



# After The Flames: Navigating Battery Fire Clean-Up & Recovery

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# Safety Moment: Battery Fire Hazards



- **Physical damage** can cause overheating and ignition
- **Electrical issues** from overcharging or incompatible chargers increase risk
- **Thermal runaway** can create rapid, self-sustaining fire events
- **Watch for warning signs:** heat, odor, swelling, or popping



# What Makes Battery Incidents Different from Other Fires

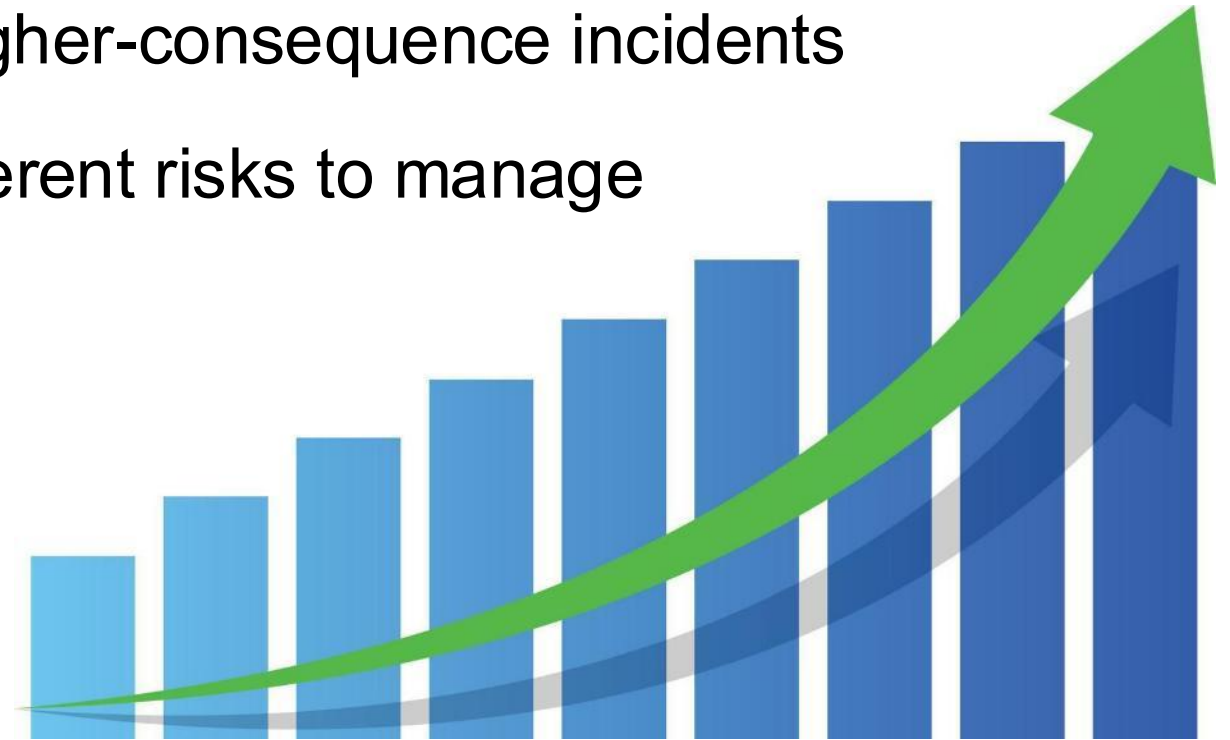
- Lithium-ion fires burn hotter and can re-ignite
- Hazards mix with fuels, chemicals, and debris
- Damaged batteries are often hidden in scrap
- Battery awareness supports safer recovery





# Why Battery Incidents Are Increasing Across All Sectors

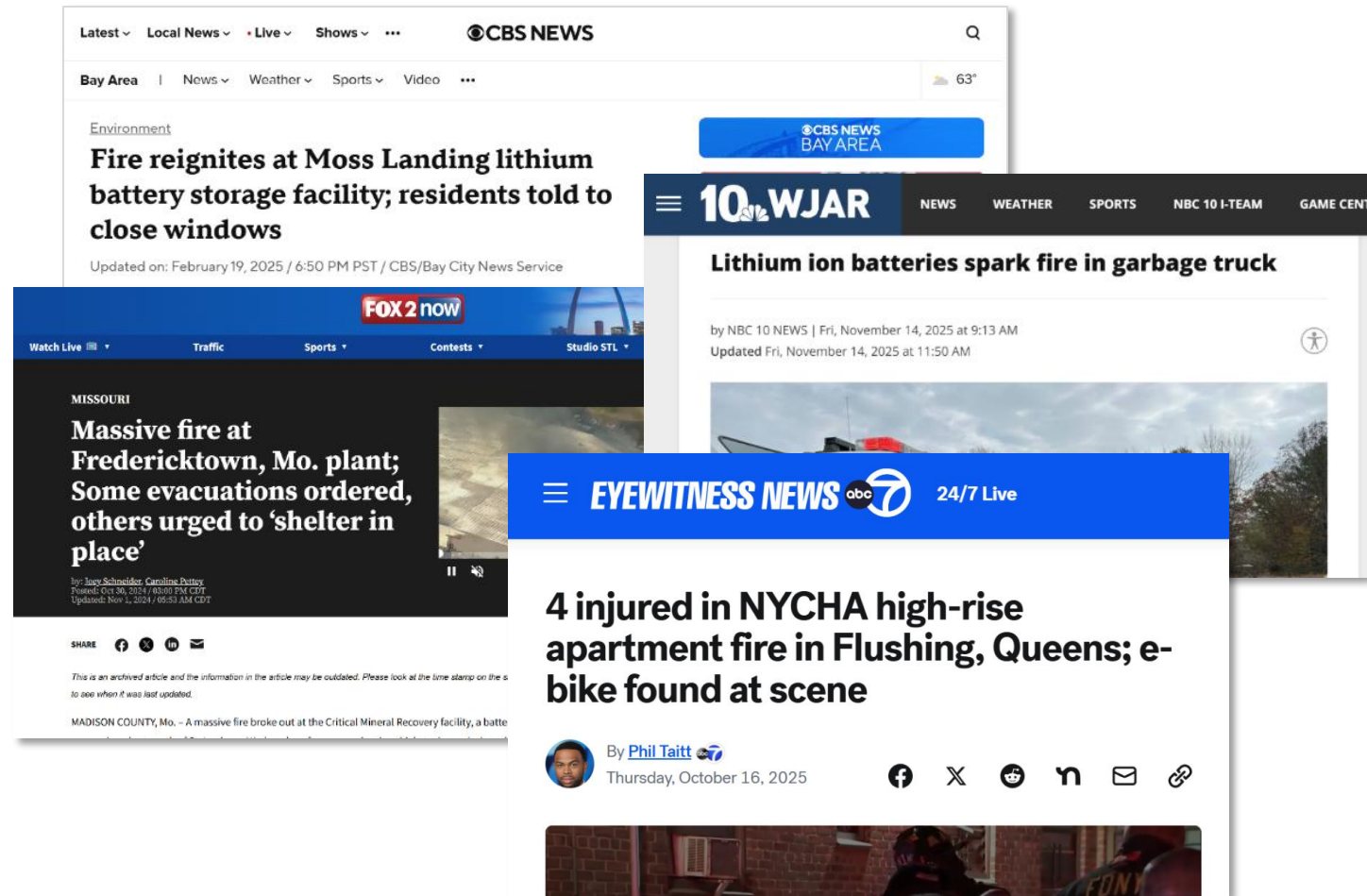
- Battery-powered equipment growing across sectors
- Higher-capacity batteries create higher-consequence incidents
- Multiple battery types on-site = different risks to manage
- Response protocols must adapt to new battery-related hazards



# Recent Incidents Highlight The Risk



- Most involve damaged, aging, or improperly charged batteries
- Batteries often hidden in debris or stored with other materials
- Heat trapped in piles leads to re-ignition

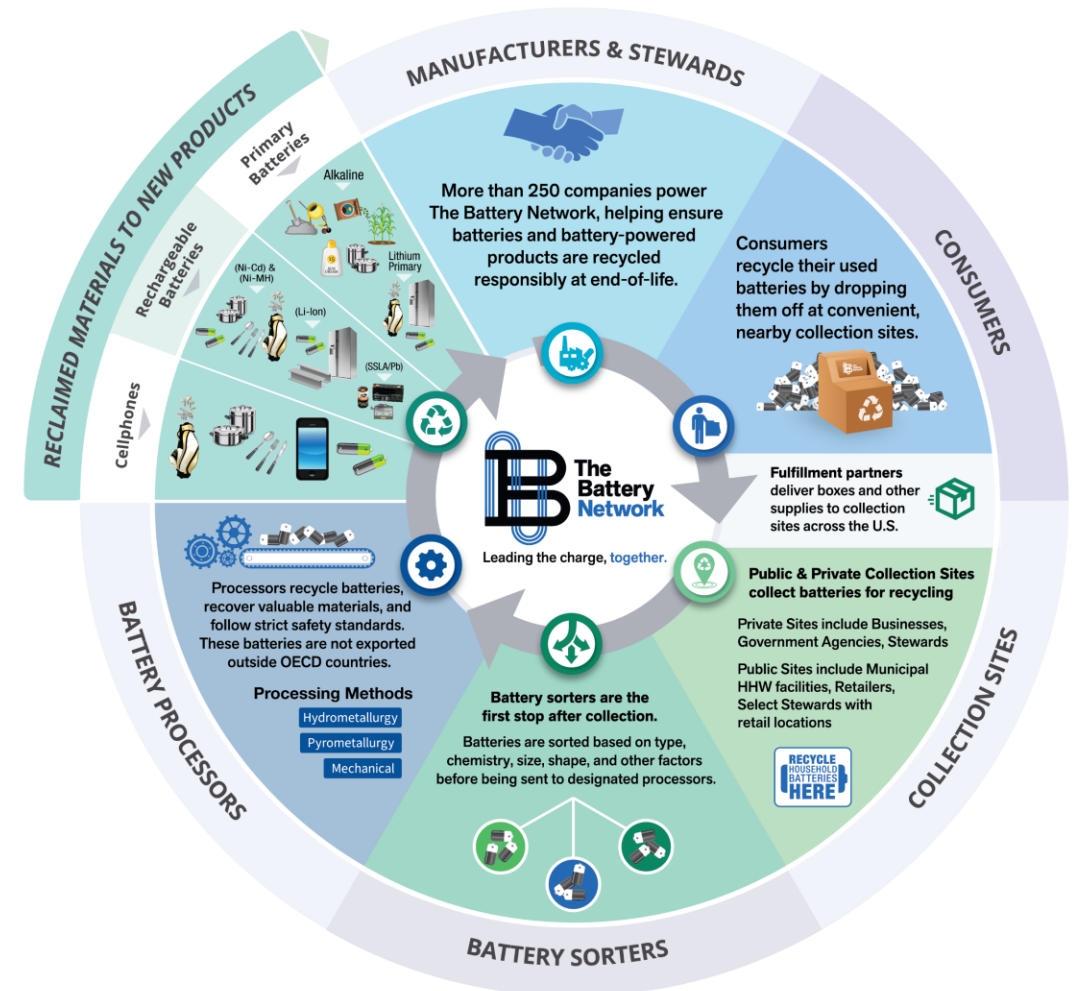


# Safe Battery Handling Practices

## Prevent Emergencies



- Proper storage and sorting prevent incidents
- Mixing chemistries increases risk
- End-of-life batteries behave unpredictably
- Good stewardship reduces emergencies





# Core Principles of Post-Fire Battery Recovery

- ✓ Site assessment
- ✓ Safe vs. Compliant
- ✓ Identify battery vs. scrap metal
- ✓ Identify battery chemistry
- ✓ Chemistry and condition on packaging

**🔥 LITHIUM ION MUST BE HANDLED WITH CARE 🔥  
TO AVOID FIRE INCIDENTS**





# Safe vs. Compliant

- Compliance = regulatory minimums
- Safety = real-world hazard control
- Can be compliant but unsafe
- Can be safe but uncompliant
- Goal is both



# Compliant But Not Safe



- Containers may trap heat
- Bulk storage hides hotspots
- Debris masks hazards
- Fix safety before transport





# Safe But Not Compliant

- Improvised containers fail standards
- Missing paperwork
- Well-meaning fixes cause delays
- Verify packaging + documents

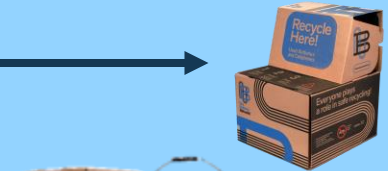
Mixed-chemistry EOL batteries shipped in a drum with fire suppressant

Multiple damaged (DDR) lithium-ion batteries in a drum with fire suppressant

Mixed-chemistry EOL batteries shipped in a box

Damaged batteries shipped without training or shipping papers

Larger EOL lithium-ion batteries (>300Wh) shipped in a box



# Incident Learnings: Warehouse Fire



**What Happened:** Mixed chemistry & debris fire

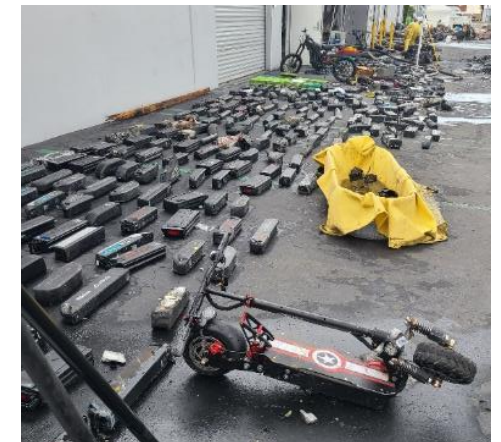
**Damage:** 13,800 lbs li-ion, e-Bike, & e-Motorcycle batteries (>300 Wh)

**Cost:** \$1.2M

**Cause:** bulk storage and mixed conditions intensified fire

**Outcome:** Material required sorting and safe containment

**Takeaway:** Mixed debris and batteries require careful separation



# Incident Learnings: Transport Fire

**What Happened:** Tractor-trailer fire, LTL carrier

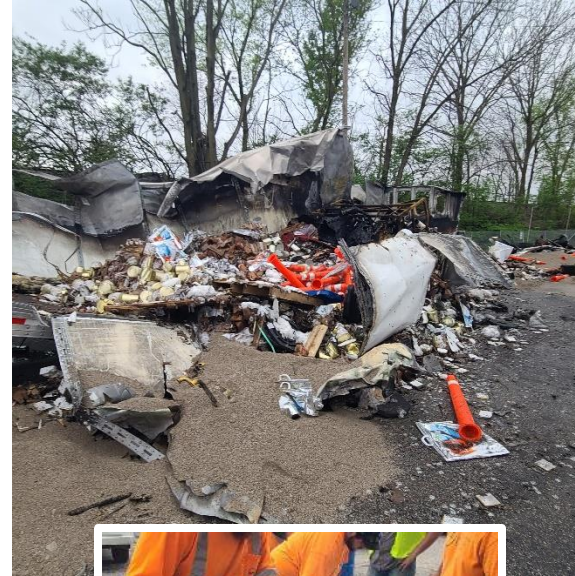
**Damage:** 10,000 lithium battery pouch cells

**Cost:** \$250k+

**Cause:** Unsecure terminals caused shorting inside the load

**Outcome:** Cells needed cooling, isolation, and upgraded packaging

**Takeaway:** Protecting terminals is the simplest way to prevent transport fires



# Incident Learnings: Mixed Chemistry Storage Fire

**What Happened:** Mixed chemistry & debris fire

**Damage:** 13,800 lbs li-ion, e-Bike, & e-Motorcycle batteries (>300 Wh)

**Cost:** \$1.2M

**Cause:** bulk storage and mixed conditions intensified fire

**Outcome:** Material required sorting and safe containment

**Takeaway:** Mixed debris and batteries require careful separation



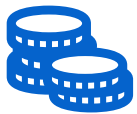


# Know Before You Go: Scene Priorities



## On Scene:

- Who's in charge at the scene?
- Is a Fire Watch needed?



## Financially Responsible Party:

- Who is responsible for the clean up?
- Has it been cleared with the Insurance Company (if applicable)



## Battery Details:

- SDS
- Dimensions
- Condition, etc.



## Staffing:

- PPE Required
- Properly Trained Staff:  
Electricians, Engineers, Techs

# Know Before You Go: Technical Needs



## Packaging / Equipment:

- Fully regulated hazmat or SP
- Crates
- Drums
- Packing material
- Discharging Unit
- Crain
- Forklift



## Transportation:

- Dry Van
- Flatbed



## Recycler :

- Battery Chemistry
- Other “Stuff”
- Volume / Delivery Appointments
- Recycling Certificates

# Common Pain Points & Practical Solutions



## PAIN POINTS

Hard to identify battery types after an incident

On-site containers don't match battery conditions

Transport delayed due to unclear requirements

Materials still hot, unstable, or smoldering

Limited training on handling damaged batteries



## SOLUTIONS

Use visual clues to identify likely chemistry and form factor

Select containment designed for damaged or unstable batteries

Confirm transport needs early to avoid hold-ups

Stabilize heat-damaged batteries before staging or moving

Provide regular training on safe handling and packaging



# Key Takeaways



Know the chemistry before handling



Keep communication open across teams



Prioritize safety over speed



Document assessments and decisions



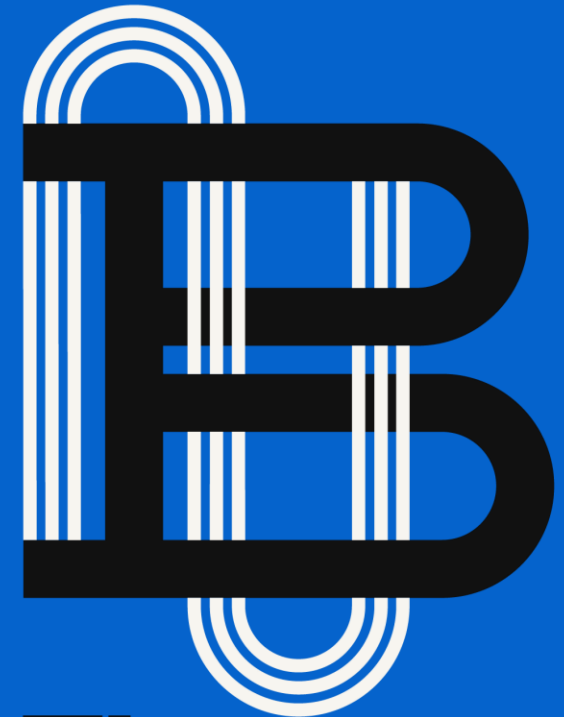
Let condition determine containment

# Q&A



# Thank you.

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**The  
Battery  
Network**