OPERATIONAL NEWS

LFB

The newsletter for all London Fire Brigade operational staff

Issue 25 **October 2013**

More Operational News

There have been some changes to Operational News since issue 24 was published. It has been combined with Safety Matters which was the health and safety newsletter for Brigade staff. The eight page Operational News is now published twice a year, with special issues in-between focusing on specific topics when needed.

Red traffic lights

Road traffic legislation exempts fire and rescue vehicles from existing traffic regulations relating to red traffic lights when responding to an emergency. At these junctions, extra care and caution must be exercised. Drivers should anticipate that other road users may not have a full view of emergency lights or be able to hear audible warnings. A red signal should be treated as a 'give way' sign. The vehicle driver should approach the stop line at significantly reduced speed and be able to stop if necessary. An emergency vehicle can only pass the stop line at a time and speed that will not endanger any other road users.

Drivers have a responsibility to control speed and drive safely, ensuring a duty of care to passengers, road users and pedestrians. Road traffic legislation does not exempt a driver from prosecution for dangerous driving or driving without due care and attention under criminal legislation. A driver must be able to justify their engagement of any road traffic legislation exemption.

Drivers must also be aware when proceeding through a green light that road users or pedestrians may make unexpected manoeuvres or actions. Vehicles or buildings close to junctions can obscure views and adversely deflect audible warnings of other emergency vehicle/s travelling through the junction, which may increase the potential for collisions.

Road users may not anticipate two emergency vehicles travelling in succession. This situation creates additional risk and requires enhanced caution by the driver of the following vehicle. The second vehicle must use a different audible warning setting in these circumstances.

Whenever traffic exemptions are being exercised, warning devices (audible and visual) must be used. Audible warnings should not be used if there is no advantage in their use, or when their use endangers other road users for example, making drivers cross red traffic lights to allow a Brigade vehicle to pass.

Long tones (wail) should be used when approaching identified hazards: these are directional and give warning to road users that an emergency vehicle is approaching and from which direction. Short tones (yelp) should be used at hazards: these are non directional and give warning to road users in the vicinity. Short tones should be used sparingly.

INSIDE

Operational News reflects important operational and health and safety issues for staff. Topics are identified from our robust audit and review processes which include performance reviews of command and operations, supplemented with articles on new equipment, procedures that reduce risk and address health and safety concerns. Where appropriate training packages on page 8 provide further information on the topics covered.

Overhead cables

Overhead power transmission cables carry high voltage electricity of up to 400,000 volts. They are suspended between pylons as part of the national grid power system. These have been involved in near miss safety events and all operational staff should be aware that such cables can melt if they are in close proximity to fire. The weight of these cables mean that they can fail and break, allowing the loose ends to fall producing a projectile/impact hazard. It is possible that fallen cables can remain 'live' and present a further risk of electrocution. Incident commanders (ICs) and sector commanders should be aware of the following:

- Where there is a fire beneath overhead power cables, there is the potential for electricity from the live cables to travel through the smoke plume, causing an electric shock.
- Safety zones should be established which take into account the area of fall out from a broken cable.
- As **PN 793** (Incidents involving electricity), crews must not direct solid jets in close proximity to overhead power cables. Jets are to be used on the spray setting with water allowed to fall, rather than directing a solid core of water onto the burning materials.

BIODIESEL / RED DIESEL

Biodiesel production is a chemical process used to convert many different oils, such as sunflower, vegetable and soya, into a fuel capable of being used in diesel powered vehicles. It isn't illegal to manufacture Biodiesel (up to 2500ltrs before declaring production to Her Majesty's Revenue and Customs), but it is illegal to store or sell it. To manufacture Biodiesel, the oils are mixed with caustic chemicals and alcohol (often methanol – it is illegal to store more than 50ltrs of methanol) and then 'cooked' at elevated temperatures. The mixture is then filtered to remove waste materials, resulting in a biodiesel and methanol mix. This mix is then reheated to allow the methanol to evaporate. Once the methanol has evaporated, the biodiesel is still caustic and this is neutralised using acids; usually sulphuric acid.

The process can be carried out using a range of vessels and crews should not necessarily expect to find clean production sites. The process can be carried out using buckets and drums.

If crews suspect that a biodiesel production process is taking place, the incident commander (IC) must classify the incident as a HAZMAT incident; this will mobilise an HMEPO.

HMEPOs have received training in recognising these processes. Key indicators would be large quantities of manufactured fuel (although illegal to store – it is often done). Barrels of methanol, bottles of acid (sulphuric), caustic liquids or solids (caustic soda/sodium hydroxide), cooking oil and some large vessel (barrel or drum), are used to mix the products. Any sealed drums of chemicals may be safely removed by crews wearing the appropriate PPE. Many of these chemicals are also highly polluting to the environment, so spillages and run off should be contained until the HMEPO can advise. The GFG gas detection meter (carried on FRUs) can be used to check for flammable atmospheres, however further identification will require equipment carried by either the rapid response team, scientific support units or the scientific advisers.

Red diesel is diesel sold to, and primarily used by, the agricultural industry. This is the same as diesel bought from the commercial forecourt, but is treated with a red dye to 'mark' the diesel. It is illegal to run non-agricultural vehicles on red diesel and the red dye stains the components of engines as well as the fuel tank, which will then dye further fuel. Therefore, one tank of red diesel is detectable for a long time after its use. It is possible to remove the red dye by filtering. These processes do not present a risk to the fire service, but it is possible that stocks of treated or pre-treated fuel may be stored in premises where the filtering is taking place.

Fires in waste/recycling facilities

An estimated 4.5 million tonnes of waste wood is generated annually in the UK, derived from construction, demolition, commercial, industrial and household sources. Traditionally, the main outlet for clean recycled wood has been the panel board industry. The closure in 2012 of The Sonae chipboard factory in Merseyside is impacting on wood recyclers, as the plant provided for 400,000 tonnes of waste wood each year. With little demand for recycled wood and rising fees at wood recycling sites, some facilities are now left with huge stockpiles of waste wood. Recent fires in waste wood storage and refuse derived fuel (RDF) facilities include:

- Hertfordshire, where 139 appliances attended from the initial call on 11/11/12 until 05/12/12.
- Derbyshire, where the fire started on 15/09/12 and was extinguished 14/11/12.
- Dagenham, forty pump fire where the fire started on 12/08/12 with a total of 320 appliances attending over the duration of the incident.

These examples highlight the significant timespans and appliance attendances involved in these types of fires.

A proactive approach when undertaking visual audits, 7.2(d) visits and early intervention by Fire Safety Regulation (FSR), will lead to a reduction of these risks. A recent example was an alleged fire risk (AFR) relating to a large woodpile in Cricklewood. FSR knew about the issues at this site as it had previously been the scene of a 20 pump fire. A partnership with the Environment Agency (EA) was formed and after numerous visits, the site was cleared of the wood. It is vital that early partnership work between FSR and the EA is established as the EA is the lead regulatory body, who have the most effective powers to deal with these types of risk. When crews discover a potential risk, they should inform the local Fire Safety Team via their station manager, by completing the 'Station notification of fire safety information to fire safety' form SFS_A020_a2b (**PN 784**) located via Start/All Programs/New Office Document/Forms (Stations)/Fire Safety Letters. For more information please email FSR Policy team mailbox.

Operational challenges that are likely to be experienced when attending these types of sites are:

- Poor access.
- Difficulty in securing water supplies.
- Possible poor management of the site.
- The protracted nature of the operation, which is likely to require a large volume of operational resources.
- The impact on the environment.

Solar panels

Photovoltaic (PV) modules, also known as solar panels, generate electricity by harvesting energy from solar radiation. They are gaining popularity, leading to an increasing number of incidents attended where they are installed. This form of energy production is integrated with electricity from the national grid and should be viewed as an additional power source providing electricity within properties.

Early identification of PV systems involved in fire or having the potential to become involved is essential. An understanding of the basic workings of a PV system will assist in implementing a safe and effective tactical plan.

Typically, an installation consists of PV cells fixed to backing boards in an aluminium frame, weatherproofed by a glass pane. This is referred to as a 'module'. A series of connected modules is described as a 'string', with one or more 'strings' known as an 'array'. They are usually fitted to roofs, but can be ground based in open areas. The PV cells produce direct current (DC) electricity when exposed to solar radiation. The current produced can be at voltages in excess of 1000v DC. This flows along suitable cables to an inverter where the current is converted into 240v alternating current (AC). The inverter will provide a switch to isolate power to the outlet(s) it is connected to. Installers typically use short runs of DC cable, therefore where the panels are mounted on the roofs of domestic low rise properties the isolator is usually located in roof spaces.

As PV installations are increasingly used in commercial premises, location of the inverter is less easy to identify and further information must be sought from the building occupier or responsible person. From the inverter, the AC supply is distributed via consumer units to power electrical outlets which provide heating, lighting etc. Excess energy can be fed into the National Grid or stored in battery banks.

The following hazards should be considered when dealing with PV installations:

- **Electricity** – the risk of electrocution should not be underestimated. A typical domestic array of sixteen panels is capable of producing 480v DC at 128amp. Although this is significantly reduced at night, bright moonlight or scene lighting will produce enough light to generate an electric shock. This risk is exacerbated because the power between the PV module, DC cable run and inverter cannot be isolated. Solar power systems should be treated in the same way as other electrical installations in line with current electricity **PN 769**.
- **Hazardous chemicals** – these may be released in smoke plumes if the installation is involved in fire or if the panels are damaged. Battery banks may form part of the installation, however this is rare within domestic applications. Batteries can also produce toxic and flammable fumes if involved in fire or when damaged. Incident commanders (ICs) should consider additional support including the HMEPO and scientific advisers to assist in dealing with these hazards.

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- **Fixings** – the fixings used to secure solar panel modules in place can fail when subjected to heat or fire. The weight of solar panels on a weakened roof may lead to the early collapse of the roof structure. It is possible to extinguish fire in close proximity to panels, however caution should be exercised to minimise the risk of electric shock. Use of remote monitors, jets set to spray and allowing water to fall downwards can be an effective tactic. If there is a need to work in close proximity to a live electric current, electrical gloves must be worn and care taken to prevent physical contact. Roof mounted panels can fall some distance from a roof depending on their height and pitch. Crews should also be aware of the risk of cuts and abrasions created by broken/damaged panels.

ICs must consider the establishment of cordons, the appointment of safety officers, the use of aerial appliances and FRUs with line capability to provide safe systems of work, if crews are required to work at height.

EXPLODING INSPECTION COVERS

Fires and explosions in pavement level cable ducting (not heavy duty electrical cable tunnels) and near surface structures, such as 'inspection pits' are most frequently caused by short circuiting in electrical cables. This usually occurs as a result of the breakdown of cable insulation, which leads to violent electrical arcing. The subsequent overpressure in the ducting or structure, takes place so rapidly that it can only dissipate by lifting loose covers (intentionally loose with no permanent fixing), which helps to protect the integrity of the ducting or structure itself. On other occasions there is no arcing but the cable insulation may smoke, burn and even flame. This may also lead to a lower level of pressure, which is sometimes sufficient to dislodge loose covers, allowing smoke to issue.

The high voltages and complexity in the nature of the various types of cable conveyed through these structures, means that once the Brigade is in attendance, there is little that crews can do other than mitigate the risk to passers-by, from further over pressures and provide cover for nearby fire risks. Having carried out a risk assessment, crews will usually await the arrival of the responsible utility company, to shut down the supply and carry out the necessary excavation work to affect a repair.

Brigade staff must not touch, interfere or approach smoking covers or inspection pits, and should quickly evacuate people from the immediate vicinity, moving them away from windows, glass shop fronts/doors and other hazards and dangers. A risk assessment is to be made and an appropriate sized hazard zone declared and implemented. Identification of the type of cable and/or inspection pit involved (electric or telecommunication) should be carried out as soon as possible, followed by a message to Brigade Control, stating the exact location, details of what has happened (explosion/smoking) and any other available information. Crews should implement hazard zones around other linked cable infrastructure in the vicinity, with appropriate firefighting media laid out ready for use. Crews should then await the attendance of the appropriate authority.

All staff should familiarise themselves with the contents of **PN 769**: Incidents involving electricity.

CCTV image from an incident.

Search and rescue procedures

PN 803 provides guidance on implementing safe systems of work for search and rescue operations within structures.

These procedures apply equally to firefighters searching without BA in clean air, for example in the search sectors of complicated or large buildings. These incidents will generally be resource intensive, therefore additional resources should be requested at an early stage.

The main search technique used is Compartment Search Procedure; the fundamental principle being that a crew will start searching at a point determined by the incident commander (IC) or sector commander/search coordinator to locate casualties quickly. From this point onwards unless new information is received, crews will attempt to fully search each compartment entered before moving on to the next compartment.

At all times the crew will maintain a left or right hand orientation and use the corresponding wall as their fixed reference point. The IC may nominate a search coordinator to ensure that key information is prioritised and recorded. The search coordinator is responsible for:

- Gathering information on people requiring rescue, in particular their location, condition and the priority for rescue.
- Providing and recording clear information and rescue plans at the incident.
- Ensuring that briefings, debriefings, search plans etc are recorded on the forward information board and handed over to oncoming officers.
- Ensuring that completed tasks are recorded on the forward information board.
- Establishing and maintaining effective lines of communication within the incident command structure.

Briefings must stipulate whether an area is to be checked or cleared as this may be the difference between knocking on a door or forcing entry to carry out a thorough search. This is important where buildings such as hotels or high rise residential flats need to be searched. The search coordinator must stress to crews the need for the correct weight of attack. No crew should be deployed to search compartments that contain smoke which have the potential for rapid fire progression, without the protection of appropriate firefighting media.

The number of people living in unconventional accommodation is on the rise, sleeping anywhere from beds in garden sheds to cupboards in tower blocks. The potential for this type of additional life risk needs to be considered by ICs and included in briefings to crews.

All staff should familiarise themselves with the contents of **PN 803**: Search and Rescue Procedures Within Structures.

METAL THEFT

There have been numerous reports of metal thefts in the press. Dry rising mains (DRMs) and hydrants are now joining the list of resources and materials targeted by criminals.

DRMs and hydrants are essential equipment when dealing with a fire, particularly at high rise incidents. When unavailable, there is likely to be a significant impact on operations. The number of Incident Monitoring Process Database (IMPD) entries has identified that metal theft is a growing issue; this has been identified whilst completing hydrant inspections, 7.2(d) visits, HFSVs, visual audits and at operational incidents. The Brigade is currently working closely with local authorities, social housing providers and the police to prevent and identify metal thefts.

Crews must be aware of the possible issues that could arise whilst attending a high rise incident, as this could have a significant impact on the normal 'on arrival tactics' and available resources. Crews must consider an early request for additional resources and secure alternative water supplies.

Where a high rise premise has had its DRM outlets stolen, a contingency plan to supply water to the upper floors must be put in place, i.e. hauling hose aloft or the use of an aerial appliance. If a tactical decision is made to use an aerial appliance as a water tower, then siting of all appliances must be considered.

A damaged DRM also has the potential to create further challenges where excessive water from damaged or missing outlets could affect other parts of the building. This may require the evacuation of a large number of people and implementation of an extensive salvage operation.

When crews discover missing or defective DRM outlets they should:

- Inform the local fire safety team via their station manager, by completing the "Station notification of fire safety information to fire safety" form SFS_A020_a2b (**PN 784**) located via LFB computer – Start/All Programs/ New Office Document/Forms (Stations)/Fire Safety Letters.
- Report the problem to the PDA section along with any request for additional PDA resources, by telephone on x30383 or by email using the assigned LFB PDA area email address found in Outlook.
- Report the problem via the 'Report It' tool, which is a London-wide online system for reporting environmental and community safety issues. The system makes reporting problems easy, as you don't need to know who the appropriate agency is to report to, you just complete an online form and it is automatically sent to the correct organisation (http://www.yourlondon.gov.uk/

A hydrant outlet similar to those being stolen.

If you encounter a fire hydrant that has been vandalised or has parts stolen from it, please report it immediately to the Water Office via water@london-fire.gov.uk or by telephone on [redacted] (Monday to Friday 0700 to 1700). You must include details of what is wrong with the hydrant, the address of the hydrant and the hydrant number (available from the MDT system).

Finally, report and record all defective and/or vandalised dry or wet rising mains and/or hydrants on the IMPD when completing an IMP report for incidents attended.

BA cylinders

During an appliance re-stow at a station, following removal from the defective pump, a BA cylinder was placed on the floor. The cylinder subsequently rolled underneath the adjacent appliance. This event was undetected. Later that day the appliance responded to an emergency call and whilst exiting the station ran over the BA cylinder causing it to explode. This caused considerable damage to the appliance and BA cylinder, resulting in the cylinder valve coming free and being shot over 50 metres up the road outside the station.

The picture below shows the SDBA cylinder that was run over.

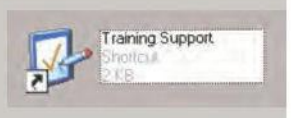
Following this safety event and other occurrences of damage and inappropriate storage of BA cylinders, a generic risk assessment has been drafted to cover such issues as:

- Incorrect or inadequate storage of BA cylinders at charging rooms resulting in damage to cylinders.
- Failure to check cylinders for damage and or contents.
- Manual handling of cylinders.
- Potential damage to cylinders following vehicle accidents (impact) or as a result of being dropped.
- Inadequate or inappropriate storage of BA cylinders at stations following delivery or re-stowing an appliance

The assessment can de accessed via the following link:
http://edms/bwd/Safety/HealthSafety/Risk%20assessments/Transportation%20and%20storage%20of%20BA%20cylinders.docx

WATCH TRAINING PACKAGES

Training packages, associated with operational news issues, are available for your immediate use. They can be accessed via an ICON on your desktop which links to all the current training materials related to the items below and previous packages. Additionally there are links to trainee packages and support material. Just click on this ICON on your desktop.



Red represents training themes are mandatory for all watches – new training material is available.

Amber represents training themes are mandatory for all watches – existing training material is available.

Article	Training	Guidance and supporting information	STEP – Recording reference (Create on STEP)
Red traffic lights	Article	**Policy 813** Driving whilst on Authority business	People – Employment/Duties of Officers/Driving whilst on Authority business – **813**
Overhead electrical cables	Article	Training support pack (STSP Electricity) available through training support icon – training presentations – operational news training **Policy 769** Incidents involving electricity	Lecture/Training notes/Training/Electricity
Biodiesel/ Red diesel	Article	Training support pack (STSP Hazardous Materials) available through training support icon – training presentations – operational news training	Lecture/Training notes/Training/Hazardous material incidents
Fires in waste/ recycling facilities	Article	**Policy 703** Reporting community safety issues **Policy 838** – Fire in large stacks of reclaimed and refuse derived fuel	Community – Community Safety/Community Involvement/Reporting Community Safety Issues – **703**
Solar panels	Article and package	Training Support Pack (Solar Panels) available through training Support Icon – Knowledge centre – Operational News 25 Training **Policy 839** Solar electricity panels	Lecture /Training notes/Training/Solar panels
Exploding inspection covers	Article	Training Support Pack (STSP Electricity) available through training support icon – training presentations – operational news training **Policy 769** Incidents involving electricity	Lecture/Training notes/Training/ Electricity
Search and rescue procedures	Article and package	Training Support Pack (Search and Rescue Procedures) available through training Support Icon – Knowledge centre – Operational News 25 Training Training Support Pack (STSP BA Guidelines) available through training support icon – training presentations – operational news training	Lecture /Training notes/Training/Search and rescue procedures Lecture /Training notes/Training/BA Guidelines
BA cylinders	Article	Training support icon – training presentations – FFD training notes – M3.01C PSS 7000 Cylinder and ancillary equipment **Policy 476** Drager PSS 7000 technical information (Sections 14 and 15)	Assets – Equipment/PPE – BA Wearers Guidance and Technical Information/Drager PSS 7000 BA set and cylinder (Sections 14 and 15 ONLY) – **476**
Metal theft	Article	**Policy 317** Hydrants and water supplies for firefighting	Pumps/Pumping/Water Supplies/ Water Supplies/ Hydrants and water supplies for firefighting – **317**

A range of practical drill options for the above subjects are recordable under – drill/*use pull down list for appropriate drill.

SENIOR OFFICER COMPUTER BASED TRAINING (CBT)

Computer based e-learning training packages are available for your immediate use. They can be accessed via an ICON on your desktop which links to the Brigade's knowledge centre.

Article	Training	Guidance and supporting information	Knowledge Centre – Recording reference
Search and rescue procedures	CBT package	Bespoke e-learning modules with support materials are now available through the Knowledge Centre which is accessible through the training support icon on your desktop. These e-learning packages are mandatory for all group and station managers. They must be completed within 3 months of the publication of this Operational News.	All package completions will be recorded on individual training records (ITR) which will be updated on a monthly basis allowing managers to monitor progress.
Solar panels	CBT		

Operational News is printed on FSC (Forest Stewardship Council) certificated paper that guarantees well managed forests.