Decontamination developments

Decontamination is a vital part of the co-ordinated response to a CBRN incident. **Mike Hall** of Hughes Safety Showers looks at developments in specialist shelters

THE GROWING CATALOGUE OF CBRN hazards is matched by an expanding armoury of decontamination techniques and specialist equipment. The priority is to save lives through prompt action, and to protect those exposed to harmful substances. This is generally achieved by washing the contaminant from the body or, in the case of emergency services personnel, from their protective clothing. In principle the process is straightforward and involves the use of a shower, either fixed or hand-held.

Portable shelters

Detergents and other chemicals may be added to the showering water to remove specific types of contamination or simply to improve the overall effectiveness of showering. Usually, casualties will be treated in portable decontamination shelters erected at the scene of an incident or in the grounds of a hospital to treat arrivals before admission. They vary in size depending on the throughput, and range from a single showering cubicle to a multi-stage shelter with separate areas for undressing, showering and putting on temporary clothing.

Speed of deployment is obviously critical in emergencies. Weight, portability and stability are also important considerations, together with a high level of reliability. Hughes Safety Showers, for example, developed its first decontamination system as a direct result of many years' experience with safety showers in industry.

The Portaflex shower was specifically designed in collaboration with UK fire services for washing down protective suits and small items of equipment. It adopted a novel approach to the need for portability. The shower water pressure was used to inflate the hose carrying the spray nozzles, which was simply suspended overhead. A simple solution, but a decisive step towards establishing a completely separate range of products dedicated to the needs of the emergency services.

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Initially the Portaflex shower was placed inside an inflatable-frame cubicle to contain the contaminated wash-off in an integral sump and eliminate airborne overspray. The cubicle quickly evolved into a series of more sophisticated shelters with dedicated shower facilities.

The emerging terrorist threat focused attention on mass decontamination and the possibility of having to treat hundreds, if not thousands, of casualties in the shortest possible time.

In many instances, this was achieved by simply scaling up the units. The adoption of multiple channels through the shelter means that male and female casualties, separated by modesty screens, can be treated simultaneously. Internal partitioning can be reconfigured to offer even greater flexibility with separate channels for walking and stretcher-borne casualties. It also opened the way for two and three stage decontamination where detergents can be added to the initial wash water to improve its effectiveness.

Decontamination shelters have either inflatable or rigid frames. In both cases the emphasis is on stability, durability and speed of deployment. Versatility is also increasingly important as emergency services try to maximise their investment in shelters to accommodate the growing range of applications. It is not economically viable or logistically desirable to carry a multitude of bespoke shelters.

The latest Hughes rigid frame shelter, for example, provides a solution by using an interchangeable liner. With one standard shelter and a selection of liners, users can easily switch between applications such as decontamination, forensic examination, command and control or field mortuary. There is an insulated version for extreme climates, with optional air conditioning, and a basic model for disaster relief.

The design of decontamination shelters has evolved to match emerging threats and hazards. Efficient decontamination is not merely about delivering sufficient water at the shower head. Suitable spray patterns and the use of additives play their part, but it is also about managing casualties as they pass through the shelter, making it easily accessible and user-friendly, while achieving effective decontamination in the shortest time. CRJ

The Hughes Articulated Rapid Deployment (HARD) shelter fitted with a decontamination pod

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