

# Safety Alert



Explosives

Explosives Inspectorate

Safety Alert No. 56 | 9 January 2012

## Fireworks assistant burnt from low bursting shell

### What happened?

A fireworks assistant was hand firing 50mm aerial shells when one shell malfunctioned and burst prematurely at chest height just after leaving the mortar tube. This type of incident is known as a 'low burst' or 'flower potting'. The fireworks assistant was in close proximity which resulted in second and third degree burns to the hands and face, which required specialist treatment. The assistant was wearing personal protective equipment (PPE) which included safety glasses, covered shoes and overalls which protected the eyes and body.

### Recommendations

1. A risk assessment must be done to determine the nature and type of PPE to use. The PPE selected must be capable of providing protection from acute and chronic exposures for the activity being done, taking normal and abnormal functioning of fireworks into consideration. In this case, a risk assessment should have determined that gloves and a full face shield should have been worn to prevent and minimise injuries from this malfunction.
2. The risk control hierarchy must be used in the development of the risk management approach in the safety management system. The order of the hierarchy of controls is elimination, substitution, isolation, engineering, administration and PPE. It is generally accepted that lower end risk control measures such as PPE will not be as effective as those at the top end of the hierarchy such as isolation. Electrical firing (isolation risk management) has the benefit over hand firing (PPE risk management) the fireworks which safely distances the operator from any malfunctioning fireworks and other hazards.
3. Fireworks contractors should reassess the adequacy of their risk assessments for all activities undertaken including setting-up, managing the display and post display activities.
4. Fireworks contractors should review their safety management systems and ensure that the systems are being followed.



*Hand firing requires additional PPE*



*Electrical firing isolates operator from normal and malfunctioning fireworks blast, heat, projections and noise.*

Authorised by **Geoff Downs** | Chief Inspector of Explosives

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