



POST-INCIDENT CONSIDERATIONS WITH LITHIUM-ION BATTERIES

Post-Incident Considerations

The actions of the fire service on incidents involving lithium-ion batteries extend beyond initial fire suppression activities. In order to limit the impact of fire and secondary responses to the original event, fire departments must work collaboratively with our community to limit secondary events.

A Swollen Battery Incident

The community currently has limited options for the safe collection of a suspect battery. As the local fire service develops its response to battery-related incidents, a key component is its response to smoking small-form batteries. Consider a citizen showing up with a battery pack that is swollen and hot to the touch - what is the service response to this incident in your community?

- Fire departments must develop basic procedures for handling similar incidents from either a response or a walk-in to the station.
- Never store a suspect battery indoors at the station, building, or home.
- For safe storage while awaiting proper disposal, place the battery in a container of sand or another chemically-inert cushioning material (over-pack drum).
- Utilize the fire prevention team to assist in developing procedures for identifying and handling suspect batteries that are collected at commercial big box retailers as well.

Post-Home and Commercial Building Fires with Mobility Devices

Responding to home fires that involve lithium-ion batteries or other battery chemistry is a key aspect of our service. Responding crews and fire investigators must remain vigilant to identify and remove battery packs, equipment, and cells that were involved in a fire incident.

- Provide training to firefighters on identification and proper means of removal from the structure. Consider your first due response area; different structures can present different challenges, such as removing a mobility device from a home versus a 20-story residential building.
- Many communities currently have battery recycling capabilities. Identify and work with regional experts to develop a procedure for post-incident, safe transport and handling.

Post-Incident Recycling

Responding to incidents involving batteries that are in transport or storage for recycling is on the rise and can be extremely dangerous to responding crews. Proper separation, transport, and re-packaging are key.

- Develop post-incident mitigation resources including approved companies for over-packing and transport.
- Products may need to be secured outside of a structure for multiple days. Monitoring should occur as the product often catches on fire after the main event.
- Develop preplan reviews for locations within the response district that may be used as a temporary storage facility during mitigation.

Useful Links

Department of Transportation - <https://www.phmsa.dot.gov/lithiumbatteries>

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Post-Incident ESS and Decommissioning

Home ESS and commercial ESS systems are growing in popularity and continue have multiple demands placed on the fire service for some significant time post-event.

- Fire departments need to develop policies and best practices for not only response, but also post-incident mitigation associated with ESS.
- Fire prevention teams and local building inspectors should work together to ensure installation, including decommissioning plans, are current and submitted as part of the permit process.
- Post-incident home and commercial ESS systems must be monitored in accordance with the manufacturer's recommendations as well as general processes. ESS that have had a thermal event must be monitored for multiple operational periods after the incident. Crews should monitor for signs of thermal runaway as well as heat (consider standby crew for at least 24 hours post-incident at a home; a commercial incident may require multiple days).
- An authorized contractor should be dispatched to remove the unit post-incident from the structure.

Post-Incident Hybrid and BEV Vehicles Crashes and Fires

From a simple fender bender accident to a catastrophic impact of a hybrid or BEV, the fire service will play a key role in these vehicle responses.

- Conduct pre-incident training and coordination with law enforcement, including identification of actions on various types of incidents, hazards of off-gassing cells, as well as proper means in identification, towing, and other key components involving EVs.
- Crews should never leave a damaged vehicle indoors post-incident. Work with law enforcement on storage of BEV and evidence preservation.
- Conduct pre-incident training and identification with recovery companies. This includes identification of proper towing techniques as found in response guides from manufacturers and proper storage, handling, and monitoring of vehicles involved in a crash.
- Submerged vehicles have specific guidelines in handling and may need to remain on the scene to drain for multiple days. Consult the vehicle manufacturer response guides for more information. Submerged vehicles in salt water can lead to post-incident vehicle fires and should be handled with care.
- If the vehicle was on fire or showing signs of thermal runaway, patience is the key. Allow the vehicle to cool for a minimum of 45 minutes without signs of visible gas or smoke. Once 45 minutes has passed, use a thermal imaging camera on the high-voltage battery pack to detect hotspots, and scan again when loading on a flatbed and at the salvage yard.

Take Action and Learn More

Visit www.safetystanddown.org for more information and resources.

www.safetystanddown.org

