



Town of Littleton Fire Department

20 Foster Street Littleton, MA 01460 P:(978) 540-2302 F:(978) 952-2359

"Protection of life and property through a combination of emergency response and loss prevention services"

Littleton Fire Department

Operational Summary: Containerized BESS Thermal Event (Samsung system using FK-5-1-12)

Date: September 23, 2025

To: Littleton Conservation Commission / LELWD

From: Deputy Fire Chief Sean Coffey

Purpose

Provide the Commission with LFD's expected strategy, environmental controls, and a planning-level water-use estimate for a containerized lithium-ion Battery Energy Storage System (BESS) incident near the brook. The proposed system uses FK-5-1-12 (formerly marketed as Novec™ 1230) for direct module injection.

Operating Assumptions

- Incident type: thermal runaway within a containerized BESS; on-board agent (FK-5-1-12) and deflagration/vent features present.
- Primary community risk: off-site impact from heat spread or uncontrolled runoff if suppression water is required.

LFD Strategy (what we will do)

1. **Life safety & size-up:** Establish command, deny entry, set hot/warm/cold zones, confirm wind/drainage toward the brook, and obtain site intel (BMS data, alarms/agent discharge, container temp, venting status). No container entry until explosion hazards are addressed and the manufacturer/owner rep is present.
2. **Tactical posture: Defensive containment and exposure protection**—not forced interior extinguishment. We allow the system's on-board protections to operate and **cool external surfaces/exposures as needed** from a standoff distance. If exposures are stable, **no water may be applied**.
3. **Monitoring:** Continuous thermal and atmospheric monitoring.
4. **Coordination:** Early notification to LELWD/ConCom/MassDEP as appropriate. Owner provides an environmental contractor for sampling, recovery, and disposal.

Runoff Control Requirements (to be in place before applying water):

- **Best Management Practices (BMPs):** Must be provided by the owner/operator/installer and remain accessible to the Littleton Fire Department at all times.
- **Vacuum Truck:** A vacuum truck must be on call or under a rapid-dispatch contract for immediate response.
- **Operational Actions:** Prior to initiating sustained cooling flows, deploy drain covers, berms, and booms; verify adequate containment capacity; and designate a Runoff Group Supervisor. All collected water/agent mixtures must be directed to portable containment units and/or the vac truck—**not** discharged to storm drains or surface waters.
- **Post-Incident Measures:** An environmental contractor will perform field screening and sampling, and manage transport and disposal of collected material in compliance with applicable regulations.



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Planning-Level Water Estimate *(actual use depends on conditions and may be zero)*

- **Minimal case (contained, no exposure threat):** 0–30,000 gal (0–60 min of limited exterior cooling at ~500 gpm).
- **Typical single-container with exposure cooling:** ~60,000–120,000 gal (2–4 hrs at ~500 gpm).
- **Extended single-container (prolonged heating/limited access):** ~120,000–360,000 gal (4–6 hrs at ~500–1,000 gpm).
- **Note:** These figures are **planning ranges** derived from industry after-action reports and training flows for lithium-ion battery cooling. We will always choose the **lowest effective flow** and **shortest duration** necessary to maintain exposures and public safety.

Notes on FK-5-1-12 (informational)

- Stored as a liquid; rapidly vaporizes on discharge for local application. As with any clean agent in a fire environment, decomposition byproducts can occur; therefore **runoff and residues are to be contained and collected**. LFD will avoid releasing any agent/water mixture to the brook and will rely on the site's BMPs and contractor for recovery and sampling.

What We Need from the Owner/Operator

- An **Emergency Response Plan (ERP)** and **SWPPP** addendum that:
 - Identifies the exact BMP inventory and staging locations,
 - Confirms available **capture volume** relative to the planning water ranges above,
 - Names the 24/7 **vac-truck** and **environmental contractor** with response times, and
 - Provides contact info for the **manufacturer representative** for remote BMS access and on-scene support.

Conclusion

LFD's approach emphasizes **containment, controlled cooling, and protection of the brook**. With pre-staged runoff controls and an environmental contractor on call, we can manage a thermal event while minimizing or eliminating off-site impacts.

Respectfully,

Sean Coffey

Deputy Fire Chief, Littleton Fire Department