

## NEMS Guidance Protocol: Battery (Universal Waste) Management

Document ID: NEMS-SOP-2026-07

Effective Date: July 13, 2026

Applicability: All NIH Facilities, Housekeeping Staff, and Maintenance Contractors.

### Regulatory Status Matrix:

Under EPA and Maryland Department of the Environment (MDE) regulations, most spent batteries are managed as Universal Waste. However, their chemistry dictates distinct handling and fire-prevention protocols.

| Battery Chemistry             | Common NIH Applications                                                                      | Hazard Profile                    | Regulatory Category                                                           |
|-------------------------------|----------------------------------------------------------------------------------------------|-----------------------------------|-------------------------------------------------------------------------------|
| Lithium-Ion (Li-ion)          | laptops, cell phones, pagers, power tools<br>Emergency backup systems, vehicles, UPS systems | High fire/thermal runaway risk    | Universal Waste                                                               |
| /Lithium Metal                |                                                                                              | Corrosive acid, heavy metal toxic | Universal Waste                                                               |
| Lead-Acid (Sealed/Flooded)    |                                                                                              |                                   |                                                                               |
| Nickel-Cadmium (Ni-Cad)/Ni-MH | Emergency lighting, handheld radios                                                          | Toxic heavy metals                | Universal Waste                                                               |
| Alkaline (Manganese/Zinc)     | Flashlights, wall clocks, wireless mice                                                      | Low risk                          | Standard Solid Waste (Safe for regular trash)/NIH waste contractor to collect |

### Collection & Storage Standards:

The primary hazard when collecting batteries is short-circuiting, which can generate extreme heat and trigger chemical fires.

#### UNIVERSAL WASTE - BATTERIES

- [X] Heavy-Duty Plastic Container
- [X] All Terminals Taped / Bagged
- [X] Stored Dry; Lid Securely Affixed

**Terminal Protection (Mandatory Fire Prevention):**

- **Tape the Terminals:** Before placing any Lithium, Lead-Acid, or Ni-Cad battery into a collection bin, the positive (+) and negative (-) terminals must be insulated. Use electrical tape, heavy duct tape, or clear packing tape.
- **Alternative Single-Bagging:** Alternatively, individual batteries may be sealed inside their own clear, plastic zip-top bag before being placed into the bin.
- **Exception:** Standard alkaline batteries do not require taped terminals.

**Container Specifications:**

- **Approved Bins:** Use only heavy-duty, non-conductive plastic pails or drums provided by DEP. Metal collection containers are strictly prohibited.
- **Environmental Controls:** Keep battery bins completely dry. Store them away from standing water, moisture, and high-heat areas to prevent corrosion and/or short circuits.

**Accumulation Limits:**

- **Time Limit:** Batteries can be accumulated on-site for a maximum of 1 year from the date the first battery is placed in the container.
- **Weight Limit:** Do not fill plastic pails past their structural capacity. If a bucket becomes too heavy to safely lift, close it and request an immediate pickup.

**Step-by-Step Labeling Protocol:**

Every battery accumulation bucket or bin must be clearly identified from the moment operations begin.

• **Step 1: Approved Wording:** The container must display a label reading exactly as follows:

- "Universal Waste - Batteries" or "Waste Batteries" or
- "Used Batteries"

• **Step 2: Start Date:** Write the "Accumulation Start Date" clearly on the label. This tracks your 1-year regulatory compliance window.

• **Step 3: Chemistry Check:** If the bin is designated only for a specific type (such as Lithium-Ion), clearly write "**LITHIUM-ION ONLY**" to prevent contractors from potentially mixing chemical batteries.

### **Local Logistics & Pickup Execution:**

• **Requesting Transit:** When a bin is 80% full or reaches its 10-month mark, log into the online Chemical Waste Service (CWS) portal to request a pickup or call CWS (301) 496-4710.

• **Local Service Fleet:** The Bethesda CWS fleet provides free pickup within 1 to 2 business days for the Main Campus, Twinbrook, Rockville, and Gaithersburg installations.

• **Rejection Criteria:** CWS drivers will reject bins if loose lithium batteries are found with exposed terminals, or if the bin contains leaking/swollen battery casings.

### **Emergency & Thermal Runaway Protocol:**

If a battery begins to smoke, swell, hiss, or emits extreme heat:

1. **Do Not Touch It:** Treat a swelling or smoking battery as an active fire hazard.

2. **Isolate:** If it is safe to do so, move any surrounding flammable materials away from the battery container.

3. **Evacuate & Report:** Evacuate the immediate area and call the NIH Fire Marshal or the DEP Spill Response Line (301-496-4451) immediately