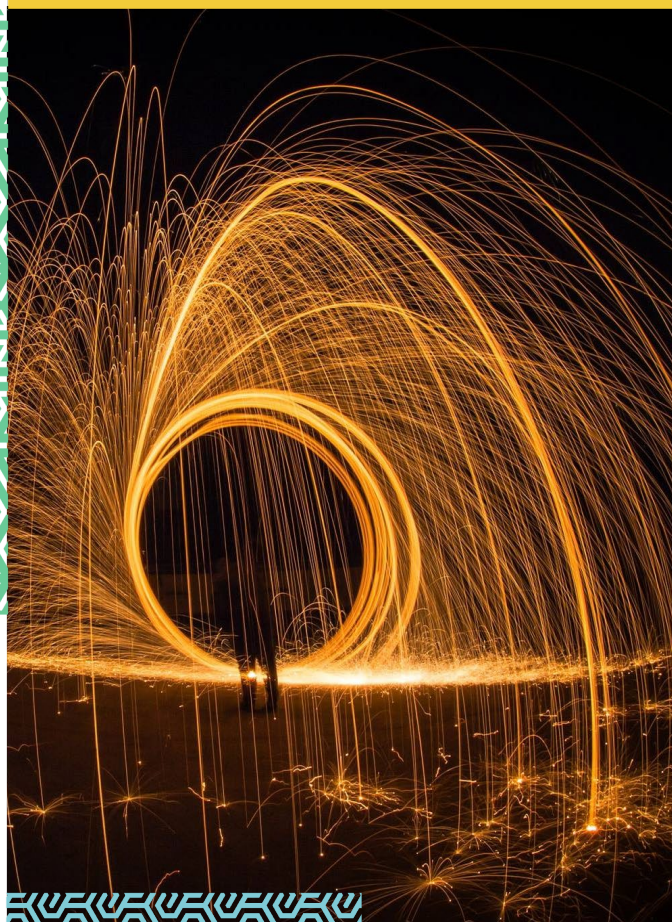


**rmp**

## **Risk control**

### Bonfires and Fireworks Displays



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# Risk Control

## Bonfires and Fireworks Displays

### Introduction

Well-managed firework displays can be an entertaining and enjoyable experience. On the rare occasion that something goes wrong, the organisers can then be remembered for the wrong reasons. So, it is never too early to start planning a display.

To assist, comprehensive free guidance is available from the CBI Explosives Industry Group and the Health and Safety Executive (HSE) to help ensure the safety of those working at the display and the public attending the display.

The Red Fireworks Guide<sup>1</sup>: 'Giving your own firework display: How to run and fire it safely' by the Explosives Industry Group, provides advice for those running an event after choosing not to use the services of a professional display operator.

The Blue Fireworks Guide<sup>2</sup>: 'Working together on firework displays – A guide to safety for firework display organisers and operators' produced by the Explosives Industry Group, provides advice when planning and hosting larger fireworks displays where the services of professional display operators are used.

Where fireworks are to be fired by a competent display operator, the organisers will be subject to the Health and Safety at Work Act 1974, whether acting on behalf of a commercial organisation, Higher Education Institution, or voluntary associations using voluntary firers.

Other legislation<sup>3</sup> may also apply, imposing restrictions on the type of firework used and the time of the display.

The following provides a summary of the key risk management requirements. We strongly advise event organisers and professional display operators make themselves familiar with the full range of available guidance.

### Managing the Display

It is important to consider at an early stage if an institution is organising its own display or using a professional display operator. Consumer fireworks are categorised as Category F1, F2 or F3.

- Category F1 fireworks are indoor or close proximity fireworks with minimal safety distances (e.g. 1 meter)
- Category F2 fireworks are outdoor fireworks with spectator safety distances of at least 8 meters

- Category F3 fireworks are outdoor fireworks with spectator safety distances of at least 25 meters

These are spectator distances. Distances to firers and structures will differ.

- Category F4 fireworks are for professional use only

It is also advisable to obtain the fireworks from a reputable supplier. Unless the institution maintains considerable experience and expertise in setting off display fireworks, it could purchase a complete display kit rather than single fireworks, as this will include an instruction leaflet.

It is strongly advised that institutions should use a professional display operator if in any doubt about setting up and firing a display safely.

### Display Planning

It is essential to start organising the firework display as early as possible to ensure that nothing is forgotten or missed. Therefore, an organising team should be formed to share the workload, with individuals clearly identified in each role, such as consulting with the display operator, the local authority, fire service, or managing site facilities and crowd safety.

### Selecting a Display Operator

Even when using the services of a professional display operator, liability can still attach to the institution as the occupier or controller of the site. It is vitally important to ensure that contractors selected are competent and able to operate to the very highest standards of safety.

A competent display operator will:

- Understand the characteristics and proper use of the various types of fireworks, including debris patterns and fall-out distances
- Understand the principles and practices of ignition systems
- Understand the principles of adhering to a risk assessment
- Understand the principles of setting up, firing, and clearing up the fireworks both in relation to operator safety and the safety of others
- Be trained in setting up, firing, and clearing up fireworks, either by a competent display operator
- Have practical experience in rigging, firing, and disposing of the various types of fireworks selected for the display

<sup>1</sup> The Red Fireworks Guide: Giving your own firework display: How to run and fire it safely - Explosives Industry Group, July 2018

<sup>2</sup> The Blue Fireworks Guide: Working together on firework displays – A guide to safety for firework display organisers and operators, Explosives Industry Group, July 2018

<sup>3</sup> The Firework (Safety) (Amendment) Regulations 2004, The Fireworks Regulations 2004, The Pyrotechnic Articles (Safety) Regulations 2010, The Manufacture and Storage of Explosives Regulations 2005

More detailed guidance on risk management in the selection and control of contractors is available on the RMP website.

## Risk Assessment

The Management of Health and Safety at Work Regulations 1999 requires employers to make a suitable and sufficient assessment of the health and safety risks. The display organiser will complete a joint risk assessment with the competent display operator, and consider:

**Crowd safety** – an adequate number of stewards, sufficiently briefed and trained, responsible for crowd safety. The HSE provides a wealth of advice for event organisers<sup>4</sup> on this issue on their 'managing crowd safety' microsite.

**Emergency and contingency plans** – contingency plans include stopping the display early, or cancelling because of adverse wind conditions, if the operator advises it.

**In the event of an accident** – procedures to ensure that first-aiders have access to the injured.

**Display safety zones** – methods for breaking up the display site into separate zones, including the spectator and bonfire area.

The Explosives Industry Group also provides a [risk assessment](#) for explosives including fireworks. There is an example in appendix 5 for a major firework display that can be used as a starting point for any organiser.

## Smoke Hazard

The migration of smoke from a display to the surrounding area, especially affecting major roads, must be carefully considered. Following an incident in 2011<sup>5</sup> in thick fog on the M5 motorway where several people were killed, there was a suspicion that a local firework display could have contributed. It is important to note that the Coroner made the following judgements and observations:

- Smoke from the display was not found to be the cause of the incident "but the Coroner could not rule out it contributed"
  - At the time there was no data on interaction of pyrotechnic smoke and fog
  - There was no previous experience throughout Europe of situations where smoke from a display has caused an increase in fog density or had contributed to an accident
- The investigations of the incident concluded that there was potential for firework smoke to cause a problem in particular:
- When there was damp still nights

<sup>4</sup> Managing crowds safely: A guide for organisers at events and venues, HSE

- Particularly in valleys and near rivers
- Where there was a temperature inversion (i.e. cold damp air with warmer humid air above it)

## Environmental Concerns

Concerns over the use of fireworks and their environmental impact have increased in recent years. It is important to consider not only the health and safety risks, but also environmental impacts such as:

- The environmental impact of noise from the display
- Physical fallout and debris from displays
- Chemical debris from the display
- Use of perchlorates in fireworks

## Who to Contact

With larger organised displays it is important to ensure that all relevant parties have been involved in planning for the event. The HSE suggests contacting the following as part of the arrangements:

**Police** – crowd control, public order, emergency access, traffic management, and parking.

**Fire service** – access for emergency vehicles, marshalling crowds and traffic in emergency condition, buildings and other features which could be affected by a fire.

**Local authority** – who may issue licences under entertainments and related legislation.

**Local institutions** – local hospitals or care homes.

**Neighbouring landowners** – so that they can move livestock, where necessary.

**Other agencies** - coastguards, harbours, and aerodromes.

In addition, remember to ensure that RMP have been informed and relevant information made available to the insurer.

## Storage of Fireworks

The Explosives Regulations 2014 require that the manufacture of fireworks (which includes dismantling them) shall only take place under licence. The Regulations allow the preparation, assembly, disassembly and fusing of firework displays at the place of intended use without a license.

The Regulations also allow the preparation, assembly and fusing of fireworks, in quantities of no more than 10

<sup>5</sup> The Taunton M5 crash law case refer to: R -v- Counsell 10.12.2013

kilograms at a time, at a site in relation to which a person holds a licence for the storage of explosives, for the purposes of a firework display to be put on by that person. The destruction of fireworks in a safe manner does not require a licence.

Under the Explosives Regulations 2014, an unlimited quantity of Hazard Type 3 and 4 fireworks may be kept for up to 24 hours without licensing the place of storage. Specified amounts may be held for longer periods.

People who are responsible for health and safety at the display and those who are providing premises are recommended to consult the local authority enforcement officer for advice if they are in any doubt as to the application of health and safety legislation.

## Clearing Up

Display operators are responsible for clearing up the firing area and leaving it in a safe condition on the day of the display. Discuss methods for locating and retrieving fireworks that have misfired; checking for partly spent fireworks and other hazardous remains; and returning to the site at first light to make sure that it is clear of partly spent fireworks and that the bonfire is extinguished. Partly spent fireworks or misfires should only be transported on public roads in accordance with legal requirements<sup>6</sup>.

## Preparing for Emergencies

Institutions will need to consider what could go wrong on the day and have a plan to deal with each emergency or contingency. Arrangements must also be in place to stop the display early or cancel it completely due to adverse weather conditions or respond to an accident or incident involving a firework.

## Bonfires

One person should be responsible for a bonfire, and the bonfire area should be restricted to that person and designated helpers. Care also must be taken that the bonfire is checked carefully before lighting to ensure it is stable, and that there are no children or animals inside. The designated helpers need to be advised not to wear lightweight clothing which could ignite easily and wear substantial outer garments of wool or other material of low flammability, and strong boots or shoes.

Access for emergency services to the firing and bonfire area needs to be always maintained.

## Large Firework Displays

Some displays can be extensive and of significant construction. The Construction (Design and Management) Regulations (CDM) 2015 apply to works of construction and could allow enforcement action by the HSE during the construction phases of an event.

## Drones

The use of drones to film displays from high-level positions is increasingly popular – but there are important safety considerations that need to be considered:

- Is the drone being operated by a professional company, or by an amateur?
- Where will the drone be launched and controlled from?
- Is there adequate communication between the display company and the drone operator in case of issues during the display?
- Is the drone to be flown in amongst the fireworks and risk being damaged or disrupted?
- If control is lost where will the drone fall?

Flying a drone at night without clear visual contact and adequate control may contravene legislation and careful consideration must be given to their use by event organisers. Amateur users who fly drones independently may also contravene regulations. Further information is available from the Civil Aviation Authority<sup>7</sup>.

## Key Points

- Assemble an event planning team giving specific responsibility for management of health and safety
- Consult with the emergency services and insurance providers at an early stage
- Appoint and verify a competent and suitably qualified fireworks operator
- Consider anticipated audience size, pyrotechnics to be used, firing and fall out areas, crowd control measures, access and egress, arrangements for parking and local traffic flows
- Ensure the pyrotechnics assessment is compatible with the overall event assessment
- Plan for emergencies, first-aid facilities, and effective communications during the event

<sup>6</sup> The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009

<sup>7</sup> Drone and model aircraft safety information, Civil Aviation Authority

## Insurance Cover

The Public Liability cover provided by HDI is a blanket cover catering for the 'usual activities' of the institution. Special events such as bonfire and firework displays are considered as one-off events of which RMP should be advised.

Any additional premium payable will depend on the size of the event in terms of expected number of attendees, claims experience of any previous similar events held by the institution and the size of any Self-Insured Retention (SIR) applying to the main Public Liability policy. Documentation regarding planning for the event, including detailed risk assessments, will be required.

The institutions Public Liability cover will not provide cover for other groups such as a professional display operator company contracted to run an event. All but very minor groups and private individuals should maintain their own Public Liability cover.

The adequacy of a contractor's insurance cover for both Employers Liability and Public Liability should be checked prior to the event. A minimum of £5m Public Liability cover would be expected and copies of current insurance certificates obtained.

More detailed guidance on risk management of contractors and checking contractors' insurance cover is available on the RMP website.

## References

1. The Taunton M5 crash law case refer to: R -v- Counsell 10.12.2013
2. The Red Fireworks Guide: Giving your own firework display: How to run and fire it safely - [Explosives Industry Group](#), July 2018
3. The Blue Fireworks Guide: Working together on firework displays – A guide to safety for firework display organisers and operators, [Explosives Industry Group](#), July 2018
4. The Firework (Safety) (Amendment) Regulations 2004, The Fireworks Regulations 2004, The Pyrotechnic Articles (Safety) Regulations 2010, The Manufacture and Storage of Explosives Regulations 2005
5. The Carriage of Dangerous Goods and Use of Transportable Pressure Equipment Regulations 2009
6. [Managing crowds safely: A guide for organisers at events and venues](#), HSE
7. [Drone and model aircraft safety information](#), Civil Aviation Authority

You can download copies of the HSE guides and regulations from Her Majesty's Stationery Office website [www.opsi.gov.uk/stat.htm](http://www.opsi.gov.uk/stat.htm) or the HSE website [www.hse.gov.uk](http://www.hse.gov.uk)

Other relevant organisations providing advice and guidance

- The British Pyrotechnists' Association (BPA), <http://www.pyro.org.uk/>
- The British Fireworks Association (BFA) [www.britishfireworksassociation.co.uk](http://www.britishfireworksassociation.co.uk)



## Further information

For access to further RMP Resources you may find helpful in reducing your organisation's cost of risk, please access the RMP Resources or RMP Articles pages on our website. To join the debate follow us on our LinkedIn page.

## Get in touch

For more information, please contact your broker, RMP risk control consultant or account director.

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