physical danger' by the police

Suicide

Anyone can have thoughts about suicide, which can include the person experiencing abstract thoughts about ending their life or feelings that others would be better off without them. People may also develop detailed plans to take their own life.

Thoughts of suicide can vary in intensity and duration; intense feelings may pass quickly or be more protracted. These thoughts may be intensified by external factors such as alcohol, drugs, social media or the stress experienced during traumatic events. Thoughts of suicide may be intensified by day-to-day stresses, which may be perceived as insignificant by other people. Thoughts of suicide may be worsened if the person is not effectively supported.

Correctly interpreting how someone else is thinking and feeling can be difficult, especially as people are often unable to communicate their thoughts and feelings effectively. It can be difficult for somebody supporting the person in crisis to directly ask if they are having thoughts of suicide. However, it is possible that the person in crisis may actually voice their intent to end their own life.

Some people who are considering suicide may have an existing mental health condition, either diagnosed or undiagnosed. They may or may not be receiving ongoing treatment or support for their condition.

Malicious activity

There is the potential for a person who is threatening or considering suicide to be doing so with malicious intent. This could involve the use of improvised explosive devices, or they could be intentionally encouraging the actions of armed police.

For further information refer to Terrorist attacks – Non-specialist personnel inadvertently attending terrorist attacks.

Self-harm

Personnel may attend an incident involving a person in crisis who may be attempting to carry out self-harm.

Any injury that has been self-inflicted, for example self-cutting, may be referred to as self-harm. Self-harm may be used to cope with emotional distress or to communicate that an individual is in crisis. It could also be due to a learning disability, either diagnosed or undiagnosed.

The self-administration of drugs, harmful chemicals or non-ingestible substances or objects, with an intent of causing themselves harm may be referred to as self-poisoning. Self-harm also includes setting fire to oneself, which may be referred to as self-immolation.

It should be recognised that self-harm may be an indicator or precursor for people to threaten or consider suicide.

Attending an incident involving a person in crisis

Personnel should be aware that the use of flashing lights and audible warning devices while en route to the location of the person in crisis may increase their level of stress or affect their mental state.

Personnel may not be trusted or could be perceived as a threat by a person in crisis. This may be because of:

Having experienced an adverse encounter previously

Being prevented from carrying out suicide or self-harm

The person's mental state

Additional hazards

- Some of the methods being used by the person in crisis for suicide or self-harm could present a risk to other people, such as:
- Weapons
- Sharp objects
- Drugs
- Non-ingestible substances or objects
- Hazardous substances
- Creation of an irrespirable atmosphere
- Fuel, lighters and matches
- Improvised explosive devices
- The behaviour of the person in crisis could also present a risk to personnel. This could include them being at a location of obvious physical danger, as detailed in the JESIP publication, Dealing with persons in crisis, or in a location with locked or restricted access.
- Attending the incident involving a person in crisis may have an impact on the mental health of personnel. For further information refer to Operations – Mental health impacts of operational activity.

Hazards that only affect members of the public

3.30 **Impaired mobility** – a person may be delayed or unable to leave or evacuate from a premises or location due to their physical characteristics (such as ill health, disability, excessive bodyweight, pregnancy, neurodiversity and age) or their incapacity due to the effects of drugs or alcohol.

3.31 **Inability to understand, share and/or act on information about an incident** – anything that affects a person's ability to react to direction from firefighters (or other responders) or react appropriately to 'cues', such as seeing smoke or hearing an alarm.

This may delay or prevent a person from responding to an incident and may be linked to person's physical attributes (e.g. blindness), their age, inability to speak or understand English, their mental health or learning difficulties.

The effect of drugs or alcohol can adversely affect an individual's capacity and for some groups (e.g. those living in a socially deprived area) reduced access to technology may also prevent them from receiving information by some means e.g. when it is communicated via social media.

3.32 **Inaccurate perception of hazards and risk leading to an unsafe and/or inappropriate response** – any failure to accurately identify and estimate the severity of a hazard or risk may delay or prevent their response.

This situation can be caused by many factors, including a lack of experience of emergency situations, barriers created by a person's physical or mental attributes, language, or cultural differences and/or incapacity due to the effects of drugs or alcohol.

3.33 **An individual's lack of capacity or willingness to seek help during an emergency** – some people may, for a variety of reasons, be unable - or occasionally unwilling - to report an emergency and/or to receive or act upon direction from firefighters.

This may be associated with a mistrust of people in authority or because they find it difficult to interact with people who they don't know or who are of a different gender, faith, or culture to themselves. This behaviour may also be exhibited by persons who are under the influence of drugs or alcohol.

3.34 **People who are financially disadvantaged may be more likely to experience an emergency and/or have less capacity to cope with dealing with an incident** – There is a relationship between prevalence of poverty and people's ability to keep themselves safe.

A key risk associated with poverty is a higher likelihood of living in overcrowded or deprived accommodation. It can also lead to a reduced level of personal resilience and capacity to overcome any setback. Poverty is more likely to affect the young, the old, people with disabilities and BAME groups.

4. Legal powers and responsibilities at incidents

The requirement for Brigade personnel to take reasonable care

4.1 It is important that all personnel who are liable to be involved in incident response understand the legal powers and responsibilities that are relevant to their rank and role. This knowledge will help them to make decisions and take actions that will minimise risk and assist them to be more effective.

4.2 The Health and Safety at Work Act places duties on employees to take reasonable care of themselves and others and to co-operate with their employer.

4.3 In essence, this means an employee who acts sensibly and responsibly within the command and control of the LFB, and does not act recklessly, will comply with their personal obligations under this Act.

4.4 What is meant by the term 'reasonable' in relation to an emergency response will be determined by the prevailing situation at the time when an incident occurs. This cannot be reliably predicted in advance, due to the numerous factors that can arise and interact with each other during an emergency.

4.5 At the vast majority of incidents, personnel will meet their legal responsibilities provided they comply with any relevant legislation and follow the Brigade's operational guidance and training that is applicable to the incident being attended.

4.6 There is also an expectation that firefighters will act in accordance with the Brigade's values, their training and with regard to information that they reasonably could be expected to know at the time, recognising that the information that is available at the time may sometimes be inaccurate, incomplete or, when it is obtained from two or more different sources, contradictory.

4.7 On the rare occasions where operational guidance does not meet the needs of an incident, it will be reasonable for Brigade personnel to act outside of guidance, to the extent that this is necessary to achieve incident objectives and justifiable in terms of 'risk versus benefit'.

4.8 For further information about the concept of 'operational discretion' and how it should be applied at an incident, see Policy number 985 - Operational safety management - knowledge skills and competence – NOG.

Fire and Rescue Services Act and Fire and Rescue Services (Emergencies) (England) Order 2007

4.9 Under the Fire and Rescue Services Act 2004 and the Fire and Rescue Services (Emergencies) (England) Order 2007, firefighters may do anything they reasonably believe to be necessary:

- If they reasonably believe a fire to have broken out or to be about to break out, for the purpose of extinguishing or preventing the fire or protecting life or property;

- if they reasonably believe a road traffic accident to have occurred, for the purpose of rescuing people or protecting them from serious harm;
- if reasonably believe an emergency of another kind to have occurred, for the purpose of discharging any function conferred on the fire and rescue authority in relation to the emergency; and/or
- for the purpose of preventing or limiting damage to property resulting from any of the actions outlined above.

4.10 For the purposes of this legislation:

- **"Function"** means firefighting, road traffic accidents, CBRN incidents, an emergency involving the collapse of a building or other structure; or an emergency which involves a train, tram, or aircraft.
- **"Emergency"** means an event or situation that causes or is likely to cause one or more individuals to die, be seriously injured or become seriously ill, or serious harm to the environment (including the life and health of plants and animals).

4.11 In the circumstances mentioned above, firefighters may:

- Enter premises or a place, by force if necessary, without the consent of the owner or occupier of the premises or place;
- move or break into a vehicle without the consent of its owner;
- close a highway;
- stop and regulate traffic; and/or
- restrict the access of persons to premises or a place (see Section 13 – Cordons).

4.12 This is the main legislation that underpins the Brigade's operational response during emergency incidents; other legislation that applies to particular incident types, such as those involving hazardous materials, is provided as part of the guidance for those incidents.

5. Public service

5.1 The Brigade seeks to deliver an excellent fire and rescue service to the 10 million people who live, work, and visit London on an average day.

5.2 To achieve this, it is vital that Brigade personnel always act in ways that are in the best interests of society as a whole and which recognise that London is one of the most dynamic, complex and diverse cities in the world.

5.3 Securing the safety and well-being of the public is central to everything that LFB does. This is never more apparent nor more critical than when Brigade personnel are responding to an incident, either at the scene of an emergency or in key roles, such as that played by Brigade Control and others who support the frontline response.

5.4 To deliver the best possible outcomes, Brigade personnel should seek to engage with members of the public that they interact with during an incident, so that people feel valued and can have confidence in the service that is being provided.

5.5 Being compassionate, open to others and accountable for our actions are among the key personal behaviours that are necessary to build trust. Equally, it is crucial that Brigade personnel always act with integrity, resilience and in ways that are respectful to the needs and concerns of different individuals and groups when they are dealing with others.

Identifying and dealing with vulnerable persons

5.6 It is important to recognise that the circumstances and personal characteristics of some of the people who are either directly involved in - or are impacted upon - by an incident may place them at particular or most imminent risk of harm.

5.7 In some instances, the involvement of vulnerable individuals may be obvious (e.g. wheelchair users) and the assistance that they may need will be similarly clear cut (e.g. physical assistance to move to a safe or safer location).

5.8 In other cases, an individual's vulnerability may not be immediately apparent and the extra assistance which they may need may be correspondingly less easy to identify, especially given the relatively chaotic, dynamic, and possibly confused circumstances that characterise some incidents.

5.9 In these cases, responders and call handlers in Brigade Control should be aware of the factors that may affect and drive a person's behaviour. These can include a range of physical, psychological, cultural, drug and alcohol-related issues, which may cause individuals to appear un-cooperative or seem like they are deliberately ignoring the information and advice that is being offered to help them.

5.10 Regardless of their response, every effort should always be made to treat members of the public with respect and to act in ways that will keep them as safe as possible in the prevailing circumstances. Where necessary, by being self-aware and understanding your impact on others, it may become apparent that additional support and possibly the involvement of other agencies is required.

5.11 At any incident where people are displaced from their homes or place of work, consideration should be given in consultation with other responding agencies to determine whether welfare facilities need to be set up for members of the public. These can range from informal arrangements to provide short-term shelter in suitable nearby buildings or vehicles such as buses to the implementation of emergency plans, which can include the establishment of designated rest and humanitarian aid centres.

5.12 This kind of support will be provided by other agencies and will normally be coordinated through the police or Local Authority Liaison Officer (LALO) at the incident scene. For further information, see Policy number 263 – Major incident procedure and from the London Resilience website https://london.gov.uk/what-we-do/fire-and-resilience/london-resilience-partnership.

5.13 If there is any need to control crowds at an incident, a request for police assistance should be made at the scene or via Brigade Control – see sub-section 'Avoiding confrontation' in Section 12 - Safety and welfare of personnel.

5.14 For further information and guidance to deal with any identified issues relating to hoarding and safeguarding, see Section 24.

5.15 While dealing with those who are vulnerable will always be an important consideration, it should be balanced with the need to ensure that, as far as practicable, an effective service is delivered to the whole community and every person who is involved in or impacted by an incident.

Communicating with the public

5.16 Effective communication with the public during an incident plays a key part in delivering a high standard of public service and builds trust. It will help those who are involved in an incident to feel confident, well-informed, and safer.

5.17 Any information shared with the public should be timely and accurate and should generally be released following consultation and agreement to content with other responding agencies (see Section 16 – Working with other agencies). It is also important to actively listen to members of the public, as they can be a source of important information about an incident.

5.18 When conveying the nature and extent of danger posed by an incident, communication may take the form of advice or a warning to take certain action. For example, the Brigade might advise members of

the public to keep doors and windows closed to prevent the spread of smoke or airborne hazardous materials.

5.19 Any warnings, information and advice communicated by the Brigade to the public should always:

- Be specific and relevant to the incident.
- Be expressed in clear and simple language.
- Come from a credible source i.e. information originating from outside of the Brigade should be verified as being accurate, current, and complete.

5.20 The general principle is that communication with the public should be open, but there may be circumstances where information provided to the public may have to be restricted, for example where it might cause panic, or its release may potentially result in further harm.

5.21 Communication with the public during an incident can be delivered in a variety of ways, which include:

- Direct, face-to-face conversations with individuals at the scene;
- phone calls to Brigade Control (from which relevant information will be passed to the incident);
- making public announcements to groups in locations such as in public buildings, on transport networks and in sports venues; and/or
- sharing information with the wider public through various media outlets.

5.22 For further information regarding communications through the media see Section 20 and for the provision of survival guidance during fires and advice regarding evacuation see Policy number 790 – Fire survival guidance calls and Policy number 970 - Evacuation and rescue from fires in premises.

6. Planning

6.1 Operational risk information should be gathered, assessed, and recorded in accordance with Policy number 1024 – Site-specific risk information – knowledge, skills and competence – NOG.

6.2 Operational planning is key helping ensure that LFB is fully prepared to provide a safe and effective operational response. In practice, this means operational risk information should be as current, accurate and complete as is practicable.

6.3 Gathering information to assist with extinguishing fires and protecting life and property from fire is a statutory duty under the Fire and Rescue Services Act 2004. This is reinforced for incidents more generally by the legal obligations placed upon LFB by legislation such as the Health and Safety at Work Act 1974 and the Civil Contingencies Act 2004, both of which create a responsibility to assess reasonably foreseeable risks and to have and contribute towards plans for dealing with the wide range of emergencies that LFB attends.

6.4 To deliver effective operational planning, it is vital that the information already held for identified premises, locations and events is regularly checked and reviewed through familiarisation visits. Equally, it is important that new and emerging hazards and risks are identified, analysed, and recorded using the processes that are described in Policy number 1024 – Site-specific risk information – knowledge, skills and competence – NOG.

6.5 Where practicable, planning information should be tested through station and borough-based training and exercise events. These should include adjoining stations and partner agencies where appropriate.

6.6 Crews attend premises and other locations where an incident might occur for reasons which may not be directly related to information gathering. Where possible, these opportunities should be used to review any relevant information held on the mobile data terminal (MDT) and to update it, if necessary.

7. Personal and Respiratory Protective Equipment (PPE and RPE)

Personal Protective Equipment (PPE)

7.1 Unless higher levels of protection are required to safely deal with the hazards identified at an incident, PPE is defined for the purposes of this policy as being fire tunic, fire leggings, firefighting boots, firefighting helmet, firefighting gloves and a fire hood.

7.2 An individual's normal working rig should be worn as the 'under-garments' for PPE and further information on PPE and ancillary equipment can be found in Policy number 693 – Structural firefighting personal protective equipment (PPE).

7.3 Personnel are responsible for visually inspecting their PPE and ancillary equipment at the start of each shift and after use.

7.4 Personnel on appliances should normally don their PPE in advance of leaving the station or driving in response mode when being mobilised from Status 6. The exceptions to this will be where to do so would unreasonably delay turnout or when crewing appliances such as Command Units, where it is agreed practice to don PPE at the incident.

7.5 The Incident Commander (IC) and other functional officers should ensure that appropriate PPE is maintained throughout an incident in accordance with their assessment of the prevailing level of risk.

7.6 Where it is necessary and safe to do so, it is permissible to 'relax PPE' to carry out a particular task and for a specified duration of time. The decision to reduce the level of PPE being worn must always be taken by the IC and risk-assessed in advance. It will generally be taken to reduce the risk of heat illness or to allow firefighters to undertake specific tasks in circumstances where wearing full PPE might otherwise impede safe and effective operations.

7.7 Additional and/or alternative PPE may be required when personnel are attending certain incident types and/or undertaking particular activities or roles. These include:

- Gas Tight Suits and Liquid Tight Suits (GTS and LTS), worn when necessary at hazardous materials incidents – see Policy number 502 – Chemical protection clothing – technical information.
- Personal flotation devices or lifejackets must be worn when working near, on or in water – see Policy number 979 – Rescue - NOG and Policy number 358 – Water rescue equipment (PL/P) – technical information.
- FRU water rescue technicians – see Policy number 979 – Rescue - NOG.
- Urban Search and Rescue (USAR) trained personnel – see Policy number 761 – USAR personal protective equipment.
- Specialist safety helmets, harnesses and footwear worn by personnel trained in line operations – see Policy number 979 – Rescue - NOG.
- Specialist Entry and Recovery Team (SERT) members – see Policy number 259 – Terrorist related incidents.
- Fireboat crew.
- When working in close to proximity to electrical equipment not in excess of 3300V, electrical gloves may be worn – see Policy number 831 – Gloves – electrical – technical information.
- Medical gloves and eye protection should be worn in all instances when providing medical assistance – see Policy number 980 – Immediate Emergency Care (IEC) - NOG.

Respiratory Protective Equipment (RPE)

7.8 RPE should be used when personnel are committed to atmospheres with the potential to cause respiratory discomfort or harm.

7.9 The IC must ensure that a sufficient level of control, both incident management and breathing apparatus (BA) control, is in place to support BA wearers and ensure the controlled use of BA resources.

7.10 Breathing Apparatus (BA) is the default level of RPE for fires and any other incident that presents an acute respiratory hazard. Where any doubt exists as to the presence of a respiratory risk, the IC should give instructions for RPE to be used.

7.11 The Brigade has both Standard Duration Breathing Apparatus (SDBA) and Extended Duration Breathing Apparatus (EDBA) capability. SDBA sets are carried on all pumping and aerial appliances. EDBA sets are carried on Fire Rescue Units (FRUs).

7.12 EDBA is provided to give an enhanced duration where long travel distances or the conditions likely to be encountered make SDBA less effective, such as incidents below ground or when searching large buildings. It is not provided to increase the amount of work BA wearers can undertake within the risk area.

7.13 There are many instances where personnel are at risk from airborne particulates (dusts), but BA is unwarranted or inappropriate (e.g. building collapses, dealing with powders, cutting operations, or dealing with fire contaminated PPE/RPE). Inhaling these particles to the upper and lower respiratory tract poses a significant risk to firefighters, both during the emergency and recovery phases of an incident, when clearing up operations may be undertaken.

7.14 Three types of respirator are in use in the Brigade and provide an appropriate level of protection from the harmful effects of exposure to airborne particulates whilst not imposing a significant physiological load.

7.15 The MSA SavOX escape set is a thirty minute (depending on work rate) chemical oxygen set that is carried on USAR Module 2 and comprises a breathing bag, mouthpiece, nose clips, and goggles, and is housed in a two-piece stainless-steel container. This container is to be worn by the operative on a purpose designed belt.

7.16 SavOX escape set is only to be deployed at incidents that are deemed to be confined space incidents and where the use of BA is not appropriate but where the atmosphere has the potential to become irrespirable. For more detailed information, refer to Policy number 979 – Rescue - NOG and Policy number 861 – SavOX oxygen escape set.

7.17 For further information regarding RPE and the procedures to be adopted when in use, please see Policy number 466 – Respiratory protective equipment – breathing apparatus – operational procedures, Policy number 476 - RPE – BA – Dräger PSS 7000 – technical information and Policy number 760 - Respiratory protective equipment - PSS Merlin telemetry equipment – technical information.

8. Mobilisation

8.1 Mobilisation, including the handling of running calls, should follow the procedures described in Policy number 049 - Watch room duties - operating procedures.

8.2 When mobilised from a station, the duty firefighter and appliance commanders should attend the watch room and appliance commanders should, in conjunction with the driver, determine the most appropriate route to the incident.

8.3 Mobilising and mapping information should be used to gain an initial appreciation of surrounding risks, hazards, and relevant features - such as the proximity of transport infrastructure - which might be involved in or affected by the incident.

8.4 The route taken to an incident should be selected, taking into account what is known regarding:

- The type of incident and its reported location;
- the time of day and likely traffic conditions;
- any traffic hotspots;
- any adverse weather conditions, such as fog, snow, or ice;
- any width or weight restrictions;
- any bridges, level crossings or tolls;
- any roads that are prone to flooding; and/or
- any security barriers, bollards, or ramps.

8.5 For incidents that are identified as having the potential to escalate, the time taken to select a suitable route is also an opportunity to consider possible locations for a rendezvous point (RVP).

8.6 Route cards should be used as per Policy number 163 - Atlases and route cards. In addition to describing the route to an incident, route cards can also assist with:

- The siting of appliances;
- the location of an RVP and sectors; and/or
- briefing personnel.

8.7 On receipt of a mobilising message, the locations from which other appliances and resources are being mobilised from should be considered to assess the impact this might have on their likely attendance time at the incident.

8.8 When being mobilised, all personnel should recognise that the short period of transition into 'response mode' may have an adverse impact on their physical and mental ability.

8.9 Personnel should be aware of any obstructions or other hazards that may affect the personal safety of themselves and others. They should also take care to actively listen to and read the mobilising alert and message, so that they can use this information to start considering what actions may be necessary at the incident and to make appropriate decisions.

8.10 Where appliances are mobilised whilst away from their base station or stand-by location, mobilisation details will be available on the Mobile Data Terminal (MDT) which can be used with the Geographia to establish a route to the incident before proceeding.

8.11 Whilst this section is focussed on the actions that should be taken by firefighters nominated to ride appliances, the principles outlined here apply to all operational personnel when they are responding to an incident, irrespective of their role or the location from which they are mobilised from.

9. En-route

9.1 Once the appliance is mobile to an incident, the appliance commander should book the appliance Status 2. Status 2 is when an appliance, having confirmed receipt of an incident ordering either at station or whilst away from the station, starts moving towards the incident location.

9.2 At multi appliance stations, where vehicles will take the same route to the incident, the Pump Ladder should lead all other appliances where possible.

Information gathering en-route

9.3 Whilst en-route to an incident, additional information should be gathered from:

- Mobile data terminals (MDTs) and any relevant event or site-specific plans to access risk and operational planning information. If the MDT is not available, risk information can be requested from Brigade Control, who will need specific location information if the incident involves a premises with multiple risks or buildings;
- the Geographia atlas;
- any relevant knowledge that attending personnel have in relation to the incident location;
- any signs of fire, smoke or other hazards that can be seen, heard, or smelt. Wind direction may also be a relevant consideration, if this is carrying smoke or any other airborne hazard away from the incident;
- any build-up of traffic and/or the presence and what can be inferred from the behaviour of any members of the public who are in proximity to the incident; and/or
- any relevant signage, which might indicate the usage and/or nature of the materials present at the incident location.

Receiving and sharing information en-route

9.4 The main scheme and all hand-held radios should be switched on when en-route to an incident. Brigade Control should pass by radio any additional information, such as the receipt of 'multiple' or 'fire survival guidance' calls, that they receive to all appliances and officers that are mobile to the incident.

9.5 If a responding appliance or officer becomes aware of information that may assist other resources mobilised to the incident, this should be shared with all resources forming part of the Pre-Determined Attendance (PDA). Information can be communicated by either main scheme or hand-held radio.

9.6 Wherever practicable, personnel should be briefed on their initial role, any known hazards or risks and any pre-determined tactics whilst travelling to the incident (noting that prevailing circumstances may require some of the roles that were allocated at roll call to be varied).

9.7 It may be necessary to proceed to an incident without using blue lights and audible warning devices, if the use of these systems would reduce the safety of either the public or those responding to the emergency.

10. Approaching an incident

10.1 When reaching the scene of an incident, responding vehicles should be driven with caution and should follow any directions that may be given by the police or any person believed to be offering legitimate information about the incident location e.g. a security or traffic officer.

10.2 If it is necessary to drive on the 'hard shoulder' of a carriageway to reach an incident location, it should be recognised that there may be additional hazards to consider. These include parked vehicles, a poorer standard of road surface that may offer less grip and the possible presence of debris.

10.3 Vehicles or personnel must not cross the central reservation to approach an incident unless traffic has been stopped and directed to do so by the police or a Highways Agency Traffic Officer (HATO).

10.4 Vehicles should normally respond to the main entrance of a premises or to a Rendezvous Point (RVP), if one has been designated. If the incident is covered by an Operational Event Plan (OEP) or other site-specific plan (e.g. COMAH site), responding personnel should consider any access or road closure information that forms part of planning information (see Policy number 366 – Operational event planning).

10.5 Where there is no RVP and the call is not to a premises, the response should be made to the location that is stated in the mobilisation message. If necessary, further information should be obtained from Brigade Control to help identify the exact location of the incident and, where possible, Brigade Control will also ask callers to assist by directing appliances to the scene.

10.6 It should also be recognised that congestion at the scene of an incident can delay the arrival of resources, both from the Brigade and other responding agencies. Where congestion is significant, this may impact on the development of the incident and, for the period of delay, also limit the initial response actions that can be taken.

10.7 When approaching an incident, consideration should be given to:

- The increased risk of collision that may be created by poor visibility, due to conditions such as darkness, fog, smoke, or bright sunshine;
- road conditions, such as any rain, flooding, or ice;
- maintaining a safe distance and position, with regard to any known hazard, where necessary taking advantage of any available 'hard' cover that may offer protection;
- using the 'initial hazard zone overlay' on the MDT to identify a safe area, if it is believed hazardous may be involved;
- whether there is any intelligence to suggest the incident might include 'hostile intent';
- the presence of other emergency service vehicles, people (which include walking casualties), animals and/or equipment already deployed;
- the potential hazard that can be created by parked vehicles or other obstructions, such as pot-holes, security barriers, debris or ramps;
- the width and weight limit of any bridges (noting that these may not be sign-posted on private land);
- the presence of any 'one-way' systems, 'no through' roads or any traffic management measures in operation;
- minimising travel distance to the scene of operations, consistent with maintaining a safe distance from any hazard; and/or
- identifying potential locations for an RVP.

10.8 Appliances should not normally leave the roadway or other hard standing, except where the nature or severity of an incident justifies traversing soft or uneven ground. On these occasions:

- Only the minimum number of appliances which are necessary to achieve the objective should be driven off the roadway.
- Personnel should act as 'look-outs', checking for obstructions and signs of appliance wheels sinking.
- 'Look-outs' should remain at a safe distance from the appliance and whenever they encounter hazards, they should signal the driver to stop.
- The vehicle should return to the highway by the same route as it left (reversing if necessary).

- If an appliance does become stranded, assistance should be requested via Brigade Control and Brigade personnel should not attempt to recover the appliance.

10.9 If any hazards or other significant factors are identified when approaching an incident, Control and any other responding resources should be informed. This information should include any delayed or failed attendance and a notification of the safest access route, RVP or marshalling area.

10.10 Particular caution should be exercised whenever approaching and siting vehicles at any incident that is either potentially terrorist-related or could involve civil disturbance. For further information see Hostile environments foundation document, Policy number 261 – Public order and civil disturbance procedure, Policy number 259 – Terrorist related incidents and Policy number 882 – Marauding Terrorist Attack (MTA) – cold zone working.

11. Operational tactics at the incident

On arrival

11.1 On arrival appliances and officers should book Status 3, which means that they have arrived at the location that is stated in the mobilising message.

11.2 The address provided by a 999 caller may not be accurate and Brigade Control sometimes receive several addresses for the same incident.

11.3 If the reported incident cannot be located or is at a different address to that stated in the mobilisation message, the IC should inform Brigade Control and, if necessary, request verification of call.

11.4 If the incident is located at a different address to that stated in the mobilising message, this change should be included in all subsequent messages from the incident – see Section 14 – Effective communications. In addition, the appliance commander who has identified the correct location of the incident can use 'talk through' procedures to update other appliances that form part of the Pre-Determined Attendance (PDA).

11.5 If the incident is in a small court, mews or minor road, the name of the adjacent major road should be provided to Brigade Control, in addition to the exact incident location. If the incident is located on or near a roadway with a central reservation, the direct of the carriageway should be stated in the message.

11.6 When specifying the address of ships, boats or barges, the message should make it clear whether the incident is accessible to land-based appliances. If a vessel is in mid-stream, the most accessible shore location should be given.

11.7 In some instances, it may also be beneficial to contact other appliances forming part of the PDA to help determine the location of the incident.

Siting and maintaining safe access and egress for vehicles

11.8 When parking vehicles at an incident, they should be positioned under the direction of the appliance commander to minimise risk and to optimise their safe and effective use.

11.9 When an incident is located on or near a fast road, vehicles must not stop in the outside lane, except where an incident straddles the central reservation.

11.10 If the incident is located on or near a slip road or intersection, the access point should be closed, and it should be remembered that this may restrict the viewing distance of other road users. Consideration should also be given to the affect that any sharp bends or undulations in the road may have on other road user's ability to see Brigade vehicles that are attending an incident.

11.11 In both scenarios, appliances must adopt a 'fend off' position and a safe area for operations to commence should be established and maintained.

11.12 Where it is necessary to park Brigade vehicles on a fast road, a request should be made to Brigade Control to ask for a message to be displayed on overhead gantries and matrix signs. This will warn approaching traffic of the incident and presence of vehicles and personnel.

11.13 When siting vehicles, consideration should also be given to:

- The vehicle's weight limit;
- the road layout and condition, including the presence of any potential weak points such as drain covers;
- preserving access and space for other appliances and other emergency service vehicles;
- using any barriers that may provide protection;
- any hazards relating to the incident, such as flammable vegetation, hazardous materials, debris, power lines or tree-canopies;
- the slope of the ground and wind direction, noting direction is stated as being the direction from which the wind is coming from and appliances should be sited upwind of any vapour or gas;
- the potential development of the incident (such as a spreading fire or rising flood water) or likely changes in weather conditions; and/or
- facing in the direction of an identified escape route.

11.14 If attending an incident involving a possible leakage of gas, all appliances should be parked at least 25 metres away from the reported location of the leak.

11.15 The siting of vehicles should seek to minimise disruption to the local community whilst at the same time maintaining safe areas for personnel and others who are present at the incident. As described in Section 13 – Cordons, cordons can be used to prevent unauthorised vehicle access and to help control traffic around the scene of an incident.

11.16 When attending an incident, vehicles may be compromised by:

- The presence of fire or smoke;
- the 'run off' from firefighting water or foam;
- any collapsed structures or debris affecting exit routes; and/or
- the risk of 'stranding', if they are parked on any surface other than a designated roadway.

11.17 At larger and more protracted incidents, consideration should also be given to establishing an RVP and/or marshalling sector. Where these have not been pre-determined, locations for these facilities should be jointly identified with other attending services and organisations (

11.18 Where necessary, appliance floodlights, fend-off lighting and cordons should be used to reduce the risk of collision, illuminate the scene and enable other road users to see appliances.

11.19 To reduce risk, firefighters should also:

- Dismount appliance on the side where they are least likely to encounter moving traffic; this is normally the near-side.
- Minimise the time they spend on the roadway, unless this is the scene of operations and measures are in place to either halt or control traffic.

11.20 It is important to continually assess egress and escape routes throughout an incident to ensure that vehicles and personnel do not become trapped. Personnel may need to access vehicles to obtain equipment or to use them as a place of refuge.

11.21 Except for vehicles that are being used operationally at an incident, vehicles left unattended should have their ignition key removed, windows shut, doors locked and alarm activated (if fitted). Keys should be left with the ICP or CU, as appropriate.

11.22 Aerial appliances should be sited in accordance with Policy number 822 - Operational use of turntable ladders.

Initial actions and considerations

11.23 For appliances forming part of the PDA, the IC should nominate an Incident Command Pump (ICP) to co-ordinate the initial response. This nomination should be notified to Brigade Control via radio and this message will also have the effect of updating all resources that are 'mobile to incident' which appliance they should report to.

11.24 It is important that the IC maintains awareness of any information relevant to the incident that is communicated by radio after their arrival on scene. This information will normally be sent by Brigade Control, but occasionally it may also come from National Inter-Agency Liaison Officers (NILOs) or Brigade liaison officers working with other agencies, so arrangements should be made to monitor radio traffic.

11.25 Reinforcing appliances and officers should report to the ICP or Command Unit (CU) where this identifiable or to the IC if neither an ICP nor CU are in operation.

11.26 The following points should be considered and implemented as appropriate in the early stages of an incident:

- Consider the need to close the road to maintain crew and public safety. If roads are to be left open, consider requesting the attendance of police to control traffic.
- Undertake a '360 degree' survey of all faces of the building/sides of the incident to help assess possible life risk, extent and location of the incident, identify any hazards and potential entry and exit points.
- Determine and cross-check whether any persons are involved; if they are, seek information regarding the number of people, their likely location and whether it is known they have any vulnerabilities (see Section 3 - Hazards). At some premises or locations, it may be possible to obtain a list of occupants and their usual locations from the owner, their on-site representative or a member of staff such as a security guard.
- Consider any surrounding risks (such as railway lines, major roads, and public buildings), both to assess whether they will affect the incident and whether the incident will affect them.
- Gather and cross-check information from all available sources: this includes the MDT; any signage or labelling for the package, building or vehicle; placards; the occupier or any witnesses; and the Premises Information Box, which will contain any Personal Emergency Evacuation Plans (PEEPs) that are available for occupants (see Policy number 513 - Premises information box systems and Policy number 970 – Evacuation and rescue from fires in premises).
- Building plans may also be available (often located next to or near alarm panels) and it may be possible to gain further information regarding layout by firefighters physically checking the building design on an unaffected floor.
- Where available, building management systems such as CCTV, ventilation systems and Thermal Image Cameras and the use of any nearby vantage point (such as a bridge) can be used to gather information. This may help to identify the location of the incident, traffic conditions and the presence of people, animals, or other emergency responders.

- Whether additional resources are required to gather information about the incident, for example an aerial appliance, Brigade drone capability and/or the police air support unit. Use of these capabilities can be particularly useful at larger incidents and those spread over a wide area, where the view from any single point on the ground will be incapable of providing an overview of the incident.

11.27 Where necessary and having regard to the type of incident being attended, early consideration should also be given to:

- Use of MDT to identify water supplies and augment the hose reel tank, unless the nature of the incident is such that the IC is confident the tank supply is sufficient and will provide a safety margin.
- Establish cordons to establish hazard and safe working areas, as described in Section 13.
- Damage control (see Section 19), protecting the environment (see Section 18) and the likely cause of the incident, so that steps can be taken to preserve the scene as far as is practicable from the outset of the incident (see Section 22).

11.28 The engine of any vehicle that is not required to be running for pumping or any other operational purpose should be shut down, to minimise the effect of exhaust fumes and to protect the environment.

11.29 Any situation involving a person in crisis should be treated as if there is a threat to life and personnel should act accordingly. It should never be assumed that their behaviour is attention-seeking or a cry for help. The person in crisis may not have the capacity to understand what is happening; this could apply to a child or an adult.

The police should take the lead in any incident involving a person in crisis because of their training and specialist negotiators as detailed in the JESIP publication, Dealing with persons in crisis. By exception, it may be necessary for another agency to temporarily take the lead for the incident in the absence of the police.

LFB personnel do not receive specialist training to enable them to negotiate with a person in crisis. However, personnel may be able to contribute to the safety of the scene and provide support to other responders. They may also be able to provide immediate support to the person in crisis.

Incident commanders should follow JESIP principles, including the use of co-location and communication to establish a joint understanding of risk, and agree the role of the fire and rescue service for the incident.

The JESIP publication refers to a number of police terms, such as Rescue Plans and Intervention Plans. Joint decision-making and establishing a joint understanding of risk will require commanders from both agencies to clarify what is meant by these terms for the ongoing incident.

LFB may be the first in attendance where there is a person in crisis:

- Prior to the arrival of the police and other agencies
- Inadvertent attendance to an incident involving a person in crisis

If knowingly en route to an incident involving a person in crisis, the incident commander should consider gathering information about the risk at the location from the ORD or other sources.

If it is known that attendance is to a person in crisis, to minimise their stress, it is important to reduce or avoid the use of lights and noise. This should be considered when approaching and arriving at the scene of the incident, for example, by turning off flashing lights and preventing the use of audible warning devices as soon as is practicable.

If the LFB is first in attendance, the incident commander should either obtain verification of or request the attendance of the police and other agencies required. The estimated time of their arrival should form part of the decision-making process.

The incident commander should try to find out if the person in crisis has called or is currently on a call with fire control, or another emergency control. What has been discussed during that call may help inform situational awareness and decision-making. If it has been possible to obtain the name of the person in crisis, this may assist with obtaining advice from other agencies about what immediate steps should be taken.

The attendance of the fire and rescue service may be requested by the police or other agencies if specialist resources are required for activities such as:

- Working near, on or in water
- Working at height
- Firefighting
- Dealing with hazardous substances
- Gaining access or entry
- Scene safety
- If first in attendance, the IC should consider taking the following actions until an integrated multi-agency operational response plan can be agreed with the police, ambulance and other agencies:
- Notify brigade control, using a M/ETHANE message (Appendix 5), about the exact location of the person in crisis.
- Identify a suitable rendezvous point (RVP) which avoids overwhelming and causing undue stress to the PiC and communicate this to brigade control for oncoming appliances/resources
- Request a considerate approach to the RVP by other attending agencies.
- Establish and maintain appropriate cordon controls and limit the number of personnel on scene. Consideration must be given to protecting the public from the impact of a PiC carrying out the act they are threatening, and an appropriate cordon established. Equally it is important that the PiC is afforded dignity without the intrusion of members of the public who are not actively engaged in the resolution of the incident when emergency responders arrive.
- Confirm if an RVP is established for multi-agency co-location or consider establishing one.

Access and egress of personnel

11.30 It is essential to secure and maintain a safe and reliable means of access and exit for personnel to the scene of operations.

11.31 Prior to committing personnel at an incident, they should, as far as is practicable, be briefed in accordance with the Decision-Making Model (DMM) on all known information that is relevant to their task and role.

11.32 This should include the:

- Incident plan and objective(s);
- number, believed location and any vulnerabilities of any persons reported as missing;
- location and extent of incident, including routes in and out;
- use and any materials in the premises, site, or vicinity of the incident, including the presence of any known hazardous materials; and/or
- method of communication and reporting lines i.e. the incident ground radio channel to be used and the person to whom situational reports should be sent.

11.33 A risk assessment should be carried out to identify the safest and simplest way for personnel to gain access to an incident.

11.34 The best means of gaining access is often the main entrance and/or via any designated RVP for the premises or location. Where this is secured shut and/or the attendance is not met by the owner, occupier or their on-site representative, a '360-degree' appraisal should be made to identify the best means of access.

11.35 When determining how to gain access, consideration should also be given to:

- Whether the nature and severity of the incident justifies forced entry;
- compliance with the legal powers of entry, as described in Section 4;
- providing personal identification if access is challenged;
- the opportunity to prevent a minor incident from escalating into a more serious incident; and/or
- the need to cause minimal damage, consistent with maintaining the safety of personnel.

11.36 When attending some incidents – such as those involving large complexes, outdoor festivals, or mass transport – specially designated routes or panels may be provided to provide emergency access for firefighters and other responders.

11.37 At incidents such as those involving lifts, where firefighters may need to gain access to non-public areas of a building, it is possible in extreme cases that hazards such as razor blades or door handles connected to an electrical supply may be encountered, if the location is being used for illegal purposes.

11.38 If the main or usual entrance is of substantial construction, it may be easier to use any alternative means of access that may be situated on the side and/or at the rear of the premises or location, as these frequently present a lower level of security.

11.39 In general, openings such as small windows and 'wicket' style doors, should not be used to gain access because they will not provide a reliable means of committed personnel leaving the premises or incident location quickly in an emergency.

11.40 In buildings under construction or subject to refurbishment, the presence of scaffolding may hinder access and mean that entry to all or part of the building can only be gained via ladders or a hoist – for further information, see Section 12 – sub-section working at height ladders.

11.41 If the initial entry point is either damaged or restricted, action should be taken to make the entry point safe or secure alternative means of access and egress to and from the hazard area.

11.42 When briefing personnel that entering an incident location, they should be informed of any alternative points of access/egress that are available. If additional points of entry are established after personnel have been committed into an incident, the type of access, it's location and any other relevant information should be communicated to all relevant personnel by the quickest available means e.g. fireground radio.

11.43 When gaining access, consideration should also be given to the need to avoid obstructing persons who are (or who may need to) evacuate the premises or location.

11.44 The planned evacuation strategies set out in Policy number 970 – Evacuation and rescue from fires in premises have been devised in relation to fire. Any decisions regarding evacuation at non-fire incidents should be considered and implemented in conjunction with the policy or policies relevant to the incident type being attended.

11.45 The principles and concepts associated with evacuation from fire can be used when attending other types of incidents to assist with the evacuation and/or rescue of persons. It should, however, be noted that any premises or location may have an alternative evacuation strategy for hazards other than fire. These may be based on different practises to the strategy relating to fire and may include concepts such as 'invacuation' and 'lock down areas' to deal with the threat posed by an intruder.

11.46 In some instances, the lead responsibility for evacuation at non-fire incidents will rest with other organisations e.g. the police.

11.47 For further information regarding the evacuation and rescue of persons affected by an incident, see Policy number 970 – Evacuation and rescue from fires in premises and the for the emergency withdrawal of firefighters see Policy number 985 - Operational safety management - knowledge skills and competence – NOG.

11.48 Where access is required for 'persons locked out of premises', the incident should be handled in accordance with Policy number 220 – Effecting entry for persons locked out. Information relating to possible charges for services provided by the LFB at other special services is provided in Policy number 402 – Charging for special service incidents.

Thermal imaging

11.49 Thermal imaging cameras (TIC) are devices that form an image using emitted infrared radiation as opposed to normal visible radiation. They gather information when normal observation may be inhibited due to smoke or lack of lighting. They also provide the option to search for specific points of interest such as casualties or seats of fire, which may not be obviously visible through the normal spectrum. In some situations, fire spread may not be visible to the naked eye but may be detected using TICs.

11.50 The TIC uses a vertical heat colour reference bar which is displayed in the thermal indication area. This static icon shows how heat colours are applied to the range of the camera mode. The colours yellow, orange, and red correspond to a temperature-dependent change in hue as the temperature increases. The colour pallet starts at a temperature of 100°C or 150°C depending on Mode selected.

11.51 The heat energy radiated from the objects in the form of infrared waves is picked up by the TIC, which is then able to identify the energy differences from the objects being scanned and convert the readings into visual images. The image displayed is therefore based on temperature differential.

11.52 Thermal imaging equipment can offer considerable benefits to incident commanders during the information gathering stage of an incident, including:

- Establishing possible seats of fire
- Establishing the extent of fire spread
- Establishing internal fire conditions and assessing the need for defensive or offensive action
- Searching for casualties inside a structure
- Wider search for casualties (during road traffic collisions, aircraft crashes, railway incidents, incidents in the open)
- Improved search capability during low light or low visibility
- Locating the seat of fire in large fuel supplies (for example in landfill or waste management centres)
- Locating hot spots, small areas of combustion or heating
- Establishing heat spread to adjacent hazards and fuel supplies.
- Establishing sources of overheating in electrical or mechanical scenarios (for example lighting chokes, vehicle brakes)
- Establishing compromises or weaknesses in fire resistance
- Locating hot spots in cylinders, vessels, or pipework
- Recording images and videos, which can assist subsequent investigations or debriefs.

- Detection of a heat source from people in the water, or people hidden in areas with dense plant or tree growth.
- For an initial investigation after a car accident, e.g. heat signature on seats to determine number of occupants
- Identifying oil, or fuel spills.
- Identifying liquid level in containers.
- Different liquids have different vaporization temperatures a TIC can be used to identify these with the advice of a HMEPO.

11.53 ICs should consider using the TIC when carrying out a 360 to view the external faces of a building to assist in identifying the location of a fire prior to committing personnel.

11.54 Operators of thermal imaging cameras should be aware that:

- Only personnel who have received training in the operation, functionality, and features of this piece of equipment are authorised to use it.
- TICs are not intrinsically safe, limiting its use in some hazardous environments.
- Some surfaces can reflect or absorb infrared radiation, causing images to be misleading to an operator. For example, the devices often depict areas of the same temperature in the same shade or colour. This can obscure some hazards such as pits, surface liquid or unsafe ground which may be dangerous for operators in that area.
- Equipment using a different spectrum should not be relied on as a total replacement for normal vision. Standard service procedures for moving in smoke and darkness must be maintained and great care should be taken to ensure that personnel remain safe because battery power may be lost rapidly with little warning.
- Images displayed on the devices are computerised images created from the sensor equipment. Allowances should therefore be made for alterations to the actual size and distances involved for the objects on display.
- Images may be misleading as sensors may not differentiate between the heat of a fire versus the reflected heat from the sun on surfaces such as glass or polished metal. Well-insulated structures (e.g.sandwich panelled premises) do not readily allow for the passage of infrared radiation. Using a TIC may therefore indicate weaknesses in a structure but may not give any indication as to the conditions within it.
- Personnel should be aware that the performance of the TIC can be compromised by the strength of the heat source, the time the heat source has been present and the insulating properties of any shielding (such as plasterboard or furniture foam) that is present. For example, any deep-seated hotspot (e.g smouldering within the foam or wadding of furniture) may not be detected by the TIC, regardless of how long it has been present. This is due to the low heat output of some embers and the insulating properties of the shielding material. The normal practice of removing all items that could re-kindle from a fire scene should continue to be followed.
- When placed into heavy smoke a layer of soot can gather around the lens. When this occurs a loss of clarity can occur, firefighters should be mindful of this and wipe the lens with a soft material or ultra grime wipes between operational use to prevent this occurring.

11.55 For further information see Technical Note Thermal imaging camera- K55 and FLIR K55 Thermal Image Camera Course on big Learning.

Forced entry equipment (FEE)

11.56 An increase in both the number and variety of security doors, grilles and locks being fitted to premises can frequently make it more difficult for firefighters to affect an entry at an incident. FEE is provided on pumping appliances to assist firefighters to gain entry by reducing the time and effort necessary to force entry through a range of openings.

11.57 FEE consists of 5 items of equipment and these are described in Appendix 1.

11.58 Before FEE is used, the IC should consider whether it is necessary and assess the following factors:

- **Location** – depending on the scene of operations, it may be necessary for FEE to be carried by different personnel to those intending to use it to reduce operator fatigue.
- **Direction of opening** – doors will open either towards or away from and can be hinged on either side; the direction of opening should be considered when selecting the type of FEE to be used.
- **Door construction** – which can be either timber, metal, UPVC, composite, glass panelled or materials containing asbestos - will have an impact on the method used to gain entry.
- **Locking system** – these can vary from simple single-point locks to complex systems with multiple locking points and features built into the door frame. Pushing either the top or bottom corners of a door may help reveal whether it is fitted with multiple locking points.

11.59 The IC should also actively consider any of the hazards that can be associated with the use of FEE, such as:

- **Glass (vision or 'above door lighting' panels)** – FEE may cause this to break and create a risk of physical injury.
- **Slip or trip hazards** – these should be removed where possible or crews briefed on their presence if this is not possible (this includes moving the FEE clear of the access/escape route after use).
- **Guard dogs or pets** – may be present within premises or location being entered.
- **Risk of falling** – non-one should be positioned where a fall would be possible if working on a balcony.
- **Confined (restricted) space** – the hallway or corridor beyond the door may be narrow, small, or otherwise obstructed.
- **Door construction** – this may be misleading (e.g. appears solid, but is light weight and gives way easily when struck) or, if any older type, the construction materials may include asbestos.
- **Direction of opening** – noting that the use of FFE where there is the possibility of fire being present, opening a door may expose operatives to fire conditions and, on inward opening doors, can result in an uncontrolled opening, with the door able to bounce back towards the operative.

11.60 Where there is any possibility of fire, smoke, heat or other hazardous material being released into the area from which entry is being attempted, personnel must wear RPE and any additional PPE deemed appropriate; they should also be ready with a charged hose or other equipment that may be necessary.

11.61 Forcing entry into a building where there is a fire, this may change the ventilation profile of the premises and potentially affect the behaviour of fire, heat or smoke. Whilst this may be unavoidable, the IC should be alert to this possibility and ensure it is reflected in their tactical plan.

11.62 When deciding the most appropriate FEE for the task, noting that when doors open away from the operator the hydraulic spreading tool should be used as the initial tool of choice. When the enforcer is being used, the FEE operative should be aware of the risk of 'over-exertion' and, where necessary, two FEE operates should alternate when using this tool.

11.63 For further information regarding FEE, see Policy number 552 – Forced entry equipment (technical information) and RFT 003 – Compartment firefighting – Big Learning.

11.64 For further information regarding the challenges which can be associated with gaining access to places of lawful detention, see Policy number 096 – Fires/disturbances in prison services establishments.

On-going actions/considerations

11.65 Once the incident type and location has been confirmed by the IC, the hazards and tactical options that are associated with the incident type should be implemented in accordance with:

- The general guidance set out in this policy;
- other 'overarching' guidance, such as that relating to incident command and evacuation; and
- the foundation document(s) and standard operating procedure(s) that are relevant to the type and size of incident being attended.

11.66 Most incidents attended will require the simultaneous consideration and implementation of two or more standard operating procedures.

11.67 As an incident progresses, the IC should regularly review the area that is being used by fire service vehicles and should consider re-siting vehicles as necessary.

11.68 The need to re-position vehicles may be in response to the increased risk posed by an escalating incident or if they are impeding access to other road users. Consideration should also be given to the impact attending resources are having on the local community, in circumstances where the space being used by Brigade vehicles is no longer necessary to support safe and effective operations.

11.69 The considerations and actions in the closing phase of an incident are described in Sections 22 - 24.

12. Maintaining the safety and welfare of personnel during an incident

Safety considerations and coping with pressure during an incident

12.1 Everyone attending and supporting the response to an incident has a responsibility to take care of themselves and to also look out for the well-being of others.

12.2 The challenges associated with responding to an incident can be increased by public expectations. This 'moral pressure to act' can cause firefighters and other responders to put themselves at risk, even when such risks outweigh any potential benefits to be gained.

12.3 There is also a risk – particularly during the early stages of an escalating or more complex incident – that firefighters can be overwhelmed by the situation facing them.

12.4 If available resources are not sufficient to implement and sustain safe and effective operations, the IC must request assistance via Brigade Control. This request may be for additional Brigade appliances, officers or equipment, assistance from other agencies or both.

12.5 An individual's capacity to cope with an incident – which may be dynamic, unpredictable and emotionally-charged - will vary from person-to-person. This, together with the many factors that can create and increase levels of stress, means that it is not possible to provide a simple definition of what might overcome a person's ability to cope with the pressures that are likely to arise during an incident.

12.6 Low levels of stress can be positive and motivational, but the signs indicating that an individual may be experiencing excessive pressure during an incident can include any:

- Sudden change in mood, such as irritability, loss of sense of humour or impatience;
- erratic behaviour, such as when someone is unable to undertake a familiar task or activity in a logical sequence or to a reasonable standard; and/or
- 'freezing' or 'stalling' i.e. any failure to decide or act within a reasonable timeframe.

12.7 To help maintain the safety and welfare of personnel attending an incident, everyone attending an incident has a responsibility to:

- Exercise self-discipline.
- Critically analyse any actual and potential risks, as part of maintaining their overall awareness of the situation.
- Seek to understand information as it becomes available, assessing its relevance and importance.
- Help identify any gaps or inconsistencies regarding what is known about an incident.
- Ensure that any safety critical information or unexpected developments are passed on to the IC, Sector Commander (SC) or safety officer as quickly as possible.
- Act within their physical limitations when undertaking tasks and their personal limitations in knowledge and experience.
- Take any action necessary to reduce exposure to risk for themselves and others (this includes responding appropriately to any signs that they or others are experiencing excessive levels of anxiety or stress).

12.8 In accordance with Policy number 987 - Incident command - Organisation at incidents – NOG, the IC should establish and maintain a command structure to organise the safe and effective use of people and equipment. The division of tasks and activities between different individuals and groups is an effective way to prevent any one individual from feeling or being overwhelmed by an incident.

12.9 The IC has overall responsibility for health and safety of all Brigade personnel attending an incident but may delegate specific responsibilities to SCs. Either an ICs or SC may appoint one or more safety officers (see Policy number 987 - Incident command - Organisation at incidents – NOG).

12.10 The IC and any SC's appointed should ensure that safety-related information, including that which may be received from Control or other agencies, is shared with all appropriate personnel through regular and timely briefings. These briefings should include a description of what has happened, any identified hazards, the incident plan and how the incident is expected to develop.

12.11 Safety briefings should also include a reminder of the firefighter emergency and tactical withdrawal arrangements (see Policy number 985 - Operational safety management - knowledge skills and competence – NOG).

12.12 For further information regarding how cope with stressful situations, see Section 27 – Actions to support staff.

12.13 Guidance relating to visual standards for operational staff and what aids to vision can be worn when attending an incident is provided in Policy number 244 – Aids to vision (ATV).

Manual handling

12.14 This includes any activity that involves transporting or supporting a load by hand or bodily force, such as by pushing, pulling, lowering, or lifting.

12.15 A key factor is the weight of the item that is being moved or supported; consideration should also be given to minimising the following when carrying out a manual handling task:

- The frequency of picking up or carrying an item;

- the distance to be travelled; and
- any requirement to twist, bend or stretch.

12.16 Where possible, manual handling should be avoided by using machinery to move equipment and by requesting specialist resources (including those that may be available from other agencies) to assist with the task.

12.17 Where manual handling is necessary, the risk of injury should be reduced by monitoring to ensure that manual handling procedures are being followed and by rotating personnel. It may also be necessary to provide lighting and to put measures in place to manage the deployment of hose, cables, and other equipment to reduce the risk of trips and falls.

12.18 Before manual handling an item, the location should be assessed for potential obstructions and the presence of anything else which might cause a slip, trip, or fall.

12.19 If required for higher risk or more complex manual handling tasks, specialist advice can be obtained via a request to Control for the attendance of a Technical Advisor Rescue (TAR) or USAR Advisor (UA).

Slips, trips, and falls

12.20 This hazard can be encountered at a broad range of incidents and may be caused by:

- Uneven or slippery surfaces;
- steep gradients or undulating ground;
- unstable ground; and/or
- any absence of guarding or barriers.

12.21 All personnel working in areas where there is a significant risk of slipping, tripping, or falling should be briefed on known hazards and consideration should be given to deploying the minimum number of personnel necessary to complete the required.

12.22 The risk can be further reduced by limiting the time personnel are working within the hazard area, appointing safety officers to monitor activities and through the rotation of personnel.

12.23 Consideration should also be given to the following actions, insofar as they are relevant to prevailing conditions:

- Use of lighting to improve visibility and to help personnel see each other and hazards.
- Establishing physical barriers or cordons (see Section 13 – Cordons).
- Managing the deployment of hose and equipment to minimise the obstruction of roads, pathways, corridors, staircases, and any other areas where people are working or moving around.
- Clearing any significant quantity of water lying on road/pavement surfaces or internal floors.
- Deployment of line operations where there is a risk of falling from height (see Policy number 979 – Rescue - NOG).

Penetration hazards

12.24 A range of obstacles might be encountered when gaining entry to an incident or when working at an incident that present a risk of cuts, skin puncture and/or contamination of contamination from biological substances.

12.25 Security fencing, barbed wire and wooden or metal spikes and any broken glass or cut metal – such as that which is typically found at a Road Traffic Collision (RTC) – can both impede entry to the scene of an incident and create a risk of injury.

12.26 This should be mitigated through the proper use of cutting equipment to clear obstacles and the use of sharp edge covers, Duct tape and salvage sheets can be used to reduce the risk of laceration and hold glass in place.

12.27 There is also a remote risk of 'high pressure injection injury' from the RTC equipment that is carried on Fire Rescue Units (FRUs), even though the equipment is designed to prevent such injuries.

Objects falling from height

12.28 Whenever firefighters are in proximity of any structure containing materials or objects that are above the level on which they are working, there is a risk that falling objects may cause physical injury or damage vehicles and equipment.

12.29 The risk from such objects can be greater when:

- Entering, exiting, or moving around a structure if there is no substantial overhead protection;
- attending any incident in tall buildings, where wind dynamics may increase the likelihood of objects being dislodged and can also increase the size of the 'footprint' in which they might fall;
- a structure is under construction, demolition, or refurbishment, which may increase the likelihood of items not being secured in place and mean that cranes are being used to raise or lower items;
- the incident damages the structure, and this results in falling debris, such as glass or dislodged construction panels; and/or
- fire service equipment is being used at height.

12.30 Where a risk of falling objects is identified, the following actions should be considered and implemented as necessary:

- Site vehicles in safe areas (see Sections 10 and 11).
- Use any information that is available from the occupier, other agencies and from reconnaissance via aerial appliances or drones to identify the presence of any objects that are liable to fall.
- Establish cordons to restrict access and identify safe routes in and out of structure (see Section 13 - Cordons).
- Deploy the minimum number of personnel required to undertake a task and, where possible, secure any items of equipment being used at height.
- Use of safety officers and tactical advisors to monitor the situation and advise on safe working practises (see sub-section 'Working at height – ladders' and Policy number 918 – Working at height – operations).
- Use hose ramps to protect equipment.
- Use an anemometer to assess wind strength and direction (noting that this can vary significantly between the ground and upper levels).
- Use of non-LFB equipment, such as police civil disturbance shields, to provide overhead protection or cranes to safely move any items that are at risk of falling.
- Evacuation of any member of the public at risk.

Falling from height

12.31 This hazard exists whenever firefighters or other responders are required to work in a location where external walls, windows or guard rails are either absent or damaged. Unguarded edges may be found on roofs, clifftops, around docks or in quarries.

12.32 The risk of falling from height can also be encountered when ladders or line operations are being used to access a scene of operations and when it is necessary to work adjacent to a fragile surface.

12.33 For further information regarding how to manage this risk, see the sub-sections 'Objects falling from height' and 'Working at height – ladders' and Policy number 918 – Working at height – operations.

12.34 Whenever working at height, personnel should be aware of their own and others well-being. They should regularly check for any signs of stress, anxiety, vertigo, or dizziness and withdraw to a safe area, if any of these conditions are experienced.

Working at height - ladders

12.35 A Brigade ladder should be used when normal means of access, such as an internal staircase, are not available and if waiting for an alternative means of access or egress will lead to the loss of life or the rapid deterioration of an incident.

12.36 Ladders can also be used as a practical and effective option to gain access at a range of incidents, when undertaking low risk and short-duration tasks.

12.37 The largest ladder available for the task should be selected and non-service ladders should only be used if there is an imperative to act immediately to save life (and when used, should be replaced by Brigade ladders at the earliest opportunity).

12.38 The hierarchy of control described in Policy number 918 -Working at height – operations, should be used when deciding whether to use a ladder.

12.39 A risk assessment of potential access points on all available faces of the building should be made before pitching a ladder, unless an immediate pitch is required to effect a rescue (when the risk assessment should be limited to the immediate location where the rescue is being undertaken).

12.40 These risk assessments should take into account the urgency of the situation (such as any imperative to save life or control a deteriorating situation) and the delay that might otherwise be caused waiting for an aerial appliance or the deployment of FRU line operations.

12.41 The heel of a ladder should always be footed when personnel are on a ladder to prevent it from moving and leading to the ladder falling. Where appropriate, the head of a ladder should also be secured using FRU line operations dedicated strops to tie into the structure the ladder is pitched against.

12.42 FRUs with line ops capability have a range of equipment and skills to assist in the implementation of safe working at height (see Policy number 622 - Line operations equipment – technical information). This equipment can be used in conjunction with ladders carried on front line appliances to support safe systems of work.

12.43 When using ladders, consideration should be given to:

- Any risk posed by the weather, such as high winds affecting a ladder's stability, the presence of snow or ice creating slippery conditions or the risk of electric shock from a storm.
- The stability and strength of the surface supporting the ladder. Ladders should not be pitched on moveable objects, such as pallets or piles of bricks or on uneven or unstable ground where it is not possible to maintain ladder rounds in a horizontal position.

- The strength of the structure against which the ladder is pitched. It should be noted that modern building materials can sometimes be for decorative effect and the materials or building design may not be strong enough to support a ladder.
- Any personnel working at the head of a ladder will have restricted movement and may therefore be unable to avoid the adverse effect of any fire, heat, smoke or other hazard that may emerge from the opening to which the ladder is pitched.

12.44 As the integrity of a structure may weaken during an incident, the stability of any structures to which ladders are pitched should be monitored to check that they are still able to support the weight of a ladder and the personnel using it.

12.45 Where ladders are in use, the IC must ensure that adequate supervision is in place. In the early phase of an incident, the supervisor may be a firefighter undertaking the 'number one' position, but as an incident progresses, the IC should consider appointing safety officers, considering the level of risk and complexity of the task being carried out.

12.46 When in close proximity to ladders, hose lines should be managed as their movement may drag the heel of the ladder into a less stable position and hose being used from a ladder should be supported using hose beckets.

12.47 At more protracted incidents, it may be necessary to use cordons to protect those at ground level from the ladder itself or objects falling from it.

Use of ladder as work platforms

12.48 If operational staff are working from a ladder rather than using it as a means of access or egress, the Working at Height Regulations categorises this ladder as a work platform.

12.49 Ladders should only be used as a work platform where a risk assessment shows that the use of other work equipment is not justified or practicable because either:

- The activity is low risk and the task duration is less than 30 minutes.
- The layout and other features of the work site preclude the use of more appropriate equipment e.g. parked cars prevent aerial appliance access.

12.50 The duration is determined by the total time the activity will take, not the time an individual crew member is engaged in the activity. For example, it would be appropriate to use a ladder to remove a small number of tiles from a roof to gain access to specific area, but, if all the tiles need to be moved for general access, then an aerial appliance should be used.

12.51 When a ladder is used as a work platform, personnel should take appropriate measures to prevent a fall. As a minimum and provided the work is low risk and of a short duration, personnel should maintain three points of contact (one hand and two feet) with the ladder and not overreach from the ladder (i.e. keep your navel within the span of the ladder strings).

12.52 If it is not possible to maintain three points of contact with the ladder for other than a brief period, then a leg lock should be taken.

12.53 Leg locks should only be used for a short duration and for operationally urgent tasks. The need to take a leg lock is an indicator that ladders may not be the best equipment option and the IC should consider whether safer options, such as line operations or an aerial appliance, should be used.

12.54 FRU personnel trained in line operations can provide expertise and equipment to help implement safe systems of work, such as the use of strops, provision of harnesses and belay systems to facilitate work restraint.

12.55 When using equipment aloft on a ladder, consideration should be given to whether the safest option will be to carry or haul the item aloft or whether it should passed to the person at the head of the ladder, once they have taken a suitable leg lock.

12.56 Further information regarding ladders is provided at Appendix 6.

Noise and vibration

12.57 Firefighters can encounter a wide variety of sources of noise when attending incidents, including:

- The operation of fire service vehicles and equipment;
- the operation of on-site machinery or equipment;
- fire or other alarm system sounders;
- the presence of large numbers of people and/or the public performance of music; and/or
- explosion.

12.58 Where possible, the source of any excessive noise should be shut down; for example, alarms or warning systems should be silenced as soon as it is confirmed that this will not compromise the safety of occupants by prematurely halting an evacuation.

12.59 Where it is not possible to eliminate the source of noise, personnel should, as far as practicable, limit the time they spend in a noisy environment and increase their distance from the source of the noise to limit the risk of hearing damage.

12.60 Ear protection should also be worn where necessary and three types are provided:

- All personnel are issued with 'Ear Ultrafit' ear defenders, which form part of PPE and are compatible with wearing a fire helmet.
- Earmuffs are also available to provide a higher level of protection for personnel when undertaking specific tasks, such as when operating certain items of USAR equipment.
- Mass Casualty Recovery (MCR) teams are issued with active noise cancelling hearing defenders.

12.61 Excessive noise can also:

- Adversely affect voice communications;
- mask any distress calls from casualties; and/or
- obscure any sounds that may be generated by the deterioration of a structure, such as a building collapse or the deformation of a vehicle.

12.62 To maintain situational awareness and provide effective direction, it may be beneficial to conduct briefings and debriefings in quieter areas. Where unavoidable noise makes it impossible to communicate verbally, it may be necessary to agree and use alternative methods of communication, such as signalling with hands or lights.

12.63 High levels of noise may also require additional methods to a whistle to be used if it is necessary to withdraw or evacuate firefighters - see Section 3 of Policy number 985 - Operational safety management - knowledge skills and competence – NOG.

12.64 The adverse of effects of vibration may be experienced by firefighters when operating certain items of equipment or when travelling in mobile machines or vehicles over rough terrain.

12.65 To reduce the risk from vibration when using equipment, the relevant procedural guidance should be followed, and personnel should be rotated through the task to limit exposure.

12.66 Any use of mobile machinery or vehicles over uneven ground, should be assessed in advance and where alternative routes exist, rough terrain should be avoided. Where traversing uneven ground is unavoidable, monitoring arrangements should be implemented to limit exposure and minimise any adverse impact.

Moving machinery

12.67 If moving machinery is present at the incident location, this can create a risk of persons becoming trapped, crushed, and entangled in the machinery. The machinery power source can also create a risk of electric shock/electrocution and any hazardous substances that form part of the machinery may cause burns or other injuries.

12.68 In some instances, machinery may be referred to as 'plant' and this can include lifts and escalators, cranes, conveyor belts, compactors, silos, and drilling equipment.

12.69 Where moving machinery is identified as posing a risk to firefighters or others, the following actions should be considered and implemented as necessary:

- If they are present, liaise with occupier or the 'competent person' who is responsible for the machinery.
- Isolate, shut down or restrict the use of moving machinery for the duration of the incident (see Section 16 – Utilities). It should be noted that some items of equipment may require a period of time to elapse before they are isolated and before they can be considered safe.
- Ensure any on-site operators are made aware of the presence of firefighters and other responders who are working in the proximity of any moving machinery that is left in operation.
- Brief personnel on any residual hazards and implement cordons to create safe working areas (see Section 13 – Cordons).
- If any on-site machinery is being used to assist with Brigade operations, this must be risk assessed in advance and undertaken under the supervision and with the assistance of the 'competent person'.
- Use of safety officers and tactical advisors to monitor the situation and advise on safe working practises.
- Wear high visibility clothing to help identify the presence of personnel.

12.70 For further information, see Policy number 979 – Rescue - NOG, Policy number 838 – Incidents involving waste recycling or refuse derived fuel handling and storage.

Oxygen deficient atmosphere

12.71 A risk of asphyxiation can exist wherever there is a displacement of oxygen, such as might arise when fire suppression systems activate or in locations where there is little or no ventilation e.g. in sewers.

12.72 Whenever a lack oxygen is suspected and it is necessary to enter the affected area, Respiratory Protective Equipment should be worn in accordance with Policy number 466 – Respiratory protective equipment – breathing apparatus – operational procedures

12.73 As described in Policy number 797 – Detection, identification and monitoring (DIM) instruments, the GFG micro detector can be used to measure oxygen levels and if these are deficient, it may be possible to use ventilation tactics and equipment to restore air quality to safe levels – see Policy number 883 – Tactical ventilation.

12.74 For further information relating to smoke and fire gases, see Fires in buildings foundation document and for toxic and flammable atmospheres see Hazardous materials foundation document.

Structural deterioration

12.75 The nature of an incident may render the integrity of any structure or mode of transport unsafe. This could be because of fire, explosion, collision, severe weather, subsidence or flooding.

12.76 Any collapse can cause physical injury such as crushing and, depending on the material involved, also create a risk of inhalation of harmful substances, such as particulate matter e.g. crushed concrete.

12.77 The signs of structural deterioration can include cracks (especially those running horizontally), sagging floors, displaced columns, dropping arches, de-formed walls and any unusual noises coming from the structure.

12.78 Where structural deterioration is identified as a risk to firefighters or others, the following actions should be considered and implemented as necessary:

- The potential footprint of collapse and debris should be assessed, noting that it may be necessary to obtain specialist advice from either a USAR Advisor, Dangerous Structure Engineer or transport operator surveyor or engineer.
- Use of any information that is available from the occupier, other agencies and from reconnaissance via aerial appliances or drones to help identify the structure's type, age and condition.
- Establish cordons to restrict access, create safe working areas and identify safe routes in and out of structure (see Section 13 - Cordons).
- Need for specialist skills and equipment, such as Urban search and rescue (USAR).
- Deploy the minimum number of personnel required to undertake a task.
- Use safety officers to monitor stability.
- Use appropriate respiratory protection to protect personnel form any particulate hazard.
- Isolate utilities and shut down any machinery (see Section 16 – Utilities and Section 12 sub-section 'Moving machinery').

12.79 For further information, see Policy number 979 – Rescue - NOG, Policy numbers 557 – Urban search and rescue policy and Policy number 985 - Operational safety management - knowledge skills and competence – NOG.

Radio frequency radiation

12.80 Working near radar installations and mobile phone, radio or TV antenna masts can create a risk of injury, such as tissue damage and burns. These installations all produce high frequency electro-magnetic fields (EMF) and, as well as causing possible injury, EMF can also disrupt Brigade communication systems (see Section 14 – Maintaining effective communications).

12.81 When working near any potential source of EMF, the following actions should be considered and taken as necessary:

- Firefighters should avoid positioning themselves in front of any dish or antenna.
- Seek information from warning signs and any competent person available on-site.
- Ensure that all personnel and others in the vicinity are made aware of the risk.
- A hazard zone should be established to create a safe working area and the size should be determined in accordance with the information provided in on-site warning signs.
- Entry into the hazard should only be made to save life, using minimum number of personnel, for the shortest period of time and maximising distance from the transmitter as far as practicable.
- Any approach that is necessary to microwave dish or sector area should be made from the rear, which is denoted by the point where the feeder cables enter.
- Ensure that any Brigade personnel with medical implants stay outside the hazard area.

- Isolating the power supply to the source of EMF, but this action must only be taken are full consideration has been given to the potential wider impact this might have.
- Monitor any adverse impact of EMF on Brigade communications.

Exposure to weather, heat and cold

12.82 Whenever firefighters are required to be in open areas for an extended period in either hot, cold or windy weather conditions there is a risk of injury from conditions such as sunburn or hypothermia. Lightning can also create a risk for personnel working in exposed or unsheltered locations and may also cause a structure to collapse or start a fire.

12.83 The guidance provided here also applies whenever working in other locations where firefighters are likely to experience hot or cold conditions.

12.84 Personnel should maintain their awareness of any weather warnings and consider the impact these may have on operations, such as causing:

- Impaired visibility;
- limitations on the use of appliances and equipment;
- a greater risk of smoke, dust or other hazardous materials moving around the incident ground; and/or
- objects to fall from height.

12.85 When working outside in hot weather, sunscreen is provided on all appliances to help prevent sunburn and personnel should take particular care to ensure they remain well hydrated (see sub-section on Hydration below).

12.86 The wearing of sunglasses during operations should be in accordance with Policy number 244 – Aids to vision (ATV).

12.87 Other actions to be considered and taken as appropriate may include:

- Radial cooling – the application of cold water to hands, head, neck, and wrists.
- Use of shaded rest and recovery areas.
- Relax PPE for specific activities, where this has been risk assessed in advance (see Section 7 and Policy number 320 – Wearing of uniform and personal appearance – Section 5 Uniform worn at incidents).
- Rotation of personnel.

12.88 Prolonged exposure to cold temperatures can create a risk of hypothermia and this can be heightened if personnel are immersed in water or are wearing wet clothing/PPE.

12.89 When working in the cold, consideration should be given to rotating personnel so that they can restore their normal body temperature in a warmer environment and, for any casualties, the use of 'blizzard blankets' will help to protect them from cold weather (see Policy number 543 – Immediate emergency care (IEC) Medical first aid).

12.90 Where weather warnings indicate a risk of lightning, it may be necessary to restrict or stop altogether activities such as working at height, working in the open or working on or near water.

12.91 Consideration should also be given to moving personnel to a place of shelter and controlling/restricting the use of conductive equipment, such as ladders (see Section 12 sub-section Working at height – ladders).

Avoiding confrontation when anti-social or violent behaviour is encountered

12.92 Although firefighters are generally held in high regard by members of the public, anti-social behaviour, aggression, or violence may be encountered when attending any incident.

12.93 All personnel should consider how their behaviour may be perceived by others and seek to avoid confrontation by:

- Always remaining calm and maintaining an appropriate distance from others.
- Using 'open' body language e.g. avoid folding your arms or adopting a tense facial expression.
- Avoiding postures that may be viewed as aggressive or threatening e.g. turning away from people when they are speaking to you.

12.94 Where firefighters encounter aggressive or violent behaviour, it may be necessary to withdraw personnel and request police assistance via Control.

12.95 For further information regarding 'higher threat' incidents, see Hostile environments foundation document, Policy number 256 – Public order and civil disturbance procedure, Policy number 259 – Terrorist related incidents and Policy number 882 – Marauding Terrorist Attack (MTA) – cold zone working.

Dangerous animals

12.96 Animals may be encountered during any incident. Some animals may behave in ways that are unpredictable and dangerous, such as by biting, stinging, clawing, or butting. Animals can also create a risk of infection and anaphylactic shock.

12.97 The Brigade is sometimes called to rescue animals and, at some locations, dogs may be used for security purposes, either on leashes or roaming free. Captive animals may also be found in locations such as zoos, laboratories, and abattoirs.

12.98 Where potentially dangerous animals are identified at an incident, the following actions should be considered and implemented as necessary:

- Seek specialist advice and support to deal with animals i.e. from any competent person available on-site, a Brigade Tactical Advisor Rescue or by making a request for the attendance of the RSPCA, a vet or the police via Brigade Control.
- Ensure that all personnel and others in the vicinity of the incident are made aware of the risk.
- Unless engaged in animal rescue, firefighters should avoid touching or handling animals and may also need to either contain or control their movement by confining them using a cage or carrier, fencing or any purpose made facility (such as a stable or trailer).
- Limit or control those actions that may cause a 'stress response' in animals e.g. minimise the movement of people and vehicles, limit any noise generated and control the use of lighting in their vicinity.
- Maintain personal hygiene and undertake decontamination as appropriate (see Section 20 – Decontamination).

12.99 For further information, see Policy number 979 – Rescue - NOG and Policy number 098 – Fires and incidents involving biological risks.

Hydration

12.100 All operational personnel should ensure that they keep well hydrated throughout their working shift.

12.101 Personnel should ensure that their refillable water bottle is always kept full and available, using local drinking water supplies whenever these are available.

12.102 These bottles should be stowed in the appropriate area of appliances and personnel are responsible for removing them at the end of their shift and maintaining the cleanliness of their own bottle. Personal issue water bottles are available to order on SAP (see SAP ID S1975).

12.103 Guidance regarding the amount of water that should be consumed after wearing RPE is provided in Section 26 of Policy number 466 – Respiratory protective equipment – breathing apparatus – operational procedures.

12.104 An IC may request bottled drinking water and should assess the amount required based on the number of personnel at an incident; likely duration of operations; and prevailing conditions, such as weather.

12.105 Bottled water can be ordered from Brigade Control and will be delivered from the Operations Support Centre (OSC) by Operational Support Unit (OSU).

12.106 The amount of bottled water delivered to an incident should be based on a consideration of the number of personnel at the incident, the likely duration of operations and prevailing circumstances, such as extreme weather and/or an arduous working environment.

12.107 Recyclable refuse bags will also be provided to collect empty used bottles.

12.108 At the end of the incident the IC should make a request via Brigade Control for any unused water bottles and filled refuse bags to be collected.

Portable Hygiene Unit

12.109 Facilities to provide hygiene facilities for personnel attending an incident are provided by external contract, the contact details for which are held in Brigade Control.

12.110 At smaller and/or short-duration incidents, personnel may be able to use local facilities but for larger and more protracted incidents a trailer-mounted Personal Hygiene Unit (PHU) can provide:

- Male and female toilets.
- Hand cleansing and drying facilities.
- Women's sanitary product disposal.
- A dedicated space for dressing/undressing.

12.111 PHU's include a diesel generator which will be delivered with a full tank, but the Brigade is responsible for any necessary refuelling (via attendance of an OSU). All other PHU consumables will be replenished by the contractor.

12.112 PHU's are mobilised to all 8 pump incidents and above, but in some cases, Brigade Control may contact the IC to determine whether the PHU is required considering the travel distance and the time it is likely to take to mobilise the unit to the incident location.

12.113 PHUs can be requested at any sized incident where their attendance is necessary and for incidents of less than 4 pumps, the request will be referred to the Officer of the Day prior to mobilisation.

12.114 Given the attendance times for PHU's – which can be up to three hours from the time of request - early consideration should be given to the need to request PHU's where it is anticipated they will be required. All requests should have regard to the incident's likely duration, the level of contamination of staff, time of day and the incident location.

12.115 PHU's should be sited away from the scene of operations but within the designated outer cordon and on level ground. Their location should provide easy access for personnel and if possible, PHU's should be co-located with other welfare facilities. The contractor should be requested if it is necessary to re-locate a PHU during an incident.

12.116 The IC is responsible for PHUs and their attendance should be recorded at the Incident Command Pump or on the Command Unit using the PHU's nominal roll board. The unit should be inspected prior to use and before handing it back to the contractor, with any defects being reported to the contractor's representative.

12.117 Prior to incident closure, the IC should arrange with Control for the PHU to be collected, noting that this may take up to 12 hours. It is important that the trailer locks and securing chains provided are used to prevent theft and whilst it is generally acceptable to leave PHUs awaiting collection unattended, an LFB presence at the scene should be maintained if there is any reason to believe the unit will be at risk from theft or malicious damage.

Welfare pack

12.118 A welfare pack is carried in the security box in the front cab of each appliance (and in the toilet on the fireboat) for use by operational firefighter's attending an incident or when otherwise away from their base. At other times, vending machines containing welfare items will be found in female toilets in all Brigade premises.

12.119 The IC or Sector Commander (SC) should always be informed before leaving and when returning to the incident ground. If an individual is unable to find suitable changing facilities, the IC is responsible for making necessary arrangements.

12.120 Where possible, personnel should use the welfare pack from their own appliance to make replenishment of the pack easier, but if this is not possible, the use of a pack from another appliance should be reported to the appliance commander.

12.121 Further information regarding the contents of the pack, checks and replenishment arrangements is provided in Appendix 3.

12.122 Welfare packs are for emergency use at operational incidents.

12.123 If the individual is unable to locate suitable changing facilities, the IC will make other arrangements in order to secure suitable changing and welfare facilities.

12.124 The contents of the welfare pack must be checked after use and weekly. A 100% reserve for one complete pack will be kept at the station to facilitate the replenishment of used or expired/out of date items.

12.125 Disposal bags are provided for use as appropriate.

12.126 Individual items can be reordered separately on SAP, under 'operational equipment'.

12.127 Welfare pack forms part of the inventory for all pump ladders, pumps, command units, fire rescue units, hose layer units, operational support units, fireboats and turntable ladders.

13. Cordons

13.1 Cordons provide a visible boundary to identify the perimeter of a hazardous area to anyone approaching it and can be used at any type of incident.

13.2 As stated in Section 4 – Legal powers and responsibilities, firefighters have the power to close roads and restrict access to a location during an emergency situation.

13.3 This is typically achieved through the implementation of a cordon and if any unauthorised person attempts to breach a Brigade cordon, it is possible a criminal offence will have been committed under the Emergency Workers (Obstruction) Act 2006.

13.4 In these circumstances, which would constitute obstructing a firefighter in the course of their duties during an emergency situation, the police should be requested to enforce the cordon on the Brigade's behalf.

13.5 Cordons reduce risk at an incident by:

- Separating firefighters and others at risk from the hazard.
- Facilitating fire service and other responders' operations.
- Preventing unauthorised access and protecting/preserving a scene.

13.6 There are three types of cordon:

- **Inner cordon** – established around the immediate scene of operations to control or exclude access to the hazard area.
- **Outer cordon** – located beyond the inner cordon to prevent public access and create space for emergency services' support activities.
- **Traffic cordon** – set up by police at or beyond the outer cordon to prevent unauthorised vehicle access and help control traffic.

Inner cordon

13.7 Inner cordons should be large enough to contain both the hazard zone (taking into account the potential for the incident to escalate) and the personnel/equipment involved at the scene of operations.

13.8 An inner cordon should be marked with yellow barrier tape 'Hazard Zone – Do Not Cross' and no-one should enter without the approval of the Brigade IC.

13.9 Deployments within the inner cordon should be limited to the minimum number of personnel required to achieve the objective or task. Personnel should leave the scene of operations once their objective/task is complete. At any incident where the Brigade has identified a hazard, any control measures that have been applied should be explained and extended to responders to other agencies.

13.10 Other agencies will have completed their own risk assessments for incidents, so their personnel may use different procedures, equipment and/or PPE to the Brigade and provided there no apparent significant safety concerns, any variation is not a reason to prevent access. All personnel should be briefed on emergency evacuation signal and the action to be taken if heard. It may be appropriate for firefighters to act as 'escorts' to personnel from other agencies.

13.11 It is important that there is a shared understanding of risk at all incidents and this is particularly the case at incidents where other agencies have the 'lead' (e.g. terrorist or public order related). Police and other representatives should be consulted at the earliest opportunity and National Inter-Agency Liaison Officers (NILOs) are available to facilitate this.

Outer cordon

13.12 This area surrounds the inner cordon and is marked by white barrier tape marked 'Fire Service – Do Not Cross'. Where possible, command units, RVPs, marshalling areas and other support should be positioned within the outer cordon.

13.13 The police are responsible for controlling access through the outer cordon, but in the short-term, if there is going to be a delay in the police establishing a sufficient presence, firefighters may undertake this role.

13.14 At less serious incidents, an inner cordon may not be required if the IC is satisfied that a single, outer cordon will be sufficient to monitor safety and maintain the integrity of the scene.

Traffic cordon

13.15 This cordon will be established beyond the outer cordon by the police to prevent unauthorised vehicle access and promote better traffic flow around the incident.

Establishing a cordon

13.16 The time taken to establish a cordon should not delay the withdrawal of those at risk in the hazard area and anyone who is not required by their role to be exposed to the hazard should withdraw as soon as possible.

13.17 Before a cordon is set up, the IC should assess – by considering the severity of the risk and who is at risk - whether the risk can be managed in other ways, such as by removing the hazard or by the IC or designated personnel monitoring the risk area.

13.18 It is important to set the size of the cordon so that it is proportionate to the level and type of risk because an unnecessarily large cordon will be difficult to set up and manage, whereas a cordon that is too small may fail to reduce the risk to a level that is 'ALARP'.

13.19 Guidance for the minimum recommended distances for the most commonly encountered incident types is provided in Appendix 2 and for other hazards, the IC should determine the cordon size after considering all available information and consulting with any relevant expertise that may be available from staff at the incident location and/or from LFB tactical advisors.

13.20 When setting a cordon and determining its size and position, consideration should be given to:

- The potential for an incident to escalate.
- The requirements of each service.
- Keeping the adverse impacts to the local community to a minimum, whilst maintaining public and responder safety.
- Advice from the police, if the incident is or suspected to be terrorist related – see Policy number 259 – Terrorist related incidents.

13.21 An atlas and acetate, the Command Support System (CSS) and Mobile Data Terminal (MDT) can all be used identify the position of a cordon, plot it on a map and identify suitable points for access/egress.

13.22 It is usually easier to set up a cordon if the boundary follows identifiable features and roadways beyond the minimum distance.

13.23 Once established, everyone attending the incident and Control should consider the cordon's boundary, position, and approach routes/Rendezvous Points (RVPs).

Maintaining a cordon

13.24 The size and effectiveness of a cordon should be reviewed regularly as part of the on-going risk assessment for the incident.

13.25 To be effective, cordons must be staffed by adequately briefed personnel and marked with barrier tape to help prevent any unauthorised access and monitor those leaving the cordon. Where the police

are in attendance, they should be requested to manage the outer cordon and a communications link established to facilitate access/egress through the cordon.

13.26 At larger and/or higher profile incidents, consideration should be given to establishing a media marshalling point (see Section 21 – Media management).

Safety management within the inner cordon

13.27 At an incident where the Brigade is the 'lead agency', the IC is responsible for the safety of all those working within the inner cordon. At other incidents where two or more agencies are responding to the incident, the safety management of personnel working within the inner should be considered as part of each agencies risk assessment and the arrangements put in place for managing the incident.

13.28 Effective control should be established and maintained through the nomination of an Inner Cordon Controller (ICC) and additional personnel as necessary to control access and provide safety briefings.

13.29 Where practicable – and to avoid over-complicating the incident command structure – a single entry/exit point should be used. At larger and more complex incidents, a sector commander and a suitable number of personnel should be allocated to manage two or more entry/exit points, in which case an ICC nominated for each entry/exit point.

13.30 For further information about cordons at major incidents and regarding the role of the ICC, see Policy number 263 - Major incident procedure.

Closing down a cordon

13.31 A cordon should remain in place for as long as it is needed to reduce risk at an incident, but to minimise disruption to the community, it should be removed as soon as it is no longer required.

13.32 The closure of any cordon set up by the Brigade should be agreed with all the agencies attending the incident. If another agency requires a cordon to remain in place (e.g. the police, to preserve a crime scene), there should be a formal transfer of responsibility for the cordon and a record made of the responsible person/agency.

13.33 When a cordon is no longer required, all barrier tape should be collected and disposed of responsibly, seeking advice on the method of disposal if it is contaminated.

14. Maintaining effective communications

14.1 Effective communications are vital to maintain the safety of Brigade personnel and others during an incident. A timely exchange of information – at the scene, between responding agencies and with Brigade Control – is essential to build, maintain and share situational awareness.

Communication between Brigade Control and an incident

14.2 The Brigade uses Airwave as the primary means to maintain contact between Brigade Control and an incident, both as a voice system and using data over mobile data terminals (MDTs). Airwave is also used by many Partner organisations and channels are allocated for multi-agency use.

14.3 Other methods of communication include mobile phones and pagers, with some incident information being shared between Brigade Control and Command Units (CUs) using the Command Support System (CSS) and the 'Boss' application.

14.4 Messages sent over Airwave to Brigade Control are recorded and retained for evidence purposes for a minimum period of 5 years (note: 'point-to-point' Airwave communications are not recorded).

14.5 For further information, see Section 11 Operational tactics – sub section On arrival, Policy number 518 – Messages from incidents, Policy number 336 – Mobile communications devices and Policy number 987 - Incident command - Organisation at incidents – NOG.

Incident ground communication

14.6 A separate hand-held radio system is primarily used at incidents and the scope of this policy is limited to the actions that can be taken to overcome poor communications when using that system.

14.7 An incident's size and layout can result in a loss of radio communication, and it can also be adversely affected by a building's construction, both regarding the materials used and whether any part of the structure is below ground (sub-surface).

14.8 Brigade radio and telemetry systems can also be adversely affected in locations where there are installations such as radar, mobile phone, TV or radio antenna (see Section 12 Maintaining safety and welfare - sub section 'Radio frequency radiation' for further information). It should also be noted that the presence of specialist equipment at an incident (such as Magnetic Resonance Imaging (MRI) scanners) can affect communications, as the room they are in is designed to prevent the spread of magnetic fields.

14.9 This is most often due to radio 'blind spots' – a particular location where radio transmission and receipt is either not possible or messages are inaudible – but a communications problem can also be caused by equipment or system failure.

14.10 The following actions should be implemented as necessary to establish and maintain effective communication:

- The volume of radio traffic should be managed by implementing designated radio channels, as appropriate to the scale and complexity of the incident.
- Use of correct call signs and standard phrasing and terminology.
- Agreeing a frequency for updates, such as 'every 15 minutes, unless risk critical information needs to be communicated sooner'.
- Maintain radio discipline by actively listening to the information that is being shared by others and only transmitting when there is a need to communicate particular and relevant item(s) of information.

14.11 If the radio signal is lost or is of poor quality, the following actions may assist:

- Users can try moving to a different location.
- Nominate additional radio operators to position themselves at intermediate location(s).
- Use the 'leaky feeder' and 'repeater systems' that are carried on CUs to boost radio and telemetry signals.
- Use hand-held Airwave radio to communicate between key locations, such as a CU and the bridgehead or a forward command point.
- Implement a system of 'runners' to convey information.
- Seek advice from an Airwave tactical advisor.

14.12 When radio contact with any team committed to an incident is lost, it must not be assumed that this is due to a transmission difficulty caused by the structure or incident location. Every effort should be made to re-establish communications as quickly as possible and if this unsuccessful, consideration should be given to committing an emergency team.

14.13 For further information, see Policy number 466 – Respiratory protective equipment and Policy number 987 - Incident command - Organisation at incidents – NOG.

15. Working with other agencies

Key principles

15.1 A significant number of the incidents attended by LFB are also attended by other agencies.

15.2 This will, most commonly, be the police and ambulance service but local authorities, utility companies and voluntary organisations, such as British Red Cross can also play an important role in the overall response to an incident. Brigade Control monitor multi-agency radio channels to identify information that is being shared by other agencies which may assist the overall response to an incident.

15.3 Joint Emergency Services Interoperability Principles (JESIP), reinforced in London by arrangements developed over time through the London Emergency Services Liaison Panel (LESLP), provides the framework within which agencies can work most effectively together to deliver a coordinated response.

15.4 The principles set out by JESIP and LESLP were primarily devised to deal with major incidents, but they are 'scaleable' and should therefore also be applied to the extent that they are relevant during any incident that involves a response by two or more agencies.

15.5 The key principles that should be considered and applied as necessary at any incident are:

- **Co-location** – the commanders of each agency should meet as soon as practicable to establish jointly agreed incident objectives and an initial coordinated plan.
- **Communication** – sharing information through clear communication that is free of jargon helps to ensure that there is shared and accurate understanding among all responders of any hazards or threats.
- **Coordination** – helps avoid duplicated effort and ensure that each agencies' capability is used to best effect to achieve agreed priorities and through making joint decisions.
- **Joint understanding of risk** – each agency should undertake their own dynamic risk assessment and then share it so that all responders can benefit from the widest understanding of the prevailing risks/threats.
- **Shared situational awareness** – a common understanding of the incident and it's immediate and longer-term impacts, developed alongside an appreciation of each agencies' capabilities and their priorities for dealing with the incident.

15.6 Responders from one agency may arrive at an incident ahead of others and may need to undertake tasks that normally the responsibility of others.

15.7 Use of the 'METHANE' model – which is described in Appendix 5 - will help to ensure that all the agencies attending an incident gather information in a manner that is consistent and will be readily understood by others.

15.8 Information relating to access, egress, and emergency evacuation arrangements (including the nominated location for roll call) should be shared with partner agencies, as part of multi-agency briefings.

15.9 In the event of any disagreement between responders at an incident, the Brigade IC should initially attempt to resolve the situation by finding a mutually agreeable consensus. If that does not prove possible, the attendance of a senior officer should be requested via Brigade Control.

The main functions of primary responders

15.10 The Civil Contingencies Act 2004 (CCA) divides responders into two categories depending on the extent to which they are required to plan for emergencies. 'Category 1' responders are those organisations at the core of emergency response, whereas 'Category 2' responders are 'co-operating bodies' who tend to be involved in incidents that affect their sector.

15.11 A complete list of 'Category 1' and 'Category 2' responders and a description of the main functions of primary responders is provided in Section 2 of LESLP's Major Incident Procedure Manual.

16. Utilities

16.1 The term **'utilities'** refers to all pipes, cables, apparatus and equipment that carry or use gas, electricity, fuel oil, telecommunications or water (mains or sewerage).

16.2 The term **'fittings'** has a specific meaning for utilities and in the gas industry, it is used to describe equipment such as pipes, connections, valves and syphons. For electricity supply, the term **'service'** is used to refer to the cable which enters a building, cut outs at the end of a cable, meters and consumer units.

16.3 The terms described in 16.2 should not be used in messages to Brigade Control, as all these items and equipment should instead be referred to as 'electrical or gas apparatus'.

Information to be passed to Brigade Control

16.4 When gas apparatus involved, the message should state whether incident is located inside or outside a premises, as this information will assist the utility company to send the correct team/response.

16.5 Whenever dealing with gas or electricity supplies outside of a building, the type of apparatus and utility should be stated in the message to Brigade Control, such as 'street junction box' or 'gas kiosk' involved.

The risks associated with utilities

16.6 Utilities may be encountered both in premises and in other locations (such as roadways) and the location of any utility involved in an incident should always be stated in informative messages to Brigade Control.

16.7 When gas pipes, equipment or appliances are involved and/or damaged, this can result in a build-up of gases and create a risk of fire or explosion if they reach the flammable range (the lower and upper explosive limits are 5-15% for methane).

16.8 Any exposed or displaced cables may create a risk of entanglement for personnel working in the hazard area; for further information see Policy number 466 – Respiratory Protective Equipment - breathing apparatus - operational procedures.

16.9 Touching live or damaged live electrical apparatus, equipment or appliances carries a risk of electric shock.

16.10 Any illegal activity in the incident location may mean that electrical apparatus is less safe. This may be because it becomes overloaded and either standing in or applying water on to live electrical apparatus can increase the risk of electric shock.

16.11 Any theft of components (such as earth straps) may also create a risk that objects such as metal fencing or gates could carry an electric current. This has the potential to create a risk of electric shock or electrocution from objects that would normally be considered safe to touch.

16.12 To determine whether utilities are involved, information should be sought from the owner, their authorised representative, or any on-site engineer available on scene. Relevant information may also be available from the MDT and from other sources, such as visible cables or pipes, premises signage and building plans.

16.13 The location of any available isolation points should be identified, and the presence of utilities should be communicated to as part of task and safety briefings.

16.14 Incidents involving electricity should be handled in accordance with Policy number 977 – All incident consideration and Policy number 978 – Utilities and fuel and incidents involving gas are covered by Policy number 804 – Natural gas and carbon monoxide.

16.15 For any incident involving live electrical apparatus, electrical gloves will provide protection if the voltage is known to be 3300 volts or less – see Policy number 977 – All incident consideration and Policy number 978 – Utilities and fuel and Policy number 831 –gloves - electrical – technical information.

Ownership of gas and electrical apparatus

16.16 Generally, the pipes, equipment, and apparatus on the supply side of the meter is the responsibility of the utility company, whereas all pipes, equipment and apparatus on the delivery side of the meter belongs to and is the responsibility of the occupier.

16.17 For gas apparatus, the utility company own the incoming apparatus up to and including the main meter, while other apparatus inside the building (including any private meters) normally belongs to the consumer.

High voltage, high pressure, and trunk main supplies

16.18 When dealing with high voltage electricity, high pressure gas or trunk mains, consideration should be given to the potential wider community and business continuity impacts that may result from any interruption or shut down of supplies.

16.19 If high voltage equipment, including overhead transmission lines, comes into contact with heat or smoke, this increases the conductivity of the air and it may allow electricity to arc from cables to earth or to adjacent buildings, trees, or fire service equipment.

16.20 It should also be recognised that these are complex systems and that their control and shut down will normally take considerably longer than the time taken to isolate supplies in individual premises.

16.21 It should also be noted that shutting down the supply to a high voltage electrical system – such as a transformer or switch-gear – does not necessarily render it safe. There may be a residual charge sufficient to cause electric shock or electrocution and this risk must only be considered to have been removed after the system has been declared safe by an 'authorised person'.

Shutting down utilities

16.22 Brigade personnel should only shut down utilities using the controls or switches that serve the premises affected by the incident and which are intended for use by the consumer. Firefighters should not operate any main valves or switches that are located in roadways outside the affected premises.

16.23 Whenever the Brigade shuts down a utility, the appropriate company should be informed through a message to Brigade Control. The occupier of the premises should also be informed and the tag Form 5528 (see Appendix 4) should be used on or near the main valve or switch to warn that the supply should only be re-instated after it has been checked by a competent person or the utility company representative.

16.24 This procedure should also be used at lift incidents where the electric supply is shut down.

16.25 Where a premises is supplied with fuel oil or liquified petroleum gas (LPG), the storage tank and isolating valves will normally be located above or below the ground floor level outside the premises. For further information regarding LPG, see Policy number 376 – Cylinder procedure.

16.26 It is not normally possible to isolate sewerage systems because they are open vented and gravity-fed system, but the relevant utility company may be able to use sluice gates to direct or divert flow.

16.27 In premises or location that provides a critical service such as a hospital, the impact of shutting down utilities should be actively considered, as it may have significant adverse consequences if back-up systems are not available.

16.28 When any utility is shut down, personnel and any responders from other agencies should be informed through task and safety briefings and this should include reference to any utilities that will remain in operation.

Attendance of utility company representatives

16.29 Whenever a utility is involved in an incident, the IC should consider whether the appropriate utility company should attend to provide advice and take any action, such as isolating supplies other than by using consumer switches or valves.

16.30 Where the assistance of a utility company representative is required, a message should be sent to Brigade Control (see Policy number 518 - Messages from incidents) and a Brigade attendance should be maintained at the scene until the representative arrives. A further message should be sent to Brigade Control if the representative has not arrived within 1 hour of the original request.

16.31 Whenever utility representatives attend an incident, they should report to the IC or CU when they arrive on scene. The IC should ensure they are briefed on all safety matters and should control their access to the scene of operations.

16.32 If safety considerations prevent the utility representative from working, they should maintain liaison until it is deemed safe for them to start work.

16.33 When an incident involves gas apparatus, the supplying company may wish to investigate to determine the cause of the incident and to assist with this investigation, the guidance provided in Section 22 – Scene preservation should be followed.

16.34 When dealing with incidents involving utilities, advice can also be provided by Hazardous Materials Environmental Protection Officer (HMEPO) and the scientific advisor.

Alternative energy sources

16.35 Any incident involving solar panels should be managed in accordance with Policy number 977 – All incident considerations and Policy number 978 – Utilities and fuel.

16.36 If the premises owner or occupier is unsure regarding the location of the panel controls and inverter, consideration should be given to requesting a 'competent person' i.e. the system installer.

16.37 For further information regarding wind turbines, see Policy number 977 – All incident consideration and Policy number 978 – Utilities and fuel.

Alternative energy

16.38 Due to the effects of fossil fuels on the climate and the need to reduce carbon emissions whilst complying with legislative targets, alternative energy sources are being developed at an increasing pace and utilised in every aspect of power generation. These alternative energies are utilised in everything from small mobile devices, to powering vehicles or large gigawatt storage plants, which can present additional hazards to the public and operational staff dealing when dealing with them.

16.39 The five primary alternatives to fossil fuels are renewable energy, nuclear power, hydrogen, biomass, and geothermal energy. Renewable energy is defined as power derived from natural sources that can replenish themselves, such as wind, solar, tidal or hydroelectric.

16.40 Alternative energy sources can also include gaseous fuels such as hydrogen, natural gas, and propane; alcohols such as ethanol, methanol, and butanol; vegetable and waste-derived oils. All sources can be encountered in a variety of settings i.e., generation, infrastructure, transport and storage.

16.41 Additionally, radiation sources are being utilised to generate power, although these are usually encountered at the generation point and strictly controlled, see LFB Hub Utilities and fuel | NFCC CPO (ukfrs.com).

16.42 This 'context guidance' has been developed to assist fire and rescue services in identifying hazards and implementing control measures at operational incidents where alternative energy needs to be managed or controlled.

16.43 Because of similarities in the production, storage and distribution of utilities, this section of guidance also covers generic hazards for alternative energy. However, in accordance with the structure of the National Operational Guidance framework, any hazards relating to specific fuel types will be dealt with in the guidance for hazardous materials, alternative fuels, utilities and fuel sections see LFB Hub - Utilities and Fuel.

16.44 This guidance does not deal with fire and rescue service operations such as incident command, fires and firefighting, performing rescues or environmental protection, other National Operational Guidance deals with those activities.

16.45 This guidance is supported by supplementary information that provides further detail on individual subject areas see LFB hub - Utilities and Fuel Supplementary Information.

Hydrogen

16.46 Hydrogen is the lightest gas that occurs in nature and is colourless and odourless. Hydrogen atoms pair up to produce diatomic molecules. Hydrogen has the chemical formula H2 is highly flammable and a very low ignition energy. It can be ignited by a static discharge, rubbing, friction, heating or even a mechanical shock. Spontaneous ignition upon sudden release or depressurisation is possible.

Hydrogen at refuelling stations

16.47 At refuelling stations, hydrogen is stored at pressures in excess of those found in the fuel tanks of vehicles, so will therefore be above 1000 bar. The cylinder pressures in vehicles can range from around 350 to 700 bar.

16.48 After being manufactured at a remote steam reformation site, hydrogen is often transported to refuelling sites by road tankers as a cryogenic liquid.

Hydrogen fuel cells

16.49 Hydrogen fuel cells are found in:

- Fixed installations.
- Industrial sites.
- Refuelling stations.
- Vehicles.

16.50 Hydrogen fuel cells can also be found at installations such as wind farms, where they can be operated in reverse to manufacture hydrogen.

16.51 Hydrogen fuel cells chemically combine hydrogen gas supplied under pressure with oxygen, usually supplied from air at atmospheric pressure, to generate electricity. The fuel cell is linked via specialist pipework to a high-pressure hydrogen cylinder, which should be fitted with a temperature pressure relief device (TPRD).

16.52 Hydrogen fuel cells are normally stacked; hundreds of individual cells, each producing a small voltage, are combined to supply large DC voltages. These can range from around 300V to 600V. These voltages are the main hazard associated with the hydrogen fuel cell itself, although these voltages drop to zero immediately the hydrogen supply is stopped. However, high voltages may still be present in linked components, such as cabling or batteries.

16.53 Fuel cells only ever contain very small amounts of residual hydrogen, which should be treated with caution, although this is not excessively dangerous. For further information regarding fuel cells in transport, refer to LFB Hub - Transport – Roadways: Alternative fuel vehicles.

Hazards

16.54 These hazards are unique to hydrogen:

- Hydrogen burns with an almost invisible flame. When released under pressure a jet like flame several metres in length can be produced that is almost impossible to see with the naked eye.
- Very cold saturated hydrogen can pool or flow horizontally at ground level; this can be difficult to see unaided but may be detected by using thermal imaging.
- Burning hydrogen radiates far less heat than carbonaceous or hydrocarbon fuels, which can make the flames very difficult to detect. Personnel may only be able to feel these flames if in direct contact, which can cause serious harm.
- Leaking hydrogen can ignite or reignite with ease, especially if under pressure and even in the absence of an ignition source.
- Because hydrogen is the smallest molecule it can over time slowly penetrate, or travel through, container walls, resulting in 'embrittlement'. This type of damage may take many years, but can eventually affect the structural integrity of cylinders, pipework, connectors, and valves.

16.55 The following hazards relate to hydrogen and are common to many other gases under pressure:

- A leak from a high-pressure hydrogen cylinder can be loud enough to cause damage to hearing.
- Hydrogen and oxygen gas are often stored at high pressures.
- Oxygen rich atmospheres may be found where hydrogen is being manufactured using electrolysis.
- Hydrogen is often stored or transported as a cryogenic liquid.
- High-voltage equipment is used with hydrogen fuel cells and in electrolysis.
- Some electrolysis equipment may contain a high temperature alkaline potassium hydroxide solution.
- Hydrogen fuel cells are silent, and personnel may not be aware of their presence.
- It may be necessary to use thermal imaging to detect or monitor fire spread if it involves gases, such as hydrogen, that burn with an invisible flame; for further information refer to LFB Hub - Thermal imaging or scanning.

16.56 For more information refer to LFB Hub:

- Hazardous materials
- Gases under pressure

- Oxygen-enriched atmosphere
- Cryogenic materials
- Inaccurate situational awareness: Hazardous materials
- Roadways: Alternative fuel vehicles
- Operational information note 0112 – Road Traffic Collisions

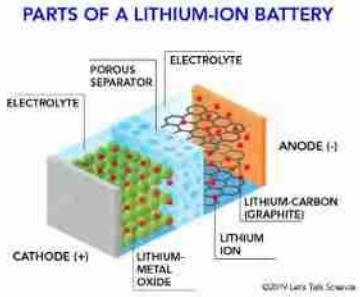
Lithium-ion Batteries

Introduction

16.57 Lithium-ion batteries are rechargeable batteries (as opposed to non-rechargeable lithium batteries) that use lithium-ions as the primary component of their electrolyte.

16.58 The term "battery" can be used to describe an assembly of "cells" and "modules". Lithium-Ion batteries (LiB's or Li-ion) may contain cylindrical cells, slightly larger than an AA battery; prismatic cells, about the size of two cigarette packs; or pouch cells, about the area of an A4 sheet of paper and 1cm thick. The cells are packaged together into modules, and a group of modules can form a battery pack. A large battery can consist of thousands of cells grouped into many modules.

16.59 For safety reasons, lithium-ion batteries include a protective membrane or separator. This prevents the electrodes of the battery's cells from touching each other. But if this separator gets ripped or damaged, the electrodes can touch. Once there are flames in one cell, they can quickly spread to others.



Background

16.60 No other battery type compares to the energy density of LiB's, resulting in a growing range of uses. These range from small mobile electronic devices, through to powering electric vehicles of all sizes including trains and Battery Energy Storage Systems (BESS).

16.61 LiB's introduce new unique hazards, requiring different responses and tactics for operational crews.

16.62 With advancements in solar-powered domestic and commercial photovoltaic systems, BESS is becoming an economically viable option for households and businesses if the surplus electricity isn't transferred to the National Grid.

16.63 There are generally two types of batteries utilised storage, lithium-ion and lead-acid batteries. Normally located near the system's inverter, often found in utility rooms, garages or similar locations.

Note: DC current is not identified by the voltage detector as this only detects AC current.

16.64 There are two main ways of linking a battery storage system into a PV system:

- **Direct Current (DC) coupled -** Batteries are installed the same side of the inverter as the PV panels, they charge from the panels, and their DC is only converted to AC when used.
- **Alternating Current (AC) coupled -** Batteries are installed grid side, where the DC from the PV panels has already been converted to AC. A separate inverter converts the AC back to DC for

storing in the battery. When the battery discharges, the same separate inverter converts the DC back to AC.

16.65 BESS systems are becoming more popular, and the presence of PV panels does not always indicate if BESS are present. BESS is used to store power from the grid at cheaper rates.

16.66 If the premises owner or occupier is unsure regarding the location of the panel controls and inverter, consideration should be given to requesting a 'competent person' i.e., the system installer.

16.67 Locations of identified sites can be found at renewables map: www.mygridgb.co.uk/map/.

16.68 These images are of typical installations found in premises:

Figure 1 Small scale domestic BESS

Figure 2 DIY domestic BESS

Figure 3 Industrial scale BESS

16.69 For further information about, battery storage, refer to BRE and RECC (2016) Batteries and Solar Power: Guidance for domestic and small commercial consumers.

16.70 For further information about the components of photovoltaic systems, refer to BRE's Fire safety and solar electric/photovoltaic systems.

Thermal runaway

16.71 Lithium-ion (Li-ion) battery thermal runaway occurs when a cell(s), or area within the cell, reaches elevated temperatures due to:

- Thermal failure.
- Mechanical failure.
- Internal/external short circuiting.
- Electrochemical abuse.

16.72

16.73 When Lithium-ion batteries are compromised, its normal electro-chemical processes are replaced by chemical reactions generating gases and heat. Heat speeds up the reactions, so more and more gases and heat are produced. When the (exponential) heat gains and exceeds the (linear) heat dissipation, the cells involved are in thermal runaway. Thermal runaway within a single battery cell can spread to neighbouring cells as the protective membrane or separator in the cells are compromised resulting in an escalation of toxic vapour production, increasing fire and explosion risk.

16.74 Impact or movement can lead to thermal runaway or deterioration in the condition of already damaged battery(s); crews should consider this when releasing a trapped casualty, stabilising a vehicle or a when a vehicle is required to be recovered.

Note: Crews may need to have a presence and agree a tactical fire plan whilst the vehicle is recovered. Additionally, crews may need to put in place watching brief(s), re inspections, and consider the need to accompany the affected vehicle to its final destination (if within London area). An in-depth handover to the Responsible Person (RP) will be required.

16.75 The presence of reactive metals, such as lithium can cause the release of explosive gases and alkaline solution, caused by chemical reduction of water, for example lithium hydroxide (LiOH) and hydrogen (H2). This can appear like steam and crews need to be mindful that this will need monitoring and advice from a HEMPO.

16.76 Sensitivity to charging and discharging regimes, mechanical shock, and localised temperature gradients which can lead to thermal runaway, rapid unexpected release.

16.77 Due to the popularity of LiB's and the need to charge and store the various uses of these systems more and more locations are being utilised often without specific notification or planning. Crews will need to recognise the surrounding risks and the control measures required to protect themselves, and the public from fire and explosion risks associated with LiB's see hazard section below.

16.78 Crews may have to evacuate buildings in close proximity and for potential extended periods, due to the thermal runaway, gases and explosion risks.

16.79 A Lithium-ion battery hazard video is available on Hotwire via Working here > Health and Safety > Lithium-ion battery hazards.

LiBESS (Lithium-ion Battery Energy Storage Systems)

16.80 Lithium-ion battery energy storage systems come in the form of one or more containers, resembling ISO shipping containers. There may not be a label identifying the contents as lithium-ion batteries. Even one container, when the lithium-ion cells inside are fully charged, contains a very large amount of energy in a relatively small space. They are often used to store grid electricity or even support the National Grid. (Note UKPN do not use LiBESS within the London area at this time see section Batteries Non Li-io). Pouch cells and prismatic cells are commonly used in LiBESS.

16.81 The McMicken LiBESS in Surprise, Arizona contained 10,584 such cells, only 392 of which went into thermal runaway. Despite that, the resulting explosion when a container door was opened severely injured two firefighters. Further reading can be found in the McMicken incident final report available online.

Figure 5 LiBESS installation on Merseyside that exploded in September 2020

16.82 The venting vapour cloud produced by cells in thermal runaway may or may not ignite; if it does it will produce jet-like flames coupled with toxic gases and fumes.

16.83 Previously fires without oxygen, would extinguish themselves. But when a Li-ion battery is on fire, one of the by-products is oxygen, so even in an enclosed environment, a battery(s) will keep burning resulting in thermal runaway often with explosive effects. In the event of ignition not occurring (e.g., the activation of fire suppressant systems, insufficient air in the container or cells having a low State of Charge [SOC]) the cascading thermal runaway will produce gases over a substantial period of time – way beyond the scope of most suppressant systems. Cells have the potential to ignite hours, days or even weeks after the initial event.

16.84 If the vapour cloud is present in a LiBESS container and the door is opened, the mixture could turn from rich to ideal, swirl and ignite resulting in a vapour cloud explosion.

16.85 The challenges posed by LiBESS are replicated in lithium-ion cell or battery manufacturing and storages facilities, large transport vehicles, goods trains, etc.

16.86 Further information can be found in the Policy number – 979a - Lithium-ion batteries - all incident considerations – SOP.

Hazard knowledge - Hazards (Li-Ion)

16.87 General Hazards of Lithium-ion Batteries:

- Batteries vary in size and configuration depending on their use and application. Larger batteries may be found in Energy Storage Systems (ESS) or vehicles including trains etc. Whilst smaller batteries are used in most electronic items such as laptops and mobile phones and can be dealt with relatively easier by submersion or isolation, however the larger LiB's will require an alternative approach as access is often hindered by chassis and other protective means.
- Batteries are arranged in series to increase voltage, and in parallel to increase capacity. Larger batteries may contain many hundreds, even thousands of individual cells.

16.88 Hazards can include:

- All Lithium-ion batteries produce white vapour when in thermal runaway. This vapour can easily be mistaken for steam (especially if visible flames have been extinguished) or smoke. In fact, it's an

explosive, corrosive toxic mixture of up to 50% hydrogen, plus carbon monoxide, carbon dioxide, hydrogen cyanide, acid gases, small hydrocarbons such as methane and ethane, and droplets of solvent.

- Personnel exposed may be subjected to solvent droplets from within the cloud condensing upon them. These droplets contain a mixture of chemicals. Advice should be sought from the HEMPO.
- Li-ion batteries can develop design or manufacturing faults; if abused through overheating, physical damage or overcharging. Battery cells may become unstable at temperatures as low as 70°C. The electrolyte is made from flammable organic solvents.
- LiB's may be pressurised under thermal runaway or fire conditions and present a high risk of injuries from blasts and shrapnel. Molten metal can be ejected explosively several metres.
- Large LiB fires will burn for protracted periods requiring large amounts of water to extinguish and cool. They are then prone to re-ignition hours, days or even weeks later, and may do so several times.
- Due to the construction of the battery in cells, it is possible for the battery to retain an electrical charge during or after a fire. Therefore, a risk of electrocution or electrical arc remains throughout the incident. This is sometimes referred to as "stranded electrical energy". Arc flash explosion can produce temperatures of up to 14,000°C.
- In a confined space a battery in thermal runaway will create an explosion hazard due to the white vapour and flammable gases. Examples of circumstances where this could occur are:
  - Electric Vehicle (EV) Road Traffic Collisions (RTC's).
  - Domestic and Industrial BESS.
  - Fires in LiB storage warehouses.
  - LiB manufacturing plants.
  - Transportation of EV battery packs by road and rail.
  - Underground car parks.
  - Basements.
  - Tunnels.
  - Railway arches.
  - Garages.
  - Charging points (domestic and commercial).
  - Any unventilated premise.

16.89 Additional hazards for crews to consider when dealing with LI-ion, LiB's:

- The need to recognise LiB's are involved or likely to be involved.
- Potential for impact on any life risk i.e. fire below a flat, office, high rise.
- Uncontrolled or unpredictable vehicle movements (RTC's).
- Gases, Vapours and toxic substances.
- High-voltage systems – the residual charge in these systems may remain for up to ten minutes after isolation.

- Difficulty gaining access to safety cut offs or applying firefighting media (vehicle may need jacking).
- Fuel cell explosion.
- Other Hazardous materials, including liquid petroleum gas (LPG) and lithium-ion cells.
- Electrolytes leaking from fuel cells.
- Pressurised systems.
- Damage to surrounding infrastructure and or the environment.
- Possibility of re-ignition (hours, days after the event).

Hazard knowledge - Hazards (Alternative Fuel Vehicles)

16.90 The term 'alternative fuel vehicles' (AFV) refers to vehicles powered by fuels other than petrol or diesel. The hazards and control measures for incidents involving AFVs should be considered in conjunction with those that apply to other road vehicles. AFVs may be difficult to identify from the exterior.

16.91 The following features could also indicate the vehicle has a high voltage system:

- Registration plate with a green band (from December 2020 onwards).
- Orange cables – all high voltage cables and connectors on EVs are orange in colour.
- Large HV components, such as the battery pack, motor or invertor.
- Warning stickers on components, usually yellow with the ISO electrocution symbol.
- Electrical charging socket, this could be under the vehicle symbol on the front grille, or under a "fuel cap" cover on the side or rear of the vehicle.
- Vehicle has a charging cable stored in it.
- Lack of an exhaust pipe, although hybrids will still have an exhaust pipe.
- Electric vehicles don't use a manual gearbox, so the gear lever is likely to look more like the selector of an automatic model.

16.92 If it is safe to enter the vehicle or you can see through the windows from outside, the vehicle dashboard and instruments may show information relating to the high voltage system:

- "Ready" light or EV indicator.
- EV power mode switches.
- Rev counter replaced with a power flow indicator.
- Battery State of Charge (SOC) information.
- HV diagnostic lights.

16.93 Vehicles without any of these features may still have a high voltage system.

16.94 When a vehicle is powered by two or more fuel sources, it is referred to as a hybrid. The term most commonly refers to hybrid electric vehicles, which combine internal combustion engines, electric motors, rechargeable batteries, and high voltage systems.

16.95 AFVs can be powered by:

- High voltage fuel cells (batteries).

- Compressed natural gas (CNG).
- Liquid natural gas (LNG).
- Biofuels.
- Hydrogen fuel cells.
- High voltage systems.
- Rechargeable batteries.

16.96 Where a vehicle is powered by two or more fuel sources, it is referred to as a hybrid. The term most commonly refers to hybrid electric vehicles, which combine an internal combustion engine and one or more electric motors. However, this term includes other mechanisms to capture and use energy.

16.97 AFVs may not show signs that that the engine is running, such as engine noise or exhaust gases, emitting, particularly when stationary. Although these hazards are not unique to AFVs they are more likely to be present than in older vehicles or those powered by petrol or diesel.

16.98 AFVs affected by collision, fire or submersion may present hazards including:

- Uncontrolled or unpredictable vehicle movements.
- Gases.
- High-voltage systems – the residual charge in these systems may remain for up to ten minutes after isolation.
- Fuel cell explosion.
- Hazardous materials, including liquid petroleum gas (LPG) and lithium-ion cells.
- Electrolytes leaking from fuel cells.
- Pressurised systems.

These hazards may also result from operational activity.

Rechargeable batteries in alternatively fuelled vehicles

16.99 New style rechargeable batteries are often found in alternatively fuelled vehicles, for more information refer to LFB Hub - Rechargeable batteries. Vehicle markings vary and can be misleading if they have been modified. Designs and locations of batteries vary widely, so it is not possible to provide a guide here to all types.

16.100 Many vehicles contain interchangeable trays of batteries, and the type of battery itself can be changed so that some contain, for example, a mixture of nickel cadmium and lithium ion. Batteries can be present in their thousands in trays located under a vehicle's floor and, in total, can be as heavy as 500kg or more.

16.101 It may not be difficult to identify which individual battery, or group of batteries, has overheated or is leaking electrolyte. Access to battery trays in a vehicle that is damaged may be limited. Personnel should seek specialist advice or consider the manufacturer's handbook or guidelines for information about appropriate firefighting media, access and isolation.

Batteries (non Lithium-ion)

16.102 In addition to Lithium-ion batteries there are a number of other battery solutions widely used and continually under development. For example, UK Power Networks (UKPN) use at their grid and primary sites a combination of valve regulated sealed lead acid (VRLA) or wet cell (Plante) batteries.

The batteries are anywhere between 24 – 110V and are required for a small amount of capacity in a Blackstart or similar event to bring the network equipment back online.

16.103 The batteries are usually situated in a small, well-ventilated room on dedicated racking or designed cabinets, with SCADA linked temperature alarms fitted to the charger units.

16.104 UKPN have fire risk assessments noting the hazards that relate to these battery systems and other areas of special fire hazard, and where required specific measures put in place to control these risks. For example, fire detection and alarms may be extended/upgraded to cover these areas or air conditioning units installed to deal with peak summer temperatures that are cause temperature alarms.

16.105 Compared to other battery storage applications, such as industrial and commercial battery storage facilities or fast charging lithium battery charging stations. The VRLA and Plante systems are considered to be lower of significant and uncontrolled battery fire than other battery storage solutions.

16.106 The hazards listed below are specific to incidents involving batteries (non lithium-ion) or are generic hazards for working in or around batteries involved in incidents. The list is not exhaustive, and ICs should always be aware of additional hazards when formulating their objectives and plan.

16.107 A battery is a chemical device that stores electrical energy in the form of chemicals and by means of electrochemical reaction, it converts the stored chemical energy into direct current (DC) electric energy.

16.108 Simply speaking there are two main types of battery:

- Primary (non-rechargeable)
- Secondary (rechargeable)
  - Lead acid/nickel iron batteries
  - Nickel Cadmium batteries (Ni-Cd)
  - Nickel–Metal Hydride batteries (Ni-MH)
  - Lithium–ion batteries
  - Sodium Sulphur batteries

Characteristics and hazards of Batteries

16.109 All types of battery present significant hazards, including risk of explosion and the potential for production of corrosive and/or toxic gases if damaged through impact or fire.

Lead acid/nickel iron batteries

16.110 These are the most popular and most used type of rechargeable battery. They are available in several different configurations like small, sealed cells with capacity of 1Ah (typical AAA) to large cells with capacity of 12,000Ah. They are likely to be found in vehicles with internal combustion engines, hybrids and fully electric vehicles (EV).

16.111 Other applications include energy storage, emergency power, communication systems and emergency lighting systems.

16.112 If involved in fire the products of combustion will contain droplets of sulphuric acid which is corrosive and poisonous. Salt water should not be used on fires involving lead-acid batteries, since under certain conditions chlorine gas may be generated. Hydrogen is released during the charging of these batteries, which can lead to a risk of explosion.

Sodium Sulphur batteries

16.113 If battery is damaged sufficiently (for example in a significant road traffic collision (RTC) or involved in fire, toxic sulphur dioxide and hydrogen sulphide will be given off.

16.114 Crews should be alert to this risk and should consider deploying a gas monitor, particularly if any person reports the characteristic 'rotten egg' aroma of hydrogen sulphide, noting that this gas is heavier than air.

16.115 A fire originating inside this type of battery can take up to 30 minutes to become apparent, will be very difficult to extinguish, and can burn for up to 2 hours.

Ni-MH (Nickel-Metal Hydride) batteries

16.116 Following significant physical stress, the electrolyte (made from potassium hydroxide) may leak.

Hazard knowledge - Hazards associated with batteries

16.117 The release of:

- Hydrogen gas.
- Carbon Monoxide.
- Sulphur Dioxide.
- Sulphur Trioxide.
- Hydrogen Sulphide.
- Lead fumes and vapour.
- Corrosive acidic electrolytes, such as sulphuric acid.
- Poisonous alkaline electrolytes, such as potassium hydroxide.
- Release of stored energy.
- Toxic or irritating water based liquid electrolytes, such as copper sulphate.
- Corrosive acidic electrolytes, such as sulphuric acid.
- Poisonous alkaline electrolytes, such as potassium hydroxide.
- Very high discharge or surge currents, for example in a road vehicle battery.
- Non-precious metals like lead or copper; elevated temperatures and fires can cause these metals, when in the presence of electrolytes, to react or release vapours.
- Release of hydrogen gas or oxygen gas during charging, which can ignite or explode.

16.118 Further information can be found in:

- Policy number 808 - Hazardous materials and environmental protection - mass decontamination
- Policy number 793 - Compartment firefighting.
- Policy number 956 - Respiratory protective equipment – respirator – technical information.
- Policy number 977 – All incident considerations.
- Policy number 978 – Utilities and fuel.
- Operational information note 0112 – Road traffic collisions.

- LFB Hub - Roadways: Alternative fuel vehicles.

17. Lighting

17.1 All firefighters are provided with a right-angle torch which should be worn on the fire tunic or tabard and a second torch is provided as part of the firefighting helmet – see Policy number 344 – Firefighter torch – Wolf TR series – technical information.

17.2 All front-line appliances carry battery powered lighting units, as described in Policy number 974 – Scangrip Nova 3K/4K portable lighting unit – technical information and various specialist appliances (such as aerials and USAR modules) also carry various types of portable units.

17.3 The lighting mast that is provided on all front-line appliances can be used to illuminate the scene of an incident. 'Fend-off' lighting should be used to alert and warn other road users of the presence of Brigade vehicles and personnel in the roadway.

17.4 Major Lighting Units (MLUs) are available to supplement Brigade lighting equipment and provide flood illumination. The illumination capacity provided by multiple MLUs operating together may be particularly beneficial where an incident is spread over large areas.

17.5 Twelve MLUs are available, which can be operated as individual units or as part of a multiple unit lighting strategy.

17.6 The MLUs are self-contained palletised systems that are transported to and from the incident on a tail lift lorry (with a maximum carrying capacity of six MLUs) and the mobilisation, use and safety considerations of this equipment is described in detail at Appendix 7.

18. Protecting the environment

18.1 All reasonable efforts should be made to protect the environment when attending an incident, both regarding reducing any risk to the environment that is created by the incident itself and reducing any environmental impact(s) that might be associated with operational activities.

18.2 Simple measures – such as switching off the engines of emergency vehicles unless they are required for pumping or other operational purposes – can have a significant positive effect, when measured over multiple incidents and over time.

18.3 Other basic, but nonetheless important actions include the responsible disposal of any waste that is created by LFB during an incident, such as plastic water bottles and cordon tape.

18.4 As a minimum, where contamination of the ground, water or air is known or suspected, a message should be sent to Brigade Control requesting notification of the incident to the Environment Agency (for ground or water) or Public Health England (for the air).

18.5 When an incident involves (or is in close proximity to) either a water course or Site of Special Scientific Interest (SSSI), protecting the environment should be a key incident objective and may require the establishment of a dedicated sector.

18.6 For further information regarding protection of the environment, see Policy number 206 – Environmental protection.

19. Damage control

19.1 As stated in Section 4 – Legal powers and responsibilities, the Brigade has a statutory power to take reasonable steps to mitigate damage and reduce losses resulting from LFB actions at fires and other incidents.

19.2 Successful damage control can prevent damage to and loss of vital life-saving equipment, critical patient records in hospitals and irreplaceable items of historical and national significance in museums and heritage sites. In locations containing 'critical national infrastructure', any damage to a premises or its contents may cause a loss of key services, such as the provision of electricity, water supplies or communications services.

19.3 In such locations, protecting contents will be a very high priority; equally, at a domestic incident, personal items such as photographs may be irreplaceable and of enormous importance to the occupier, even though they may have little or no financial value.

19.4 A significant percentage of damage that can occur may not be directly caused by the incident and may result from:

- Heat, smoke, steam, fumes, or condensation;
- the application of water or other extinguishing media (foam or dry agents);
- debris, dirt, or breakages;
- adverse weather affecting exposed interiors and their contents; and/or
- compromised building security leading to vandalism and theft.

19.5 Whilst fires are a common incident where damage control is necessary, a damage control plan should be developed at any incident where there is an opportunity to protect property. For example, it might be appropriate to implement damage control at a hazmat incident involving a goods lorry; in this instance, it may be possible to move the trailer contents to a place of relative safety or to contain spilled tanker contents for subsequent recovery.

Operational considerations for damage control

19.6 Damage control should not be treated as an 'after-thought' at an incident and early consideration should be given to determine whether additional support is required from specialist officers, equipment, or external organisations. Damage control should be given an appropriate level of priority in the incident plan and resourced accordingly.

19.7 The options for damage control will vary. At smaller incidents, the most effective action to mitigate damage might be to lift items off the floor; at more complex incidents, it may be necessary to devise a more detailed damage control plan and establish a damage control sector (see Policy number 987 - Incident command - Organisation at incidents – NOG).

19.8 At some locations, the availability of on-site salvage teams and/or dedicated specialist equipment may provide expertise and additional capacity that is likely to increase the effectiveness of the damage plan. If non-Brigade personnel are engaged in damage control activities, consideration must be given to their safety and welfare and, in some cases, it may be deemed too dangerous to allow them access, either to the whole building or parts of it.

19.9 Damage control can be categorised into 3 phases:

- **Phase 1** includes work undertaken at the same time as operational response e.g., firefighting. This is a vitally important phase if significant damage is to be prevented.

- **Phase 2** aims to mitigate any damage which has already occurred and prevent any further deterioration.
- **Phase 3** deals with the prevention of subsequent damage or losses e.g., the removal and temporary storage of items.

19.10 Each phase of operations should be considered when formulating the damage control plan and the damage control plan should form an integral part of the overall incident plan.

19.11 At fire incidents, the IC should, as far as practicable, consider:

- The weight of attack required to extinguish the fire, ensuring crew safety but also taking an opportunity to reduce flow rates and/or the number of branches in use.
- Close doors to prevent smoke damage in unaffected areas.
- The importance of replacing damaged hose as soon as possible, hauling hose up the outside of buildings and using rising mains where available.
- Ventilation is an important part of damage control and should be carried out in accordance with Policy number 883 – Tactical ventilation.

19.12 At a 'non-emergency' incident, the IC should ensure that an indemnity form is signed before commencing any activities as per Policy number 402 - Charging for special service incidents.

19.13 When formulating a damage control plan, personnel should work away from the area of highest risk outwards to other areas, this may be across floors and could include adjoining property.

19.14 The extent of operations should be assessed and the impact on the surrounding area and adjacent buildings. Any smoke travel or water run off can have an impact well away from the main scene of operations and this should, where possible, form part of the damage control plan.

19.15 Some locations may be provided with fixed installation equipment, which may both aid firefighting and reduce damage. Before using such equipment, the IC should consider the effects and possible damage this equipment may have on building contents. For example, ventilation systems may help to alleviate smoke damage, whilst sprinklers may cause water damage.

19.16 A sprinkler system must only be isolated on the express permission of the IC – see Policy number 079 - Sprinkler floor isolating valves. The occupier and senior fire safety officers may be able to offer valuable information and support where these systems are fitted.

19.17 The removal of contents to a place of safety should be undertaken in consultation with the person responsible for those items. Whilst the IC is responsible for the security of property under their control it is important that responsibility for salvaged items and premises security is handed back to the owner, occupier or their authorised representative as soon as possible.

19.18 If this is not possible, a secure area should be established for recovered items and police assistance should be sought to ensure the security of any high value recovered items.

19.19 Pumping appliances carry basic damage control and salvage equipment and the IC may decide to order on specialised equipment which is carried on the Operational Support Unit (OSU) - see Policy number 645 – Operational support unit.

19.20 When requesting an OSU, the IC should specify the equipment/resource packs required. The OSU carrying the damage control resource pack is on the PDA for a number of heritage sites such as Buckingham Palace and the National Gallery.

19.21 Any request specialist equipment or materials, such as mobile cranes and earth moving equipment, should be made to Brigade Control.

19.22 Before any commitment is made to using externally sourced equipment, this must be sanctioned by the duty Assistant Commissioner.

19.23 Where an incident is suspected to be or has been declared a crime scene, the factors and issues identified in Section 22 – Scene preservation should be considered and complied with.

20. Decontamination of firefighters

20.1 Following the exposure of firefighters to contaminants, action should be taken to avoid the potential for further contamination to other personnel, members of the public and family members.

Firefighters and officers exposed to contaminants

20.2 Hands, face, and neck should be cleaned using the wipes provided, which are carried on appliances, following attendance at an incident.

20.3 At larger incidents, the washing facilities provided by the Salvation Army canteen vans and Personal Hygiene Units should be used prior to eating/drinking.

20.4 A shower should also be taken as soon as is reasonably practicable following an incident and before entering any clean areas of the station, such as the kitchen, mess area or station office.

PPE

20.5 The colour of PPE has been chosen to make it easier to identify when it is contaminated and needs cleaning.

20.6 Wipe off contaminants (light contamination only) from the fire helmet (including the chin strap), gloves, radio and torch using Tufanega wipes. Fire boots should be cleaned using soap water, cleaning brush and ensure Nitrile green disposable gloves are worn when cleaning these items.

20.7 For heavy contamination, including bodily fluid, PPE should be bagged at the incident and sent off for laundering using the Bristol Uniforms contract.

20.8 Personnel should not travel back to fire stations in contaminated or dirty PPE as this increases the risk of transferring contaminants onto the appliance.

Operational appliances and equipment

20.9 Appliances should be wiped down using wipes.

20.10 SDBA/EDBA sets should be cleaned with Wypal and Paltech wipes. Only Paltech wipes should be used on the facemasks. Wypal blue cloths should be used for cleaning the backplate, straps, buckles, air lines and hoses.

20.11 Where appropriate, specialist advice can be obtained from the duty HMEPO or if in attendance, the Scientific Adviser. Also see Policy number 584 – Firefighter Decontamination.

Notification of actual or suspected contamination

20.12 If personnel have been in contact with - or suspect contact with - any substance that may cause injury or illness, the IC should be informed, and medical treatment sought where necessary.

20.13 Form 4208 wristbands and SPHERA application should be completed and the guidance provided in Policy number 411 – Notification of contamination or possible contamination by materials hazardous to health should be complied with.

21. Media management at incidents

21.1 Any communication with the media at an incident should be clear, consistent and delivered in accordance with Policy number 425 – Contact with the media and online communications.

21.2 It may be possible to manage contact with the media regarding smaller incidents (such as a minor RTC) through local relationships created by station and borough commanders.

21.3 Requests for information for larger incidents e.g. four pump fires and above will be handled by a press liaison officer (PLO), who will seek guidance from the IC and Communications Department before releasing information. All requests for a PLO to attend an incident or for support from the duty press officer should be made to Brigade Control.

21.4 It is also important that all the agencies that are responding to an incident are consistent in terms of the information shared with media. All media messages should therefore be coordinated and approved by relevant Partner agencies before their release (see Section 15 – Working with other agencies).

21.5 Making proactive use of all forms of the media – particularly broadcast and social media – is the best way to pass safety and other key messages to the public i.e. to 'warn and inform' the public. These messages might be advice to "keep doors and windows closed" (to protect the occupants of nearby premises from the effect of smoke or other hazardous materials) or a request for assistance when asking the public to stay away from the area where the incident has occurred (to minimise congestion and make it easier for emergency responders to reach and operate at the scene).

21.6 At the scene of an incident, all media representatives should be referred to the LFB Command Unit when it is in attendance, unless it is located inside a cordon, in which case a media marshalling point should be established. Before any information or access is provided, the reporter/photographer's credentials should be checked, by the PLO when they are in attendance.

21.7 Careful consideration should be given before any information is released to the media and should always be in accordance with the guidance provided in Section 5 of Policy number 425 – Contact with the media and online communications. All the information provided should be factual and avoid any conjecture or speculation e.g. relating to the cause of the incident.

21.8 Only personnel with a PLO 'tag' or those authorised by the IC should record images or photos at an incident.

22. Scene preservation

22.1 It should be recognised that all incidents have the potential to be a 'scene of crime'. In addition, where utilities are involved, the supplying company may wish to investigate to determine whether gas or electrical apparatus was either the cause - or was contributory to the development of – the incident.

22.2 The incident location should be disturbed as little as possible and the minimum number of personnel necessary to achieve an objective or task should be allowed into the scene.

22.3 Potential evidence can be damaged or disturbed in many ways, including by exposure to weather, material being moved or through foreign objects being introduced to the scene.

22.4 Some amount of disturbance is unavoidable to carry out operational activities, such as effecting rescues and firefighting, but once these activities are complete, the scene should, as far as practicable, be preserved. In some cases, it might be necessary to move physical evidence to a safe place, away from the effect of the incident, such as a spreading fire or rising flood water.

22.5 Where possible, any dials, valves or controls that may be relevant to the cause or development of any incident should not be moved; if moving them is unavoidable, their original position and read-out should be recorded for investigation purposes.

22.6 As stated in Section 13 - Cordons, a cordon can be used to limit access to authorised persons and to help protect the scene. Personnel should be informed of any known or likely area(s) of interest for fire or criminal investigation so that they can avoid disturbing or contaminating potential evidence e.g. by introducing materials that did not originally form part of the incident scene.

22.7 At fires where it may not be possible to confirm that the fire has been fully extinguished, any scene of fire must be monitored constantly by LFB personnel while awaiting the arrival of Fire Investigation Officers (FIO). This is so that any possible re-kindling of the fire can be dealt with rapidly.

22.8 Where an incident has been declared as a crime scene the IC should follow guidance provided within Policy number 399 - Fire Investigation and the Memorandum of understanding between the London Fire Brigade and Metropolitan Police Service.

22.9 If any attending personnel have recently attended other incidents and there is any possibility of 'cross contamination' between incident scenes, this information should be notified to the person or organisation undertaking the investigation, such as the police or Air Accident Investigation Branch (AAIB). This is particularly the case for any injury that resulted in bleeding at the scene.

23. Reliefs

23.1 All reliefs should be considered and implemented as per Policy number 772 - Reliefs at incidents and it is important to note that a relief is the replacement of a resource. It should not increase the overall level of Brigade attendance at an incident.

23.2 The early consideration and notification by radio message of relief requirements will assist Brigade Control to organise and mobilise appliances and senior officers.

23.3 As a general guide, reliefs should be requested 90 minutes before they are needed at the incident and at three hourly intervals.

23.4 The actual frequency of reliefs should be determined with regard to factors such as the welfare of personnel, prevailing weather conditions, the incident type and geography; and the nature and intensity of the work being undertaken.

23.5 At an incident where activities are arduous, reliefs should be implemented more often than one where workloads are less strenuous.

23.6 When taking/handing over command responsibilities at an incident all briefings should follow the principles outlined within Policy number 987 - Incident command - Organisation at incidents – NOG.

23.7 Vehicles ordered to incidents as a relief shall proceed at normal road speed, unless the IC determines otherwise, in which case relief appliances be directed to use visual and audible warning devices by Brigade Control.

24. Considerations and actions at the end of an incident

Handing over responsibility

24.1 The Brigade will seek to resolve any incident attended where it has the powers and capacity to do so. Where this is not possible - or another agency or the owner (or their on-site representative) is better placed to resolve the incident - the IC should seek to hand-over responsibility.

24.2 If there are no obvious causes for the Brigade's attendance (e.g. at an Automatic Fire Alarm actuating, but with no visible sign of fire), the IC must ensure that a thorough investigation is carried out before leaving the scene.

24.3 This investigation should, as far as reasonably practicable, identify the circumstances which led to the 999 call and if the situation is outside the Brigade's area of responsibility, any information gathered should be passed to the 'responsible person' or another agency (which will usually be the police).

24.4 The IC should regularly assess the need for a continued Brigade presence at an incident. Where there is no further risk to public safety and all appropriate actions have been taken, the incident should be handed back to the owner, responsible person or, in their absence, the police.

24.5 When handing over, the IC should consider and, where necessary, record on a key decision log:

- Who responsibility has been handed over to and on what basis e.g. owner or their on-site representative.
- Hazards and associated risks, including any identified issues with fire or structural safety, the provision of any cordons or warning signs.
- Actions taken to reduce risk, such as the isolation of utilities.
- Any actions which are recommended prior to the reinstatement of utilities and other building systems, such as fire alarms and ventilation.
- Who should have access to premises or incident location e.g. members of public or specialist contractors.
- All incident waste, other than that brought to the incident by LFB, is the responsible person's responsibility and should not be removed by the Brigade.
- Signed, dated and name printed by IC and responsible person, see Policy number 986 - Command skills - knowledge, skills and competence – NOG.

24.6 Where possible a copy of the key decision log should be given to the responsible person and a copy retained and securely stored as per Policy number 987 - Incident command - Organisation at incidents – NOG. In addition to the information recorded on the key decision log a message should be sent to Brigade Control as per Policy number 518 - Messages from incidents (e.g. 'duty of care left with occupier, TMO').

Management of equipment and resources

24.7 As soon as it is safe to do, active consideration should be given to whether operational resources can be released from an incident. Without affecting on-going operations, all appliances leaving an incident should depart with a full inventory.

24.8 Before leaving the scene, a physical check of the incident ground and appliance should be made to ensure no LFB equipment has been left. An inventory should be carried out to identify any deficiencies or defects and Policy number 724 - Appliance inventories and operational readiness should be followed when equipment is left at the scene for operational reasons.

24.9 If it is necessary to leave equipment in place to support operations, the appliance commander should report the details of any equipment left in situ to the Command Unit (CU) or ICP using the Operational Incident Handover Equipment Sheet Form 6176; this pad is carried on all appliances. This will assist in the return of equipment following an incident.

24.10 Where possible, appliance commanders should attempt to replenish any equipment left at the incident from relief appliances, but this exchange should only take place for items being used in operations.

24.11 The CU team leader is responsible for passing a list of any equipment left at an incident to Resource Management Logistics (RML). If a CU is not present and an ICP is in place, information regarding

equipment left at the incident ground will form part of the handover between the CU team leader and the appliance commander of the ICP. This should include copies of F6176 so that the appliance commander can notify the RML on return to station.

24.12 The commander of the last appliance to leave an incident should check the incident location to ensure that no Brigade equipment is left behind.

24.13 If resources such as major lighting units, portable hygiene units, hose layer and high-volume pump hose have been used, their collection will require advance planning due to the timescales involved. The last appliance commander should liaise with Brigade Control to arrange for the collection of Brigade equipment and should remain on scene, requesting a relief if necessary, until all Brigade-owned equipment is removed.

Securing the incident location

24.14 Where the LFB has forced entry to a premises, vehicle or location or it is otherwise insecure, responsibility for security should be given to the owner, occupier, or their on-site representative. If none of these are present, the police should be requested to secure the scene of the incident.

24.15 If the Police are unable to provide this service, all reasonable steps should be made to secure the property, vehicle or location and leave it in a safe condition. A 'while you were out' leaflet should be left at the scene and a message sent to Brigade Control including "no attendance made by the police, premises/location secured by LFB."

24.16 Where appropriate, consideration should be given to leaving cordons and signage in place to warn others of any residual hazards.

Recording information and supporting investigations

24.17 In addition to the information listed in paragraph when handing over an incident, the IC should gather the information required to complete the Incident Management System (IMS), in line with the IMS user guide.

24.18 Depending on the type of incident being attended, there may also be a requirement to complete and/or leave one or more the following documents:

- A copy of the 'After we leave' booklet (F6177) should be offered to support the owner or occupier of the incident location. This contains information on securing property, emergency accommodation, making an insurance claim and preventing any further incidents.
- Casualty Report Form (CRF).
- LFB liaison report form (RRF1), if a fire is suspected (see Policy number 399 – Fire investigation).
- Utility tag form (F5288 – see Section 16 and Appendix 4).
- Hazardous Materials and Environmental Protection Officer (HMEPO) log, if acetylene cylinders are involved – see Appendix 7 of Policy number 376 – Cylinder procedure.

24.19 Anyone attending an incident may be asked to assist other LFB departments and partner agencies, such as the Police and the Health and Safety Executive, with any investigation into the incident.

24.20 Where any firefighter is requested to provide information to support an investigation, appropriate arrangements should be made to manage their involvement and protect their personal rights in accordance with Policy number 920 – Major incidents investigation.

24.21 CCTV systems may be able to assist with information gathering by providing images that relevant to any post-incident reporting, investigation and/or to identify any operational learning.

Safeguarding

24.22 Any safeguarding issues identified at an incident should be reported in accordance with Policy number 305 - Safeguarding children policy and Policy number 736 - Safeguarding adults at risk.

24.23 If there is believed to be an immediate and significant threat to the vulnerable person(s), Brigade personnel should remain at the scene and request the attendance of a senior officer via Brigade Control; in other instances, the report should be made as soon as practicable on return to station.

Community recovery

24.24 Consideration should be given to liaising with members of the local community, who may be concerned for their safety after an incident in their premises or area. If firefighters are made aware of any members of the public distressed by an incident every effort should be made to reassure and offer advice to those individuals.

24.25 It may be appropriate to involve other agencies when responding to these concerns, if it is anticipated that there may be a need for specialist or on-going support.

24.26 At larger incidents, the longer-term recovery of a community will normally be the responsibility of the local authority and others, but the Brigade can play an important role in restoring normality by making timely requests for any appropriate assistance and by liaising with partner agencies at the earliest opportunity.

24.27 If the incident involves or has affected 'Critical National Infrastructure' (CNI) – such as major transport routes, power stations or water treatment works – this can have adverse impacts that extend well beyond the local community. If CNI is known or suspected to be involved, further advice should be sought from a NILO or the police.

Regulatory and community safety considerations

24.28 At any incident where any actual or potential on-going impacts or contraventions of the law are identified, the IC should consider the need to inform and/or request the attendance of the relevant agency for specialist advice and support. For example, if the incident had occurred in a restaurant and a significant potential public health issue was apparent (such as infestation) the attendance of an environmental health officer should be requested via Brigade Control.

24.29 In the case of any fire-related breeches of the law, such as defective fire doors or any breaches in fire stopping between compartments, a senior fire safety officer should be requested to attend via Brigade Control.

24.30 If an incident has occurred in a premises that is considered unsuitable for the accommodation of persons – such as occupants sleeping in a temporary structure, often called 'beds in sheds' – the Buildings Used as Unsuitable Accommodation Toolkit should be used.

24.31 After attending a fire in or near residential premises, 'Hot Strikes' should be carried out as soon as possible. 'Hot Strikes' are an effective way to provide reassurance and advice to residents both verbally and in the form of leaflets, carried on all pumping appliances.

24.32 Incidents and subsequent 'Hot Strike' action may identify premises and individuals who may benefit from Home Fire Safety Visits (HFSV). All 'Hot Strikes' and HFSVs should be delivered in accordance with the Borough and station community fire safety (CFS) plan.

24.33 If the presence of a large quantity of combustible material is identified at the incident location and suggests that 'hoarding' may be an issue, this should be dealt with in accordance with Policy number 829 – Hoarding.

24.34 If any issues associated with vandalism or anti-social behaviour are identified, they should be notified to the relevant agency, such as the building owner, police and/or local authority.

Considerations and actions prior to booking available with Brigade Control

24.35 The IC should consider the value of conducting a debrief or, if appropriate, a Performance Review of Operations (PRO – see Policy number 985 - Operational safety management - knowledge skills and competence – NOG) on site. Consideration should be given to privacy, crew safety and the quality of learning that can be achieved given the circumstances of the incident.

24.36 There is a general requirement that appliances and officers will be immediately available for further mobilisation. However, prior to booking available with Brigade Control, the IC, individual officers and appliance commanders should consider whether they and any personnel they are responsible for are operationally ready to attend further incidents.

24.37 The condition and availability of personnel, PPE, RPE, the appliance and equipment should be assessed regarding:

- The number, physical condition and emotional well-being of personnel, particularly following a traumatic incident – see Section 27 – Actions to support staff.
- Duration of duty – has the shift expired.
- Condition of PPE and uniform worn underneath, regarding whether this is damaged, soiled, or wet.
- Fuel and hose reel tank levels – fuel and water levels should be topped up as soon as possible.
- The availability and need to service any BA sets, communications, and other equipment, based on an appliance inventory completed at the incident.
- Physical location and travel distance to own station's ground.

24.38 When determining whether personnel are fit to remain available for operational duties, everyone should have regard to their personal responsibilities under the Health and Safety at Work Act 1974 and report if they have reason to believe they are not fit to undertake operational activities.

24.39 If an IC has any doubts over the current fitness of an individual following their attendance at an incident, they should not continue to be available for operational duties, pending further assessment and medical advice (if necessary).

24.40 If an IC assesses that an appliance is not available for mobilisation, either due to the appliance condition or the status of personnel they should contact Brigade Control and inform them they are 'Status 0'.

24.41 The reason for booking status 0 should form part of the message e.g. "now status 0 due to lack of BA".

24.42 Senior officers should risk assess their own fitness for duty following an incident. Where that assessment indicates that a period of rest is needed, they should contact Brigade Control to be placed status 0 for a time.

25. Return to station

25.1 Appliance commanders should make every effort to maintain operational readiness and their priority should be to ensure appliances return to be available for mobilising as soon as practicable.

25.2 If appliances have attributes which are temporarily unavailable due to defective/missing equipment, the StARS application should be updated accordingly.

25.3 On return to station, appliance commanders should consider and carry out the following activities to maintain operational readiness, as appropriate and necessary:

- **Meet the needs of personnel** – this includes personal hygiene, providing opportunities to re-hydrate and eat and addressing any identified staff welfare needs (see Section 27 – Actions to support staff).
- **Appliances and equipment** – should be inventoried, cleaned, tested and refuelled as necessary; test results should be recorded and any defects should be marked on the equipment and reported to Babcock or on SAP, as appropriate. If any equipment that is a 'tracked item' is left at the scene of an incident, the 'tracked items' list on the inventory should be updated.

  If the appliance commander was the last on-scene, they should inform the RML of any equipment that has been retrieved and advise the location to which the equipment has been removed.
- **Replace** – any defective equipment or consumables, such as sand.
- **Contamination** – any contaminated PPE, appliances or equipment should be dealt with as described in Section 20 – Decontamination.
- **Recharge** – any used batteries.
- **Reporting requirements** – these should be followed as appropriate in relation to:
  - Incident details to be recorded on Incident Management System (IMS).
  - Any safety events, personal injuries, exposure to hazardous substances and/or 'near misses' to be recorded on the SPHERA application in accordance with Policy number 368 – Health, safety and environmental event investigation policy.
  - Accidental dwelling fires as per Policy number 802 - Accidental dwelling fires – report and review process.
  - Any fire involving fatality to member(s) of the public as per Policy number 668 – Fire fatality – notification, procedure and borough commander's report.
  - Any instance of hoarding as per Policy number 829 – Hoarding.
  - Where necessary, personnel should be directed to make a written record of their actions, thought- processes and decisions during an incident as soon as practicable. This information may be used to support and inform any subsequent investigation, inquest, or inquiry in accordance with Policy number 920 – Major incidents investigation.

25.4 The IC should review any existing site information held on the MDT/ORD, and if appropriate, forward any new or changed hazard/risks to the relevant station ground's station manager.

25.5 Consideration should also be given to checking the incident address using the 'repeat incident location' tool that forms part of Incident Management System (IMS) reports.

26. Incident review

26.1 The purpose of operational assurance systems – such as debriefs and Performance Review of Operations (PROs) – is to highlight any previously unidentified hazards, risks or 'safe systems of work' so that they can be used to improve the safety of members of the public, firefighters and other responders.

26.2 For all 6 pump fires and above, the first station commander on scene should make arrangements for a Performance Review of Command (PRC).

26.3 By capturing and recording operational learning in a structured manner, any 'lessons identified' during an incident can be shared as appropriate (i.e. locally, within LFB or nationally) and subsequently used to make any changes that are deemed necessary.

26.4 Depending on the nature and scope of any 'lessons identified', the outcomes from an incident may be used to make improvements to:

- National Operational Guidance.
- LFB risk assessments, operational policy and/or technical notes.
- Training and personal development materials, courses, and assessments.
- The design and provision of appliances and equipment.

26.5 For further information and guidance regarding how to organise and run operational debriefs and review processes, see Policy number 985 - Operational safety management - knowledge skills and competence – NOG and Policy number 825 – Operational improvement process.

27. Actions to support staff

At the scene of an incident

27.1 The welfare of personnel can be adversely affected by fatigue and this can be a particular issue during 'spate' conditions and protracted incidents. It should be recognised that tiredness can impair performance at any incident and create increased risk when decision-making or undertaking tasks that require close attention or high levels of skill.

27.2 All personnel should take personal responsibility for their own well-being during an incident and monitor the well-being of others.

27.3 Those undertaking supervisory roles should ensure that the potentially increased risk caused by tiredness is managed through regular rotation and ensuring adequate rest periods.

27.4 Where necessary, screens should be used to restrict the view of any traumatic scenes.

Post-incident

27.5 Detailed advice to help staff deal with what they may have seen or heard during an operational incident is provided in Policy number 915 – Recognising and coping with potentially traumatic events.

27.6 Two key messages are that (a) individuals can react differently to the same event – some may find an incident traumatic, while others may not – and (b) everyone should feel able to express their feelings and concerns, if they experience a personal reaction after an incident.

27.7 These reactions - which are entirely normal and might be summed up as 'not feeling quite yourself' - can include:

- **Intense feelings** – such as sadness, anger, shame, fear, disappointment, or guilt.
- **Physical symptoms** – such as tiredness, poor sleep patterns, nausea, headaches, neck or back aches, muscular tension, and any change to eating or drinking habits.
- **Psychological changes** – reduced concentration or motivation, nightmares or 'flashbacks' and having deep or repetitive thoughts about an incident.
- **Changed behaviours** – becoming withdrawn, irritability, loss of sense of humour, impatience, or inability to express feelings.

27.8 Many people will start to get back to normal within a week and the following activities are likely to help individuals to process what they might have experienced at an incident:

- **Informal discussions** – conversations with workmates and supportive family/friends.
- **Debriefs** – these include structured watch-based events (such as a Managers debrief as per Section 8 of Policy number 915 - Recognising and coping with potentially traumatic events and a Performance Review of Operations (PRO) and an individual conversation with your line manager or other officer.
- **Continue to follow familiar routines** – exercise, eat healthily and participate in activities and hobbies.
- **Monitor intake** of alcohol, nicotine, and caffeine.
- **Balance** time spent alone with how long you are with others.

27.9 Individuals should monitor their reactions over time and consider seeking further advice and support from whichever of the following they feel most comfortable to approach:

- Watch officer, line manager or another senior officer.
- Various support groups are available and further information is available from Hotwire http://hotwire-live/About_LFB/Our_priorities/equalities/Pages/Support%20Groups%20at%20LFB.aspx.
- Counselling and Trauma Service (see CTS page on hotwire or call them on [redacted]).
- LFB Chaplaincy Service (can be contacted 24/7 via the CORE Team or by email [redacted]).
- The individual's General Practitioner (GP).

28. References

28.1 [This will be completed following consultation and will include all relevant LFB policies, NOG guidance, relevant legislation, key documents such as LESLP Major Incident Procedure].

Appendix 1: Forced entry equipment

Forced entry equipment (FEE) consists of the following items of equipment:

- **Hydraulic spreading tool:** This should be considered as the primary entry tool. It can be used to apply a controlled load to the lock of a door, often with enough force so that the lock is broken. The hydraulic spreading tool can be used on a variety of inward opening doors and security grilles.
- **Halligan bar:** This tool has been specifically designed to lever, puncture, and pry, and is ideally suited to force entry into outward opening door and grilles.
- **Enforcer:** Used as a ram to apply a force on inward opening doors. The enforcer can be used in conjunction with the Halligan bar to help gain entry through outward opening doors.
- **Prybar:** This tool is used primarily for creating enough space in an opening to allow the Hydraulic tool to be used.
- **Rubber mallet:** This is used in conjunction with the prybar.

Appendix 2: Cordon dimensions

The information provided in this table should be cross-checked with the parent policy to confirm current cordon dimensions.

Policy number	Policy title	Cordon dimensions
PN376	Cylinder procedure	Initial hazard zone 200m.
PN602	Incidents involving ionising radiation	Initial zone of 25m reduced or increased in accordance with the survey meter or contamination meter.
PN098	Fires and incidents involving biological risks	An initial restriction zone should be placed around the incident to keep unprotected personnel away from the risk. The size of the restriction zone will depend on the hazard involved, weather conditions and the overall prevailing circumstances, in lieu of any other information 25m should be considered as an initial zone.
PN796	HAZMATS: fires and incidents involving hazardous substances	Upwind with a minimum of 25m restricted zone. At serious incidents the public may need to be evacuated more than 200m.
PN519	Incidents involving asbestos	Restricted zone. 25m upwind.
PN259	Terrorist related incidents	**The size of device determines the cordon size** Up to size of suitcase: 100m Car/light vehicle: 200m HGV/lorry: 400m If in any doubt: 400m **Radio exclusion zone:** Appliance/main scheme: 50m Hand held radios: 10m
PN806	Fireworks and explosives - incidents and fires involving explosive materials	Hazard zones, the following cordons will be set at the following distances by the IC: • 200 metres for explosives up to 250kg or approximately the size of a small car. • 600 metres for explosives 251kg – 2000kg and any military explosive munitions HD1.2. • 1000 metres for explosives over 2000kg.
Note: All these figures are for reference only and should be subject to a full risk assessment under the conditions of their own policy.		

Appendix 3: Contents of welfare pack

The following list details the items and their SAP order numbers.

(a) One labelled carry pack (blue) V4354.

(b) Two applicator tampons regular (yellow) V4358.

(c) Two applicator tampons large (green) V4359.

(d) Two tampon information leaflets.

(e) Two press on towels regular V4361.

(f) Two press on towels large V4360.

(g) Four Femfresh wipes V4362.

(h) One disposal bag V4357.

(i) Two pair disposable nitrile, powder free gloves V4356.

Appendix 4: Form 5288 utility tag

Appendix 5: Methane

M	MAJOR INCIDENT	Has a major incident or standby been declared? (Yes / No - if no, then complete ETHANE message)
E	EXACT LOCATION	What is the exact location or geographical area of the incident?
T	TYPE OF INCIDENT	What kind of incident is it?
H	HAZARDS	What hazards or potential hazards can be identified?
A	ACCESS	What are the best routes for access and egress?
N	NUMBER OF CASUALTIES	How many casualties are there, and what condition are they in?
E	EMERGENCY SERVICES	Which and how many, emergency responder assets/personnel are required or are already on-scene?

Appendix 6: Further information relating to ladders

For technical information and associated training packages please refer to the following:

(i) Three-piece short extension ladder. See Policy number 246 – Ladder – three piece short extension – technical information.

(ii) metre ladder. See Policy number 247 – Ladder 9 metre (Angus Sacol) – technical information.

(iii) 13.5 metre ladder. See Policy number 636 – Ladder 13.5 metre (Angus Sacol '464') -technical information.

(iv) Roof ladder. See Policy number 642 – Ladder - roof (folding) – technical information.

Details on how to use Brigade ladders are contained in the following training packages and training materials:

(a) LAD001 – Introduction to ladders.

(b) LAD002 – 9 metre ladder.

(c) LAD006 – Working on ladders – climbing, mount and dismount.

(d) LAD008 – 135 Ladder – standard pitch.

(e) LAD013 – Working on ladders – carrying hose aloft.

(f) LAD016 – 135 Ladder props to the face.

(g) LAD015 – 135 Ladder confined space.

(h) LAD007 – Short extension ladder.

(i) LAD019 – Roof ladder.

(j) LAD020 – Ladder rescue - assisted down.

Appendix 7: Mobile Lighting Units (MLUs)

Equipment description

Each lighting unit comprises of a 7-metre air operated telescopic mast, combined 110 volt and 24-volt lamp assemblies and a 110 volt generator.

MLUs are unique in that they also have the facility to operate on a 24 volt 'silent running' battery supply. MLUs have the capability of illuminating areas upwards and to the side as well as directly down. Guy lines are provided for each unit to provide additional stability when required.

Mobilisation of MLU's

The IC should request the MLUs via Brigade Control – 'Major Lighting Units required' and pass details of a suitable delivery address/rendezvous point for the delivery contractor to attend.

Brigade Control will pass the request to Resource Management and Logistics (RML) for action, who convey details of incident location, rendezvous points and other relevant information to the contractor. The delivery contractor will provide an estimated time of MLU arrival and this should be passed back to the IC so that the MLUs can be incorporated into the plan for the incident.

Siting considerations

Off-loading, siting, and operation of MLUs should be carried out by the delivery contractor under Brigade supervision.

The following actions once a request for MLUs has been made:

- Identify the most suitable locations for each MLU, taking into consideration, the contractor's safety and subsequent MLU operation.
- Nominate personnel to meet and remain with the contractor whilst they are at the incident.
- Ensure that the delivery contractor is met at the RVP and escorted to the pre-selected site(s).
- Ensure suitable arrangements are made to manage the setting up and recording of each MLU location. Each MLU will be issued with a tally to record the location, start-up time and refuelling details. The tallies should be collected by the command team to facilitate the management and refuelling of the MLUs.

Use of forklift truck (FLT)

The IC should recognise the limitations of the MLU delivery lorry and its tail lift facilities. It is equipped with a pallet truck for use on level ground. A forklift truck (FLT) may be required to manoeuvre the units into position and if this is the case, a Bulk Foam Unit (BFU) with FLT should be requested via Brigade Control to coincide with the estimated delivery time of the MLUs.

Safety considerations

In liaison with the MLU delivery contractor, the IC should:

- Note that MLUs provide general scene and safety lighting and are not designed for specific task illumination.

- Check the proposed MLU location, risk assessing each site to ensure it is clear of any hazards from the incident, located on level ground and have a six-metre clearance all round.
- Ensure that there is clear space above the mast wherever it is to be extended. MLUs are only to be used when the mast is fully extended. MLUs must not be used where there are overhead obstructions e.g. power cables and trees.
- Check the MLUs for any damage during delivery and that the equipment is in a safe condition for operation.
- Consider any risk from flooding and incident water run off when siting each mast.

If guy lines are required and steel ground pickets are to be used, care should be taken to avoid the likelihood of contact of the pickets with utilities or other hazards.

Before extending the masts, the incident commander should check wind conditions. Extreme caution must be taken if there is a likelihood lightning or storms.

If it is necessary to operate an MLU on 24-volt battery power (silent running), the generator power supply should be reinstated as soon as possible to minimise the chance of total power loss when the batteries become fully discharged.

Due to emissions from the petrol generator, MLUs must be sited in areas with good ventilation and not in enclosed spaces.

Use barrier tape to make personnel aware of guy lines and the ground pickets around the base of the MLU.

Noting that the delivery contractor will leave the incident once the MLU is in place, any repositioning of the MLU(s) will need to be carried out by using a FLT.

Guy Lines

If guy lines are used, the following points should be observed:

- Establish that each guy assembly is complete, ensuring all knots, crimping and sleeving is secure and both hooks are firmly attached.
- The four guy lines must be set out at 90 degrees to each other and the locking screw on the collar of the MLU must be unlocked to allow the collar to rotate.
- Attach the guy lines, ensuring they will not get caught in the cable as the masts extends and that all hooks are closed and secure.
- As the mast extends, keep a light tension on each guy line and ensure that they do not snag on any equipment and that personnel are kept clear to avoid the trip hazards.
- Personnel may need to be located on each guy line to keep the mast head stable as the mast is raised.

Refuelling and reporting of defects

The MLU generator uses unleaded petrol, has a 12-litre fuel tank and will last for approximately 12 hours when full. Before use, the fuel tank should be checked to ensure that it is full and when refuelling, personnel should wear the appropriate PPE and ensure there are no ignition sources present.

The IC should arrange for re-fuelling and report any defects to RML.

MLU removal from incident ground

The contractor requires up to 3 hours' notice prior to collection of the MLUs and this should be considered when closing down an incident. The IC will also need to request the attendance of a FLT (BFU) and time this request to coincide with the estimated arrival time of the contractor's collection vehicle.

RML will arrange for the collection and removal of MLU(s) and update the contractor regarding any changes to the RVP or other information as deemed necessary. The contractor will report to the RVP on arrival at the incident and liaise with operational personnel nominated by the incident commander to assist them whilst on the incident ground.

Document information

Dates

Issue status	Date
Issued	1 March 2022
Reviewed as current	1 July 2025
Last amended	20 August 2025
Next review due	1 July 2028

Assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA		SDIA		HSWIA		RA	24/05/23

Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/Paragraph nos.	Brief description of change	Date
Page 60	Reference to cancelled PN0884 updated to PN0974.	19/11/2024
Page 10 Page 18 Page 25 Page 68	Person in Crisis section added in paragraph 3.29. Removed COVID guidance. Added JOL guidance on Person in Crisis. Removed COVID guidance.	01/07/2025
Page 43	Update to the women's welfare pack section to include inclusive language.	20/08/2025
Throughout & 977a SOP	References to PN800 changed to PN1024.	01/10/2025

Related policies

Listed below are all the related policies:

Policy number	Name of policy
PN977a	Lithium-ion batteries - all incident considerations - SOP

LONDON FIRE BRIGADE

Mobile communications devices

New policy number:	**336**
Issue date:	**28 November 2003**
Reviewed as current:	**2 February 2026**
Owner:	**Chief Information Officer (CIO)**
Responsible work team:	**ICT - Service Management**

Contents

1 Introduction

1.1 For the context of the policy, the term 'Mobile communications devices' covers devices able to make or receive phone calls, transmit voice, send data and text, take photographs or record video footage. including, but not limited to:

- Mobile phones
- Tablets
- 'Wearables' – smart watches, rings, glasses etc
- Pagers

1.2 The contents of this policy are to be read in conjunction with the following policies:

- Policy number 0485 - ICT acceptable use
- Policy number 0944 - Social media policy for London Fire Brigade
- Policy number 0425 - Contact with the media and online communications
- Policy number 0301 - Capturing and managing images on behalf of the brigade
- Policy number 0813 – Driving Brigade Vehicles

1.3 Advances in mobile technology continue to offer a wide range of mobile services and ever improving communications links. This document sets out guidelines for the use of both Brigade issue and personal mobile communications devices, in the workplace and at operational incidents.

1.4 The principles contained in this guidance apply to all devices staff may have in their possession whilst on duty or at work.

2 Equipment

2.1 All frontline appliances are issued with a Brigade mobile phone.

2.2 Command Units (CU) are issued with three mobile phones, one of which is for the CU Team Leader and the other two are assigned to the CU itself.

2.3 Individual personnel may also be issued with a Brigade mobile based on their role.

2.4 The Brigade implemented the 'Bring Your Own Device' (BYOD) platform for mobile devices in February 2024 for all staff based at fire stations. BYOD provides secure access to your emails, Hotwire, Teams and many other Microsoft 365 (MS365) online services on your personal mobile phone.

Available applications

- Outlook
- MS Teams
- SharePoint (including Hotwire)
- M365 (Office)
- Viva Engage (formerly Yammer)
- Word
- Excel

- PowerPoint
- Power BI
- Microsoft Edge
- OneDrive
- Whiteboard
- OneNote
- Planner
- To-Do/Tasks

3 Service provider

3.1 The London Fire Commissioner uses service providers within the Crown Commercial Services framework agreement relevant to mobile communications devices, associated equipment and services.

4 Security of Brigade issue mobile communications devices

4.1 Brigade issue mobile communications devices are the responsibility of the user and any loss or theft must be subject to the same level of investigation and reporting as any other piece of Brigade equipment.

4.2 Should the SIM card security code be entered incorrectly three times the SIM will be locked and require a special code to release it. This can only be obtained from the Information and Communications Technology (ICT) Service Desk.

Loss of equipment

4.3 As soon as any user believes that their Brigade issue mobile communications device has been lost or stolen, they must follow the guidance in Policy number 0485 - ICT acceptable use policy.

Loan stock

4.4 ICT maintains a limited loan stock of mobile communications devices, SIM cards and handsets. If additional handsets are required for special/specific events, it will be necessary to make special arrangements with the ICT department.

5 Use of mobile communications devices

Carrying mobile communications devices

5.1 Brigade personnel issued with mobile communications devices are required to have the device switched on and readily available whilst they are at work. When attending any event where the use of a mobile communications device may be intrusive, the equipment should be set to silent. Mobile communications devices must be used safely in accordance with the current law.

Personal mobile communications devices

5.2 Operational staff are permitted to use personal mobile communications devices on duty, applying a common-sense approach to safety and professional accountability. Staff may choose to access Brigade information through the BYOD platform, whilst any personal use should be reasonable,

within the confines of the existing social media policy, kept to a minimum and not disrupt day-to-day activities.

At incidents

5.3 Mobile communications devices may be used by personnel **with the permission of the Incident Commander**. This must be for the purposes of the incident, including, but not limited to, accessing supporting information from Brigade systems, taking photos or recording videos to share situational awareness with relevant parties. This includes Brigade issue mobiles and any compliant personal device set up with the BYOD platform.

5.4 Brigade devices may be carried in any of the external pockets of the fire kit as this will provide an element of protection. This excludes environments and incidents where the carrying of a mobile device (brigade issue or otherwise) would compromise the safety of the carrier/owner. It is the responsibility of the carrier/owner to comply with any intrinsic safety requirements at all times

5.5 Personnel should be aware that there are no Brigade issue mobile communications devices currently certified as intrinsically safe. Consequently, they must never be carried in potentially explosive atmospheres, including all incidences where BA is being worn. The same approach should be taken with personal devices, regardless of any intrinsic safety rating they may have.

5.6 At incidents involving suspected explosive devices, the advice of a Police Explosive Ordnance Disposal Officer in coordination with the incident commander, must be sought prior to using any device near the suspect package.

5.7 Mobile communications devices can be used effectively to support a range of specialist roles (Press Liaison, NILO, ORT etc.). Whilst mobile communications devices should not be the primary method of communication at an incident, they can be used as a contingency or emergency method as detailed in the 'managing communications at incidents' training packages (1-4) available on Big Learning. They are also useful when discreet communications are required, or if sensitive information needs to be conveyed.

5.8 Using mobile communications devices on the Command Units may interfere with the communication systems on board. Additionally, holding a conversation on the phone may be distracting to crews carrying out their operational roles.

5.9 Mobile phones are provided to all front line and specialist vehicles so they can be contacted by control or senior officers when away from their base if needed. The officer in charge of the appliance must always carry the Brigade issue mobile phone, keeping it switched on and any outgoing calls must be for Brigade business use only.

5.10 At change of watch, the brigade issue appliance mobile phone must be checked and accounted for. The officer in charge is responsible for ensuring the device remains fully charged and operational.

General

5.11 All users of Brigade issue mobile communications devices are individually responsible for taking care of the device. Should any damage occur a brief written report of the circumstances in which the equipment became damaged is to be forwarded to the ICT Service Desk on extension [redacted]. **The brigade will not accept liability for the loss of, or damage to, personal devices.**

5.12 A Google account is provided for all devices so that contact details can be safely stored and managed. Contacts must be kept here and **not stored on the SIM card or the devices memory.**

5.13 When a mobile communications device is used outside the UK, an additional charge is incurred for any calls either made or received. A varying, non-standard tariff is applied when using mobile networks outside of the UK, and users must be mindful of this fact when considering whether their Brigade mobile needs to be used abroad. In all such cases individuals should contact the ICT Service Desk for further information.

6 Health and safety

Radio frequency radiation

6.1 Much media coverage has been given to the possible health risks when using mobile telephones and other communications devices. The debate within the scientific community centres around the radio frequency (RF) radiation produced by mobile handsets. The safety of a mobile communications device is generally measured as the Specific Absorption Rate (SAR); that is, the level RF of radio frequency emissions in Watts of radiated energy on one kilogram of brain tissue (W/kg). In the United Kingdom the SAR limit for mobile devices is 2 W/kg.

6.2 SAR values for individual devices can be found on the manufacture's website and must be below the UK limit quoted above.

6.3 Although there is no direct and measurable evidence relating to the health effects of mobile communications device usage, the UK Health Security Agency has issued the following recommendations specifically referring to mobile telephones:

- Use a telephone for as short a time as possible.
- Moving the phone away from the body results in much lower exposure than if a phone is held to the head.
- Use a telephone with low specific energy absorption rate (SAR) values.

This guidance relates equally to other mobile communications equipment which use voice calls, data, wi-fi and Bluetooth.

Use in restricted areas

6.4 As RF transmissions may interfere with sensitive medical equipment, users of Brigade issue devices must switch them off when attending hospitals and other locations where medical equipment may be in use. In general, where the use of mobile communications devices is restricted, visible warning signs are placed to indicate that they **must be switched off.**

Fuel filling stations

6.5 All personnel should be aware that as mobile communications devices are not intrinsically safe, all such devices (Brigade issue and personal) should not be used in the potentially explosive atmosphere of a petrol station, particularly when filling up with fuel.

Use of mobile communications devices whilst driving

6.6 Responsibility for the safe control of a vehicle always rests with the driver. Making or receiving a call, even with a hands-free kit, will distract your attention from driving and could lead to an accident.

6.7 Drivers are four times as likely to have an accident if they are using a mobile telephone and your reaction times are two times slower if you text and drive using a hands-free phone than if you drink drive, Think - the UK Governments road safety campaign.

6.8 Since the 1 December 2003 it has been an offence to use a handheld mobile telephone or other handheld electronic device whilst driving.

6.9 The Fire Brigade instruction is that you **must not** make or receive calls or text messages from a mobile communications device whilst driving, regardless of whether a hands-free kit, fixed or otherwise, is fitted to the vehicle.

6.10 If you need to use the communications device to make or receive a call or text message whilst driving, you must pull over in a safe and legal area, make sure the car is stationary with the handbrake on and engine switched off before using the equipment. Full details including restrictions on the use of other handheld radio devices are contained in Appendix 1.

7 Charges and billing

Billing procedure

7.1 The Brigade operates an all-inclusive voice and data tariff, which includes talk time, data and texts. Any data used should be done so reasonably and responsibly and this includes use for personal reasons.

7.2 Brigade issue mobile communications devices are provided to support personnel in the performance of their official duties. Personal calls either incoming or outgoing, should not be allowed to obstruct official calls or working routines.

Reimbursement of charges for land lines at callout bases

7.3 Officers on flexi-duty who are issued with Brigade mobile communications devices are no longer entitled to claim additional reimbursement for the cost of landline rental at their designated call out base (Best Value Review FEP 81, item 17 refers) unless the conditions set out in section 7.4 below apply.

Lack of signal at call out base

7.4 Officers on flexi-duty who experience difficulties in obtaining a usable signal at their call out base should contact ICT service desk who can arrange for the service provider to verify and if possible, rectify the problem. If the problem can be resolved by using another service provider, ICT may arrange for a change to an alternative service provider. If the user is still unable to achieve a usable signal at their callout base ICT service desk will pass the details to finance section in order that any claim for landline rental can be processed.

8 Notification of changes

Change of user

8.1 In all circumstances where there is a change in user, the new details must be passed to the ICT Service Desk along with the business case and authorisers details. An email message to the ICT Service Desk is sufficient for this purpose. This will help ensure that an accurate directory of Brigade device users is maintained for billing and audit purposes. The device needs to be returned to the Mobile Support Team so that a new one can be allocated if needed.

9 Disposal

9.1 All Brigade mobile communications devices that are deemed to be at the end of their period of useful life are sent back to ICT with their chargers, who then dispose of or recycle them via their suppliers.

10 Further assistance

10.1 Should any further information or assistance be required regarding mobile communications devices within the Brigade, including the criteria for mobile communications equipment usage, ICT service desk should be contacted by telephone extension [redacted] or email [redacted]

Appendix 1 – Driving and mobile communication devices – legislation and LFB instruction

Regulation 110 of the Road Vehicles (Construction and Use) Regulations 1986 was inserted as new legislation by the Road Vehicles (Construction and Use) (Amendment) (No.4) Regulations 2003. It came into force on 1 December 2003. The legislation relates to the use of mobile telephones and other data products whilst driving a motor vehicle.

The legislation prohibits a person from using a handheld mobile telephone or other data product whilst driving. The legislation directly affects all Brigade users of mobile communication devices.

LFB instruction

Whilst the new legislation does not prohibit the use of hands-free kits the LFB instruction, based on Health and Safety advice, guidance from the Department for Transport campaign Think! and in accordance with the Highway Code, rules 149 and 150, goes further than the legislation, to reduce the risk from accidents.

LFB employees must not use any handheld communications devices while driving. This includes mobile phones, handheld radios, or any other device that requires manual handling and may distract from safe driving. This applies whether the device is transmitting or receiving. It applies whether the device is hand-held or fixed to the vehicle (e.g. in a 'hands-free kit'). The only exceptions are:

- The main scheme radio (see below)
- 999 calls (see below)
- The use of voice activated satellite navigation equipment by appliance and other vehicle drivers.
- A radio device (Brigade main-scheme radio, mobile telephone or other) may be left switched on, so that the driver may hear transmissions to it, or be alerted to a call to it, but:
  - If the transmission requires the driver to respond in any way, they must stop safely before responding.
  - 'Responding' includes reading a message sent to a telephone, pager, or other communications device such as a two-way radio.

If you need to use a telephone or pager app function to read, make or receive a call/message whilst driving, you must pull over in a safe and legal area, make sure the vehicle is stationary with the handbrake on, before using the device. The instruction applies equally to telephones and all other mobile handheld data and communications devices (not satellite navigation devices – see above).

The same rules apply to anyone involved in driving instruction who is supervising another driver.

Nothing in the new legislation or in this instruction will apply to making 999 calls in a genuine emergency if it is unsafe for the driver to stop. This exemption applies only to making a 999 call and not to the actions taken in response to such calls.

Use of airwave radios for senior officers

Two-way airwave radios are exempt from the legislation under the Road Vehicles (Construction and Use) (Amendment) Regulations 2024. Officers should consider when safe to do so stopping the vehicle prior to sending or receiving messages as making or receiving a call may distract your attention from driving and could lead to an accident.

Document history

Assessments

An equality, sustainability or health, safety and welfare impact assessment and/or a risk assessment was last completed on:

EIA	09/07/25	SDIA	**H** – 02/10/25	HSWIA	11/07/25	RA	NA

Audit trail

Listed below is a brief audit trail, detailing amendments made to this policy/procedure.

Page/para nos.	Brief description of change	Date
Throughout	Cross references updated.	20/10/2022
Throughout	This policy has been reviewed as current with no changes made.	01/02/2024
Throughout	This policy has been reviewed as current with many changes, please re-read to familiarise yourself with the content.	02/02/2026
Page 1	Departmental ownership changed from Ops Policy to ICT.	19/02/2026

Subject list

You can find this policy under the following subjects.

Mobile phones	Telecommunications

Freedom of Information Act exemptions

This policy/procedure has been securely marked due to:

Considered by: (responsible work team)	**FOIA exemption**	**Security marking classification**