

Lithium-Ion Battery Fires & CBRNe (Chemical, Biological, Radiological, Nuclear & Explosive) Terrorist Threats: Contingency Planning & Risk Management.

Below we compare risk and management strategies of LI battery fires with terrorism attacks to illustrate the evolution of threat awareness and contingency planning.

9/11 and the Twin Towers

Twenty years ago following the 9/11, and the twin towers event, the world became aware of terrorism and differing risks and hazards.

The threat of bombs, dirty bombs and radiological threats were considered along with biological threats such as Anthrax and chemical weapons such as homemade Mustard gas.

Contingency planning stepped up and Jeff Charlton the author of this article worked with MI5 and government agencies to develop programs to defend building and protect occupants.

The varying threats required different responses, lighter or heavier than air, soluble, non-soluble, respiratory, or percutaneous risks. The environmental controls within the building would influence response as would possible auxiliary controls. Most importantly contingency planning was designed to provide response plans that were as automatic as fire alarm drill.

Lithium-ion vehicle fires.

We now look at the risk and similarities between Lithium Ion (LI) fires and CBRNe events.

There are two main differences, the absence of radiological and biological threat compared to the extensive immediate and long-term risks from LI.

The LI fire will reach temperatures up to 2000c and produce life threatening chemicals. Smoke and soot's both heavier and lighter than air will spread widely and of course carry contaminants in all directions.

The force of the explosion is likely to create secondary damage and concrete spalling.

Residue which can chemically burn, poison, and corrode electrical installations, destroy IT systems even floors away from the event. Long term chemical action could see construction failure and structural integrity through events similar to concrete cancer.

With such a new phenomenon contingency planning requires expertise to rival CBRNe due to the complex risks.

With increasing fires and explosions on a daily basis, the threat might be seen greater than terrorist CBRNe. It should also be considered that terrorists could use electric vehicles as a disruptive weapon of choice. As a common sight in daily life, the Electric vehicle could easily be placed to inflict maximum damage and disruption, especially when possessing knowledge and understanding of the trigger and delay mechanism.

Building Forensics provide:

1. Contingency planning and response training
2. Planning for auxiliary controls to prevent secondary damage.
3. Post event site wide environmental measurement to assess spread of contamination.
4. Evidence based data on scope of works for remediation.
5. Immediate risk reduction of surface and airborne contamination (by pre appointment)