PYROTECHNICS POLICY

Version 3

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Document History

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1	Sept 2018	General revision	Matt Daniel (Operations Manager)
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3	July 2023	Full Revision	Jamie Gibbons (H&S Manager)

Pyrotechnics Policy and Procedures

It is the policy of the Swansea.com Stadium that spectators are prohibited from bringing pyrotechnics (flares, fireworks, smoke bombs, etc.) inside the ground. Any spectator failing to abide by these regulations will be prevented from entering, or be ejected from the ground. It is an offence against the Ground Regulations for any person to let off any firework or pyrotechnic inside the ground, unless during an authorised display.

The Sporting Events Control of Alcohol Act 1985 (as amended by the Public Order Act 1986) makes it an offence for a person to have in their possession any pyrotechnic (firework / flare / smoke bomb etc.) whilst attempting to enter or whilst in any part of a designated football ground which is in sight of the pitch, and provides police with the power to search people and to arrest persons committing offences under the Act. Stewards can assist in the detention of any individual who is in breach of this regulation until such time as police are called.

This Policy guidance considers the safety management implications in the apparent increasing use of pyrotechnics at the ground.

Section 15.10c of the Guide to Safety at Sports Grounds advises that ground management adopts and enforces a clear policy to prevent and prohibit spectators from taking flares or fireworks into a sports ground. Such policies should promote various options, including the use of intelligence and the searching of individuals suspected of being in possession of such articles. However, it is also important that the Swansea.com Stadium has procedures in place to safely deal with any pyrotechnic devices that may be confiscated and/or with any that may be discharged within Stadium. This Policy guidance therefore also seeks to provide information to help the Safety Officer and Fire Supervisors (and others) in the safe handling and disposal and any pyrotechnic device found or discharged within the ground curtilage.

Relevant risks associated with flares, smoke bombs and fireworks

The use of pyrotechnics in stadia has various serious health and safety risks. These include:

- **Burns to flesh**: Pyrotechnics are a fire hazard, they can burn at up to 2500°C and can easily cause significant burns either from direct contact with the pyrotechnic flame or in close proximity

- **Burns to structures and other hazards**: The high temperatures mean that ignition of structures or other hazards (eg the pitch, seating, waste bins etc) is possible. This can cause a localised or extensive fire.

- **Explosive effects on persons**: Due to their explosive power, damage to the body such as limb or digit removal can arise from close proximity to an explosion from, for instance, a maroon or rocket head. Ear/hearing damage is also very likely to those within a few metres of such a device exploding.

- **Explosive effects on structures**: Explosive effects could compromise the structural integrity of even substantial structures. Especially where many items are simultaneous ignited, or when the devices have been modified or contained.

- **Smoke**: Lung damage, eye damage and carcinogenic effects, caused by repeated or high concentration of toxic smoke. It can also exacerbate existing respiratory conditions. Coloured smoke can stain persons, clothing or structures.

- **Impact on vision**: Impact damage to eyes, or chemical contamination can cause temporary or even long-term loss of sight, particularly if there is physical damage or burning.

- **Impact on hearing**: Loss of hearing can result from close proximity of explosive effects, such as those from bangers or the head of a rocket exploding. These items are generally intended to be used at least 25 metres from persons (if they are categorised as fireworks).

- **Panic**: The effect of panic on an audience as a result of actual or perceived injury or structural damage can be a significant factor. Emergency evacuation procedures should be considered where panic is caused by a pyrotechnic device functioning in a crowd of people – effects could be significantly different to other causes of panic especially in a heightened awareness to terrorist activities.

The handling of unused pyrotechnic devices

Pyrotechnics are regarded as explosives and thus their regulation comes under The Manufacture and Storage of Explosives Regulations 2005. Guidance on appropriate storage conditions is available in the Approved Code of Practice to these Regulations (ISBN 0-7176-2816-7), paragraphs 260-323.

Where unused devices have been confiscated at the Stadium, and until they are disposed of, SSMC Ltd is responsible for their safe storage. A safe storage facility will be provided and this will be located within the confines of the Compound area, or within sand buckets in the four corner tunnels. These areas are located outside of the main seating and standing areas and provides a degree of security as it is not open to the public. The amount of explosives in individual flares, smoke bombs or fireworks is relatively small and the quantity of confiscated pyrotechnics does not require registration with the City and County of Swansea Council for the storing of these devices. Where the Safety Officer notifies the Police of the existence of a pyrotechnic device, the Police Officer will assess the evidential content of the material and if appropriate, secure the evidence in line with current forensic procedures.

Seizure of pyrotechnics

Whilst some flares and other pyrotechnic devices are quite bulky and may be easily identified, others are quite small enabling an individual to secrete them on their person in a way that may make them difficult to find as part of a normal searching regime. The club will do everything possible to prevent such articles from being taken into the ground and also educate spectators as to the inherent dangers. Where intelligence suggests that pyrotechnic devices are likely to be brought into the ground, instructions will be given to stewards regarding the searching of individuals suspected of being in possession of such articles.

Handling pyrotechnics that have been discharged

As previously highlighted, there are a number of different types of pyrotechnic devices available and each can present their own problems when discharged amongst a crowd of people. The club has contingency plans in place to identify what to do in such circumstances. The main types of pyrotechnics used within stadia are:

- **Hand held flares** - These devices, commonly referred to as "Bengal lights", produces a bright light (often orange coloured) at the mouth of the tube along with considerable amounts of smoke. These devices may be designed for distress use or may be small hand-held devices manufactured and explicitly, but illegally, marketed for use in stadia (in a multitude of colours).

- **Distress flares** - These devices eject a star (sometimes with a parachute to slow its descent) which burns for an extended duration. The significant additional issue with such distress devices is the burn duration – this is often greatly extended (as they were designed to burn for a long time to attract attention as a distress device) and hence will continue to burn once discharged and maybe fall, whilst still burning, within the audience area or on the playing surface, and continue to burn for several seconds.

- **Smoke devices** - These devices produce dense smoke as a deliberate effect. They are available in multiple colours and are usually chosen to replicate team colours (red, blue, green and yellow are the most common). **Note**: all pyrotechnic devices produce some smoke but in most cases this is not the primary effect.
- **Strobes** - These devices produce flashes of light (usually white but may also be coloured) of approximately equal intensity, duration and frequency. They can induce epileptic effects in vulnerable people and are disturbing for even those who are not. Indeed, they are used as distraction devices in police or military raids for this very reason.

- **Bangers** - These devices produce a large flash and a bang and usually rupture the case which can cause fragment effects. There is a blast effect, and associated loud bang which can cause deafness and significant distress, together with local blast effects and fragments from the device itself as it bursts. The loud bang can also cause panic if thought of as a bomb attack. These items are potentially fatal or could cause significant and permanent injuries. If they function in an enclosed space (e.g a collection vessel) or against a structure, then disruption of the container or structure could result.

- **Fountains** - These devices produce a shower of sparks and may burn up to 1200°C from less than 1 sec to 45 secs or more. The incandescent sparks are directional, but could cause significant injury if directed at a person. In addition, once ignited the device will continue to burn for its designed duration. Fountains have been adapted for use in ordnance disposal and also as ignition devices (eg for remote ignition of bonfires) and this provides a potential alternative route of supply where fireworks themselves are prohibited.

- **Sparklers** - A pyrotechnic coated wire which is designed to burn from the tip in a controlled manner emitting sparks. Sparklers are widely available, but are one of the firework types that is responsible for the most injuries in "normal" use. Primarily this is because the wire running through the item remains extremely hot (1200°C +) for a while once the sparkler is extinguished. As such any contact with flesh can cause deep burns which will be contaminated with combustion by products.

- **Rockets** - These devices are designed to fly through the air and (optionally) burst at the apex of their

flight to produce a spread of stars. Most rockets are equipped with sticks to stabilise their flight. Once the rocket has completed its effect (which may involve bursting of the firework head to give a spread of stars) the stick will fall to ground – often at high speed. Injury can therefore result from the structural components of the rocket. Rockets (and Roman Candles below) have been used as weapons to fire from one side of the stadium to the opposing crowd on the other side, as well as being fired directly at players and officials on the pitch.

- **Roman Candles** - These devices produce stars, mini star bursts or reports over an extended period from a single tube. They can last 20-45 seconds and once lit will not go out. As with other devices, once lit, the Roman Candle will normally burn to completion and cannot be extinguished. If oriented towards a person this could cause both a projectile injury and burn injuries.

- **Single shot devices** - These single tubed devices produce stars, mini star burst or a report in the same way as does a Roman Candle. The effects are exactly the same but only a single "shot" is fired. However, the effect is normally projectile and may contain multiple stars, projected bombettes, or bangers.

- **"Cakes"** - These devices, which comprise several single shot tubes, linked together and fired sequentially produce stars, mini star bursts or reports over an extended period. It would be difficult to "smuggle" such devices into a stadium (whereas all the other items are relatively small and could be hidden more easily from inspection). However, it is also possible that people will attempt to break down these multishot cakes to extract single individual tubes if routes of supply of individual items is restricted. This presents a whole new set of dangers, particularly to those in close proximity to where the item is fired.

- **Mines** - These devices eject a single conical display of stars or other units in a single "shot". They are extensively used for punctuation of pyromusical events as the effect is immediate on electric ignition.

- **Whistles** - Whistles produce a high intensity screeching or whistling sound over several seconds. They are known to be used as distraction devices by the police or military.

There is no safe use of pyrotechnics in spectator areas at football events within stadia or in crowded places. Flares used are typically of the hand-held type having an integral handle. Once such flares have been set off, they cannot be easily extinguished and will typically burn for between 30 to 60 seconds, following which it will no longer discharge any light or smoke. However, it will still be too hot to handle for quite some time after and may still present an ignition source for any combustible materials around. Provided there is no immediate threat of escalation or injury, it is safer to allow the flare to burn out before any action is taken.

Safety and security personnel, players or others who might attempt to deal with pyrotechnic devices on the field should follow the following 'three-stage approach' detailed below to ensure that they are not inadvertently increasing the hazard to themselves or others. It is now advised to let a pyrotechnic burn out and then use a bucket of water to take away the spent cartridge.

If illegal use of a pyrotechnic does take place, follow this three-stage approach:

01 MOVE AWAY

- Get at least 5 metres away.
- Be seen to get away. Players, match officials, stewards, and emergency services should show that they recognise the dangers.
- Pause the fixture if, for example, the device is on the pitch and/or there's a lot of smoke. Officials and safety officers should assess the seriousness of the situation and decide whether to pause the fixture whilst the incident is being dealt with.

02 LEAVE THEM ALONE

- **Pyrotechnics are self-sustaining and cannot be extinguished.** Any attempts to extinguish a pyrotechnic puts a person close to it with associated health and safety risks.
- You don't know what the pyrotechnic will do next – it may explode.

03 LET THEM BURN OUT

- Stay away, let the pyrotechnic burn to completion, and **then** deal with it.

THEN (and only then)

- Only once the pyrotechnic has burnt to completion should you attempt to remove it.
- Even then the pyrotechnic may still be hot and burning internally.
- Use suitable personal protective equipment to place the spent case into a bucket of water, as it may still be hot and burning internally.
- In case of a fire in a high-risk area, water fire extinguishers are best to fight the fire. Make sure to stand five metres away when directing water onto the surface.

Please keep in mind that all pyrotechnic devices are formed of compositions which include their own oxidants. This means that once ignited they will generally burn "to completion" and cannot be extinguished by conventional means (eg by excluding oxygen). Some pyrotechnic devices will even burn under water – and hence cannot be extinguished by water (or other) fire extinguishers.

Once the device has finished emitting smoke it should be placed in a metal bucket of water for at least half an hour. A welder's glove or similar should be used to pick up a smoke bomb that is discharging, or has discharged, smoke.

Any articles that do not have an evident handle should be handled with appropriate gloves or tongs as they will also remain hot for some considerable time (30 minutes plus). When handling spent pyrotechnics the top should always be pointed to the ground and away from people. Those handling them should wear appropriate eye protection.

Pyrotechnic devices discharged in concourses

Flares/smoke bombs/fireworks are designed to be discharged in the open air and there is little advice available as to the possible effects of discharging such devices on a concourse.

There have already been instances of pyrotechnic devices being set off in concourses or toilets. At least one club has carried out its own tests to consider the possible action it would need to take if flares and/or smoke bombs were discharged in a concourse. Some of the observations from those tests included:

- Although the "hot" smoke from a flare and the "cold" smoke from a smoke bomb behaved in different ways, both activated the automatic fire detection and alarm system and would continue to do so until the area was vented of smoke.
- Depending on the density of the smoke, the concourse, or part of it, may need to be closed until the smoke is vented.
- The "cold" smoke from a smoke bomb flowed out of a vomitory in one concourse, but when the test was repeated in another concourse in a higher tier, the smoke flowed away from a vomitory and down an emergency exit staircase.
- Opening exit gates had a limited impact on venting the smoke from the emergency exit staircase.
- Positive Pressure Ventilation Fans, supplied by the fire and rescue service, had a significant impact on venting the smoke from the emergency exit staircase through the vomitory.
- The smoke from a smoke bomb discharged in a toilet was largely cleared by the toilets ventilation system.
- As smoke from a device discharged in a concourse may become visible to supporters in other parts of the ground, a prepared or pre-recorded PA announcement, which reassures supporters, should be available.

As the design and layout of concourses varies, the outcome of the tests described above may not be the same in every concourse. The 'three-stage approach' will be adopted by the fire stewards regardless of the location discharged, unless there is a high risk of injury or damage in the immediate vicinity, the fire stewards may then intervene, subject to their own dynamic risk assessment. The Club will strive to carry out its own tests, in conjunction with the local fire and rescue service, to help review contingency plans for dealing with the effects of a pyrotechnic device discharged in concourses.

Stewarding procedure for The Swansea.com Stadium

Any individual found to have in their possession any pyrotechnic will, wherever possible, be detained by stewards until such time as police are called unless already present in the ground.

In the event of a pyrotechnic device being set off by supporters either in viewing areas, elsewhere inside the stadium or outside but within the curtilage of the ground, stewards will immediately inform the Safety Officer and appraise him of the situation. He will then determine the appropriate course of action needed to be taken in order to protect and safeguard spectators and others. This could include the partial or total evacuation of the section in which the device has been set off, or by moving spectators away from the pyrotechnic device until it has either ceased discharging or has been removed to the safe storage area.

The removal of spent or discharging pyrotechnics will be the responsibility of the club's Fire Stewards who have been issued with appropriate personal protective equipment together with other equipment for the safe disposal of devices and who have received training and instructions in how to handle, extinguish and dispose of such devices. The device, or devices, will then be removed to the safe storage area in the compound or corner tunnel where they will remain until either collection by South Wales Police or disposal. General purpose stewards are not required or expected to attempt to handle or dispose of such devices.

The club's first aid staff, ambulance personnel and club doctor will also be informed of the discharge of a pyrotechnic devise so that they are prepared and ready to deal with the effects of any burns or smoke inhalation that spectators, stewards or others may experience as a result of the incident,

The club's CCTV system will monitor the section of the ground in which the device has been discharged and any images recorded will be retained and reviewed in order to assist in any potential prosecution of offenders.

Where a grenade type of device has failed to ignite, and it is believed that the device thrown is an IED, stewards will immediately inform the Safety Officer and begin immediate evacuation of the nearby area. Under no circumstances is any steward or fire steward allowed to approach this unexploded bomb to dispose of as detailed above for other pyrotechnics. The Safety Officer will immediately implement emergency action by contacting the police an informing them of the circumstances as the device will have to be disposed of by military personnel. In addition, the officials will have to be informed as the event may have to be called off and the ground evacuated. For some type of IED's the recommended evacuation area could be a minimum of 100m.

Elimination of risk

The club has policies and procedures in place to prevent, as far as practical, pyrotechnic devices from being brought into the ground. These plans include the use of intelligence and visual presence from the police, shared information from other clubs, use of the Club website, social media, and tickets, to send a clear message that the possession of pyrotechnics in grounds is prohibited in all circumstances. Clear signage is also displayed around the grounds displaying contraband items that are banned from the stadium.

Contingency plans

The stadium has contingency plans in place for the handling, storage and safe disposal of any pyrotechnic devices seized from supporters and for how they will deal with any pyrotechnics discharged by supporters either within the viewing area or elsewhere in the ground.

Police Arrangements (for gathering of evidence and disposal)

Under the Sporting Events Control of Alcohol Act 1985 (1985 Act) (as amended by the Public Order Act 1986) makes it an offence for a person to have in their possession any pyrotechnic (firework / flare / smoke bomb, etc.) whilst attempting to enter or whilst in any part of a designated football ground which is in sight of the pitch, and provides police with the power to search people and to arrest persons committing offences under the Act.

Arrangements have been made with South Wales police for the gathering of evidence for possible prosecution, along with safe disposal of any pyrotechnic device at the ground. Where any person found to be in possession of a pyrotechnic upon entering or using in the Ground, will where possible, be detained and the police informed.

This can be split into 3 sections:

a) pyrotechnics found upon entry search – any spectator found in possession of any pyrotechnic will be refused entry and may be detained pending arrival of the police. The fireworks will be confiscated from the spectator and their details will be passed on to the police;

b) pyrotechnics found upon persons in the ground – any person whilst inside the ground found to be in possession of any pyrotechnic will be detained for removal by the police. Any pyrotechnics will be seized for police evidence and possible prosecution;

c) pyrotechnics ignited and/or thrown inside and/or outside the ground – this has the potential to cause serious injury to other spectators or cause disruption to the game. Irrespective of where inside the ground it is ignited, stewards will detain the offender(s) for police removal, if possible. Any ignited pyrotechnic will be gathered by the trained fire stewards and placed in the allocated safe location in the compound or within the corner tunnels for police evidence and handed over to them as soon as practicable along with the offender(s).

The above will not apply to any organised display.