



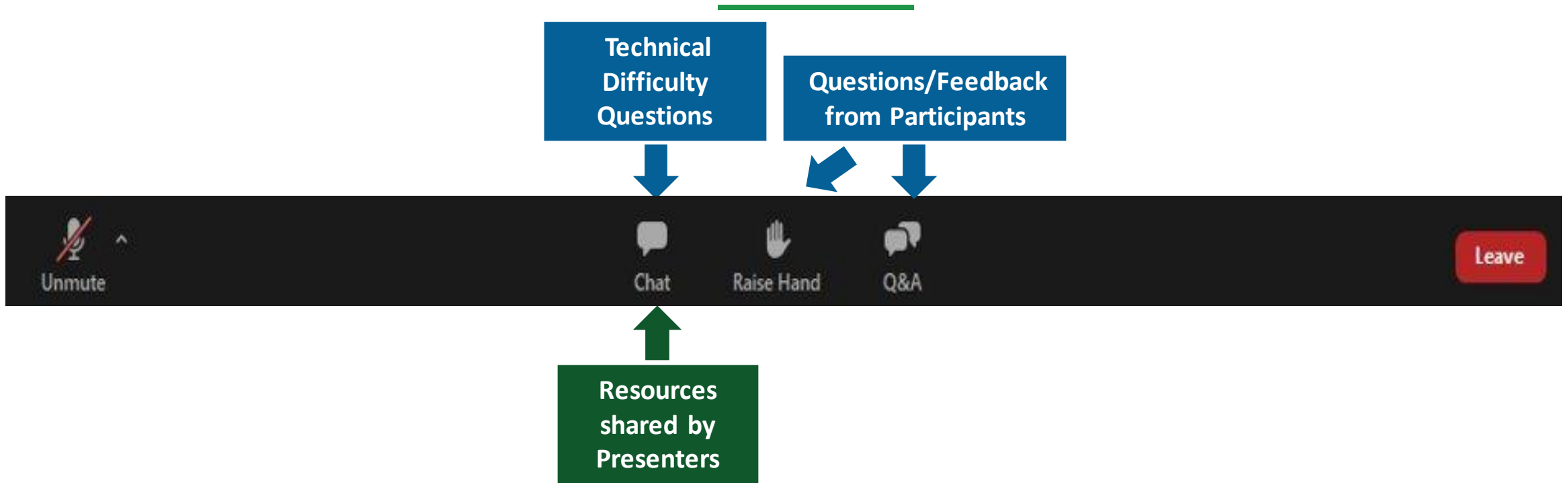
# **Small Format Batteries Collection Best Practices Working Session: Safe Collection, Storage, and Transport**

---

May 14, 2024

U.S. Environmental Protection Agency (EPA)

# Webinar Logistics



- **To ask a question:** Type your questions for presenters into the Q&A feature or click on the Raise Hand icon and we will unmute you to ask your question out loud.
- **Technical difficulties?** Message us in the Chat box or email [Kyra.Hall@erg.com](mailto:Kyra.Hall@erg.com).



# Welcome

Pat Tallarico, ERG Team

# Agenda Overview

---

1. Opening remarks, logistics, and agenda review
2. Transportation
  - **Kevin Leary**, U.S. Department of Transportation
3. Retail collection
  - **Todd Ellis**, Call2Recycle
  - **Robert Gass**, Lowes
  - **Micah Day**, Stihl
4. State and local government perspectives
  - **Megan Warfield**, Washington State Department of Ecology
  - **Deb Ferraro**, City of Mesa Environmental & Sustainability Department
  - **Billy Puk**, Santa Clara County
5. End of Life/Next Life
  - **Ryan Nolte**, Recycled Materials Association (Formerly ISRI)
6. Wrap up/next steps



# Collection Best Practices

## Best practices will focus on:

- Identifying and increasing accessibility to battery collection locations
- Promoting consumer education
- Reducing hazards from improper disposal (fires)

## Best practices will be:

- Technically and economically feasible
- Environmentally sound and safe for workers
- Beneficial to increasing the recovery of critical minerals



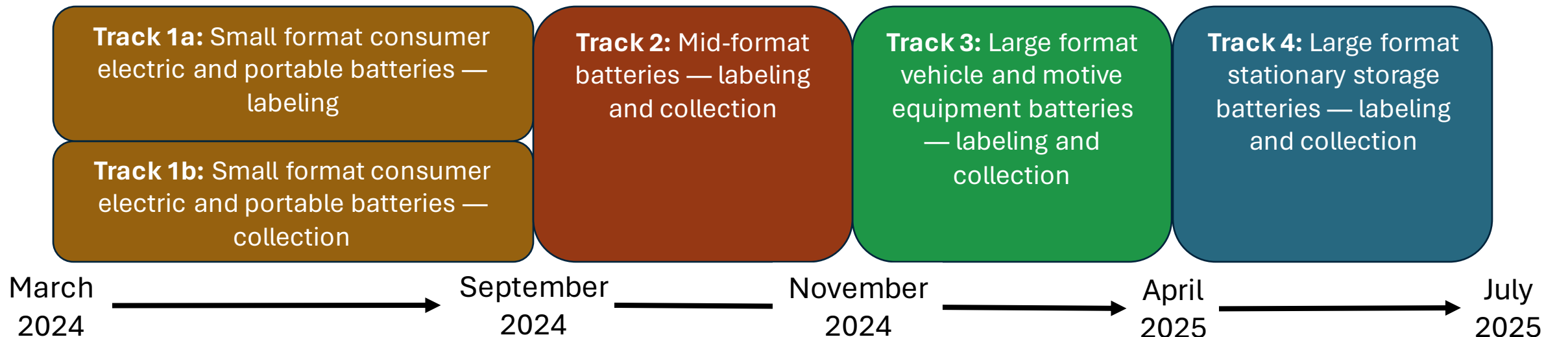
# Scope of Batteries

Category	Small format consumer electric and portable batteries		Mid-format batteries	Large format vehicle and motive equipment batteries	Large format stationary storage batteries
Type	Single use (Primary)	Rechargeable (Secondary)	Rechargeable	Rechargeable	Rechargeable
Use	Removable or embedded in electronics and electric devices, such as watches, hearing aids, cameras, key fobs, toys, portable radios, flashlights.	Removable or embedded in electronics and electric devices, such as phones, computers, appliances, small uninterruptible power supplies (UPS), power tools, power banks.	E-mobility including e-bikes, e-scooters. Outdoor power equipment. Portable power stations.	All scales of automotive starting and motive vehicle batteries. Materials handling equipment (forklift, crane, etc.) Recreational (golf carts, marine equipment, recreational vehicles, etc.)	Residential, including power wall, backup generators. Grid, including utility, solar, wind. Off grid and microgrid. Commercial, including building systems, data centers, server rooms, medical and hospital equipment, retail backup power.



# Conversation Timeline

- A sequenced approach to conversations
- Small format labeling and collection conversations will proceed concurrently
- Leveraging existing, in-person industry meetings to test ideas and share updates



# Transportation

Kevin Leary, U.S. Department of Transportation





## Small Format Batteries: Safe Collection, Storage, and Transport

Kevin Leary, US DOT - PHMSA  
May 2024



# Overview

- PHMSA in the Supply Chain
- Safety Concerns
- Transport Basics
- Resources



# PHMSA in the Supply Chain



# PHMSA in the Supply Chain

PHMSA establishes regulations for the safe transportation of [hazardous materials in commerce](#) by all modes of transportation.

These regulations apply to persons who offers for transport or transport hazardous materials in commerce.

Lithium batteries **are** considered hazardous material in transportation.

Functions **not** subject to regulation by PHMSA include:

- Storage prior to or after transport
- Transport by an individual in private motor vehicle for non-commercial purposes
- Transportation of a hazardous material in a motor vehicle, aircraft, or vessel operated by a Federal, state, or local government employee solely for noncommercial Federal, state, or local government purposes



# PHMSA in the Supply Chain



Recycling  
or  
Disposal

Cell and Pack  
Manufacture



Consolidation

Installation  
and use

End of Life  
Collection



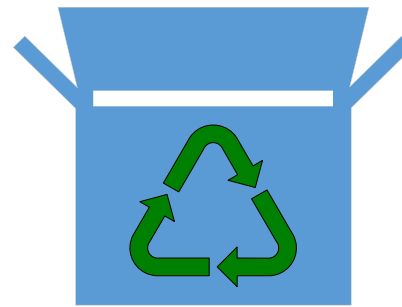
# PHMSA in the Supply Chain

## Oversight Over the Transportation Process

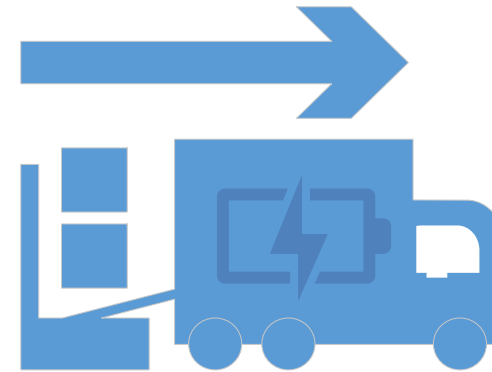
Identification and  
Classification (collection/  
sorting)



Packaging and Hazard  
Communication



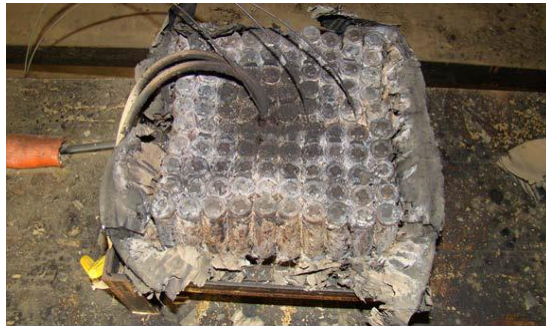
Movement



# Safety Concerns



- The potential for venting of combustible and potentially toxic gases from lithium ion cells in thermal runaway



- The potential for propagation of thermal runaway between cells within a battery, cells or batteries in a package and between adjacent packages of batteries



# Safety Concerns



*Batteries packaged for transport  
Lawrenceville, GA – December 2021*



*Lithium metal and lithium ion batteries  
destined for recycling – March 2023*



*Lithium batteries described as “synthetic resins”  
Port of LA/Long beach – 2022*



*Container of discarded lithium batteries  
listed as “computer parts” – August 2021*





# Transport Basics

## Classification

## Packaging

## Hazard Communication



# Classify the Hazard – Type of Lithium Batteries

- Lithium Metal
  - Metallic lithium or alloy
  - Size measured in grams
  - Generally not rechargeable (single-use)
  - Typical configurations: coin cell, cylindrical, and rectangular
  - Examples: watches, thermometers
- Lithium Ion
  - Lithium compound
  - Size measured in Watt-hours (Wh)
  - Generally rechargeable
  - Typical configurations: cylindrical, rectangular, and pouch packs
  - Examples: laptops, tablets, cell phones, power tools



# Classify– UN ID Numbers

**UN3480**

- Lithium Ion Batteries

**UN3481**

- Lithium Ion Batteries Contained in/Packed with Equipment

**UN3090**

- Lithium Metal Batteries

**UN3091**

- Lithium Metal Batteries Contained in/Packed with Equipment



# Classify – Energy Capacity

- The energy capacity of the lithium battery is an important consideration – larger batteries and quantities are subject to increased regulation. Thresholds:

## Lithium Ion (Smaller Batteries)

- $\leq 100$  Wh
- $\leq 300$  Wh ground only\*

## Lithium Metal (Smaller Batteries)

- $\leq 2$  g
- $\leq 25$  g ground only\*

\* Additional hazard communication is required



# Section 173.185 of the HMR

- [Section 173.185](#) in the HMR addresses requirements for lithium batteries, including the provisions for recycling lithium batteries:

1. Classification/  
UN 38.3 Testing  
Paragraph (a)

2. Packaging  
Paragraph (b)

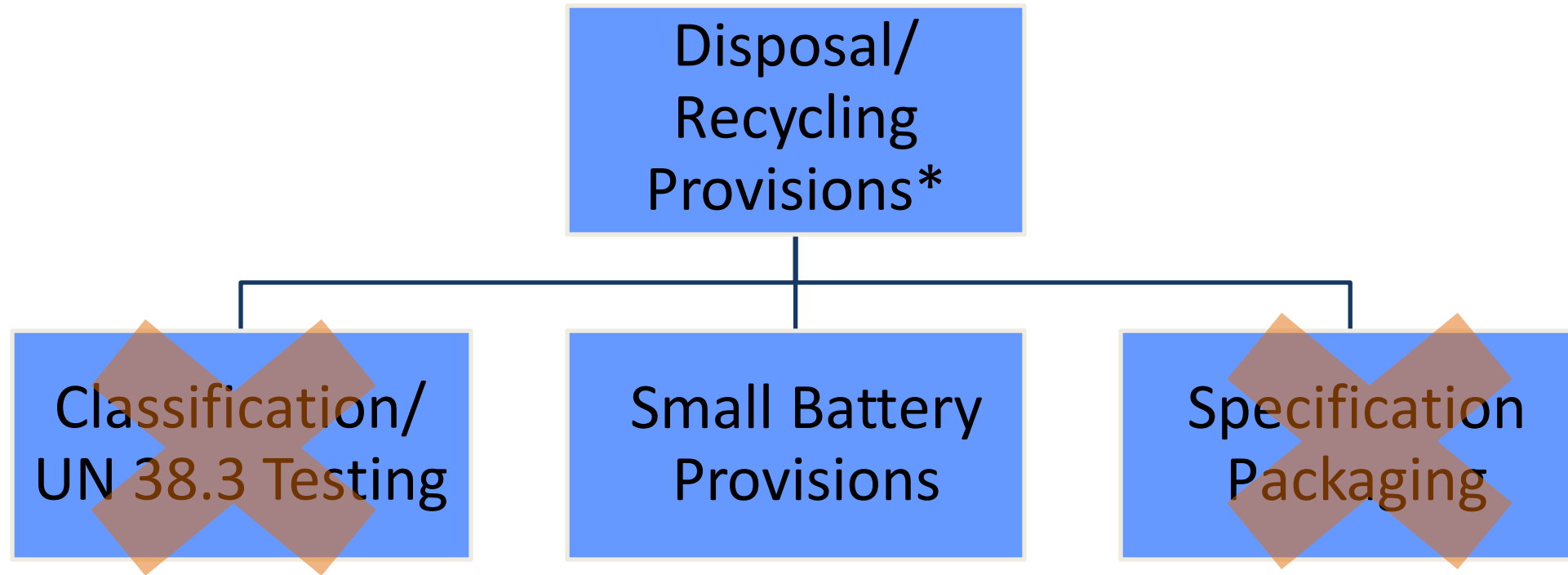
3. “Small” battery  
provisions  
Paragraph (c)

4. Disposal/  
Recycling provisions  
Paragraph (d)

5. Damaged,  
Defective, Recalled  
(DDR) Requirements  
Paragraph (f)



# Disposal/Recycling Exceptions



**\*For motor vehicle transportation ONLY** [49 CFR § 173.185\(d\)](#)



# Classify – UN 38.3 Design Tests

**Test T.1 Altitude simulation.**

**Test T.2 Thermal test** - conducted using rapid and extreme temperature changes

**Test T.3 Vibration** - simulates vibration during transport

**Test T.4 Shock** - assesses the robustness of cells and batteries against cumulative shocks

**Test T.5 External short circuit**

**Test T.6 Impact/Crush** - simulates mechanical abuse or crush that may result in an internal short circuit

**Test T.7 Overcharge** - evaluates the ability of a rechargeable battery or a single cell rechargeable battery to withstand an overcharge condition

**Test T.8 Forced discharge** - evaluates the ability of a primary or a rechargeable cell to withstand a forced discharge condition



# Packaging

- General Requirements
  - Prevent short circuits
  - Prevent damage caused by shifting
  - Prevent accidental activation
  - Prevent release of contents
  - Packaging requirements are performance-based
- Basic Configuration
  - Inner packaging
  - Cushioning material
  - Outer packaging

[49 CFR § 173.185\(b\)\(1\)–\(3\)/\(c\)](#)





# Inner Packaging

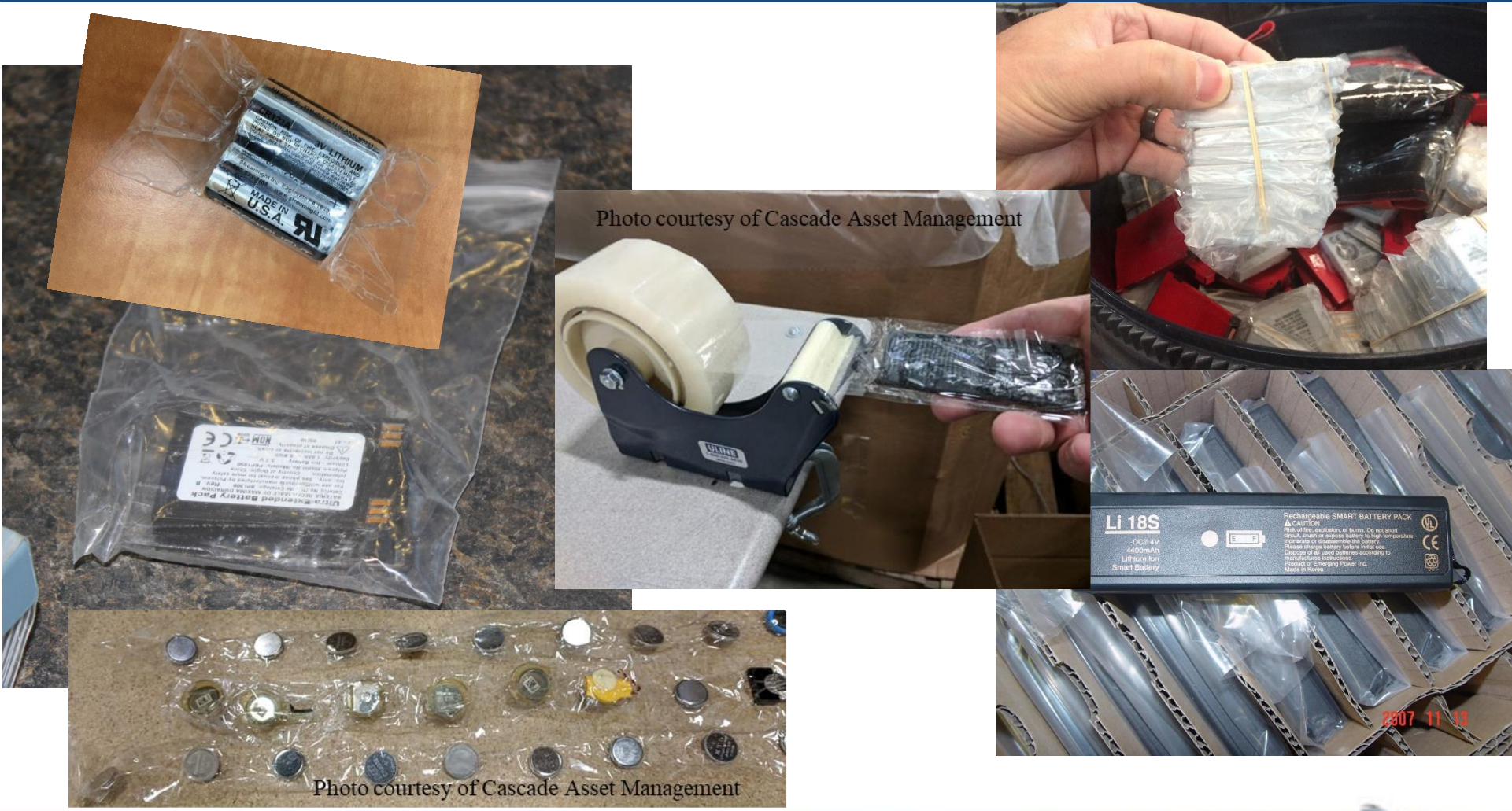


Photo courtesy of Cascade Asset Management

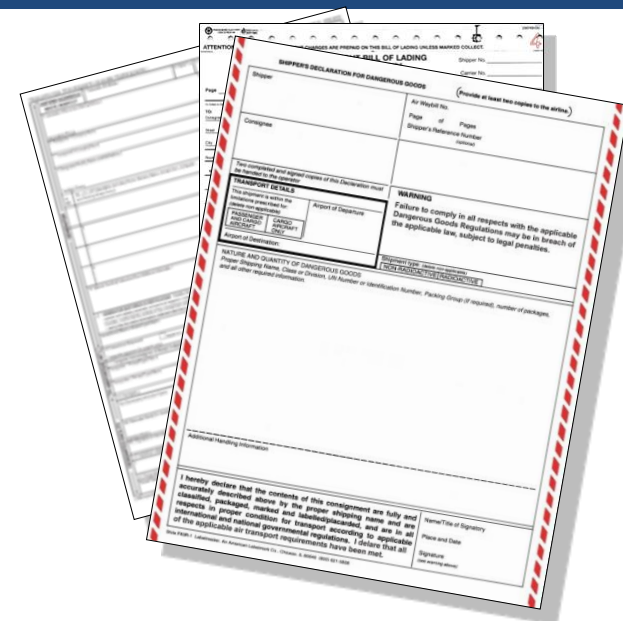
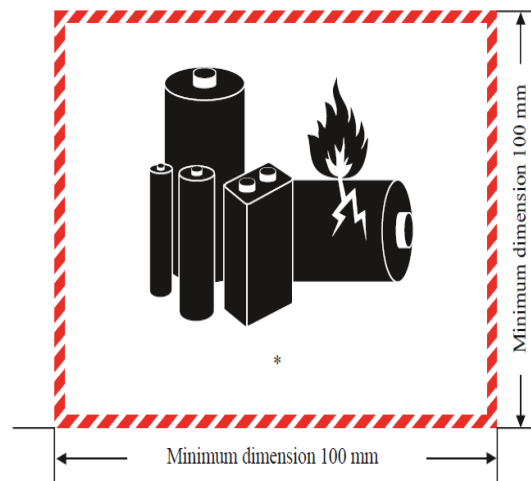
Photo courtesy of Cascade Asset Management



# Outer Packaging



# Hazard Communication – marks, labels, documents

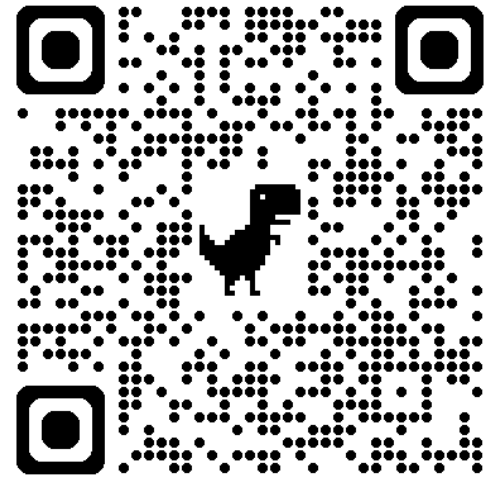
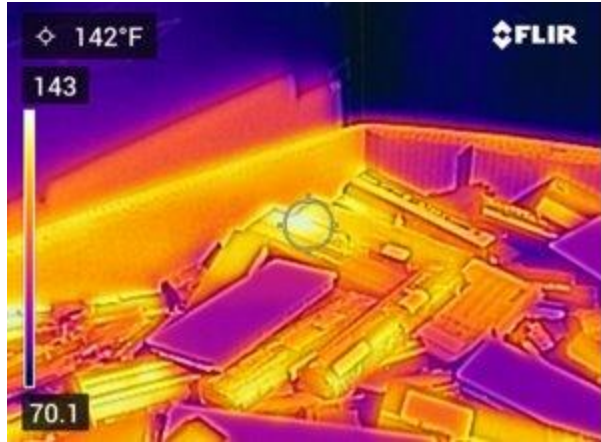


# Damaged, Defective, or Recalled (“DDR”) Lithium Batteries

- Batteries to Look For:
  - Known defective
  - Leaked or vented
  - Sustained physical or mechanical damage
  - Cannot be diagnosed (i.e., cannot say for sure they are not damaged)
- Consider:
  - Risk of acute hazards (e.g., gas, fire, electrolyte leaking)
  - Known misuse of the battery
  - Signs of physical damage
  - Damage to safety features, components, or short circuit protection

Source: UN Model Regulations 3.3.1,  
Special Provision 376





Understanding the risks of damaged, defective or recalled lithium batteries



# Packaging DDR Batteries

- Batteries must be **individually** packaged as follows:
  - Non-metallic, inner packaging that completely encloses the battery
  - Inner packaging surrounded by non-combustible, non-conductive, and absorbent cushioning material
  - Single inner packaging must be placed in **performance-oriented packaging at the Packing Group I performance level**



# How Does a Company Apply for a Special Permit?

Application procedures are in **49 CFR 107.105**

- Routine requests = 120 day turnaround time
- Emergency requests = issued as quickly as possible

**Email:** [specialpermits@dot.gov](mailto:specialpermits@dot.gov)  
**Phone:** 202-366-4535

<https://www.phmsa.dot.gov/approvals-and-permits/hazmat/hazardous-materials-approvals-and-permits-overview>

September 15, 2016



U.S. Department  
of Transportation

Pipeline and Hazardous  
Materials Safety Administration

East Building, PHH-30  
1200 New Jersey Avenue S.E.  
Washington, D.C. 20590

DOT-SP 20325

EXPIRATION DATE: 2017-03-31

(FOR RENEWAL, SEE 49 CFR 107.109)

1. GRANTEE: Samsung Electronics America, Inc.  
Ridgefield Park, NJ
2. PURPOSE AND LIMITATIONS:
  - a. This emergency special permit authorizes the use of alternative packagings for the transportation of recalled lithium ion batteries contained in equipment. This special permit provides no relief from the Hazardous Materials



# PHMSA Resources



U.S. Department of Transportation  
Pipeline and Hazardous Materials  
Safety Administration

**PHMSA: Your Safety is Our Mission**





# Resources



## SHIPPING LITHIUM BATTERIES?

The Pipeline and Hazardous Materials Safety Administration (PHMSA) is one of several Federal government agencies that regulates lithium battery safety, as well as enforces regulations for the safe, reliable, and environmentally sound transportation of hazardous materials.

For information on the safe transport of lithium batteries, visit our Transporting Lithium Batteries webpage at the link below, or via the QR code.

<https://phmsa.dot.gov/lithiumbatteries>



# Resources

For additional information contact:

## The Hazardous Materials Info Center

**1-800-HMR-4922**

(1-800-467-4922)

E-mail: [infocntr@dot.gov](mailto:infocntr@dot.gov)

<https://www.phmsa.dot.gov>

### Pipeline and Hazardous Materials Safety Administration Outreach, Engagement and Grants Division

East building, 2<sup>nd</sup> Floor  
1200 New Jersey Ave., SE  
Washington DC 20590  
E-mail: [training@dot.gov](mailto:training@dot.gov)  
202.366.4900  
202.366.7342 (Fax)



# Retail Collection

**Todd Ellis**, Call2Recycle

**Robert Gass**, Lowes

**Micah Day**, Stihl

# Retail Collection

- **Todd Ellis, Call2Recycle**





# SMALL FORMAT BATTERIES: SAFE COLLECTION, STORAGE, AND TRANSPORT WEBINAR

Todd Ellis

# How Does a Battery Get Recycled - Call2Recycle



# How Batteries are Collected & Recycled – Collection



- Call2Recycle partners with existing sites to collect used batteries.
- Call2Recycle has approximately 12,000 partner sites collecting used batteries for recycling.
- Call2Recycle's collection partners are spread throughout the U.S. and include –
  - Public Agencies
  - Retailers
  - Businesses
  - Municipalities



# Collection Site Materials & Training

OVERVIEW

## Training Overview

- 1 Battery & Program Basics
- 2 Safe Battery Handling, Preparation, and Shipping
- 3 Test Your Knowledge



### Minimum Battery Protection Guidelines

Shipping with Call2Recycle products

<p><b>TERMINAL PROTECTION IS REQUIRED</b></p> <p>Greater than 9V: Ni-Cd, Ni-MH, Ni-Zn</p> <p>Greater than 12V: Alkaline &amp; Carbon Zinc</p> <p><b>TERMINAL PROTECTION IS NOT REQUIRED</b></p> <p>9V or less: Ni-Cd, Ni-MH, Ni-Zn</p>	<p>All SSLA, Li-Ion, Li-Primary &amp; Button/Coin Cells:</p> <p>All pouch cell batteries: Use bubble bag for each pouch cell</p> <p>12V or less: Alkaline &amp; Carbon Zinc</p>	<p><b>ACCEPTED TERMINAL PROTECTION</b> Call2Recycle® recommends batteries be individually bagged or taped.</p> <p><b>DO NOT PLACE DAMAGED, DEFECTIVE, OR RECALLED BATTERIES INTO THIS BOX.</b> <small>Recall information available at call2recycle.org for available nations.</small></p> <p><b>Option 1 (preferred):</b> Place each battery into a clear plastic bag.</p> <ul style="list-style-type: none"> <li>• Call2Recycle-provided bags</li> <li>• Produce bags</li> <li>• Newspaper bags</li> <li>• Zip seal bags</li> <li>• Bubble bags (required for all pouch cell)</li> </ul> <p><b>Option 2:</b> Tape the positive (+) terminal with non-conductive tape.</p> <ul style="list-style-type: none"> <li>• Clear packing tape</li> <li>• Electrical tape</li> <li>• Duct tape</li> <li>• No masking tape</li> <li>• No painter's tape</li> <li>• No Scotch® tape</li> </ul>
--	---	--

call2recycle





## How Batteries are Collected & Recycled - Sorting



- Once collected at a partner site, batteries are first shipped to a “sorting” location.
- Call2Recycle has four “sorting” location partner sites.
- Once at the sorter, each box/shipment is weighed and recorded. The batteries are then consolidated and shipped in trailer loads to a Call2Recycle, vetted downstream recycler.



# How Batteries are Collected & Recycled - Processing



- Call2Recycle uses a network of more than a dozen material processes to recycle the collected batteries.
- These processes are vetted by Call2Recycle through internal and external audits and must be approved by Call2Recycle's Board of Directors.
- Batteries collected through the Call2Recycle program are not reused.
- Most battery packs/cells are recycled as is, but some may require dismantling prior to being recycled.





Leading the charge for recycling.™

thank you!

Todd Ellis  
tellis@call2recycle.org  
678-218-4590

Corporate headquarters:  
1000 Parkwood Circle, Suite 200  
Atlanta, GA 30339

# Retail Collection

- **Robert Gass, Lowes**



# Retail Collection

- Micah Day, Stihl



# Manufacturers' Role In Recycling

**The STIHL Inc. Perspective**

Micah Day, Hazardous Materials Specialist, Legal  
05/10/2024

## Manufacturers' Role in Recycling

### Industry is Your Partner

- STIHL Inc. voluntarily funds its participation in Call2Recycle's Rechargeable Battery Program to make certain every battery sold in the US has a prepaid end-of-life solution.
- By actively involving Industry in the discussion, best practices can be developed that also help to promote environmentally-responsible battery products, keeping them affordable while also leveraging brand networks to promote end-of-life recycling.
- With Industry engagement, solutions can be found for current topics, such as the concept of "design for recycling", for which we are starting to see legislation in the EU regarding embedded battery products.
- In addition to just working with manufacturers, many industry groups are also dedicated to finding safe recycling solutions, as well as keeping the battery industry viable.
  - Examples: Outdoor Power Equipment Institute (OPEI), Portable Rechargeable Battery Association (PRBA), Power Tool Institute (PTI)

# Manufacturers' Role in Recycling

What is involved in planning?

## The Consumer

- Partnership with Call2Recycle's Rechargeable Battery Program
- Quarterly Licensing Fees
- Program Seals (Marks and Labels) on batteries
- Consumer awareness

## The Commercial Consumers

- Materials of Trade Guidance

## The Manufacturing Process

- EPA Regulations
  - Small Quantity Handlers of Universal Waste (SMHUW)
  - Large Quantity Handlers of Universal Waste (LQHUW)
  - Tracking Universal Waste
- DOT
  - DDR
  - Universal Waste vs. Hazardous Waste
- OSHA's Role in hazard communication
- Global Coordination



# Manufacturers' Role in Recycling



## Challenges to Recycling in General

- Overall knowledge on the difference between a normal battery and a DDR battery and how to handle them
- Changes in UN regulations on the classification of Lithium-Ion Batteries
- Piece-meal, Independent State EPR Legislation
- Stewardship Program Free-riders
- Counterfeit batteries and safety
- Transportation carriers
- Safe collection locations

*In most organizations, you will find experts that are ready to work collaboratively to address, educate and mitigate recycling challenges with a huge reach to the consuming public.*



# MICAH DAY

- STIHL HAZARDOUS MATERIALS SPECIALIST, LEGAL
- OPEI, BATTERY ELECTRIC PRODUCTS COMMITTEE CHAIRMAN
- PTI, MEMBER



# State and Local Government Perspectives

**Megan Warfield**, Washington State Department of Ecology

**Deb Ferraro**, City of Mesa Environmental & Sustainability Department

**Billy Puk**, Santa Clara County

# State and Local Government Perspectives

- **Megan Warfield, Washington State Department of Ecology**



# Battery Product Stewardship

- E2SSB 5144 – Providing for responsible environmental management of batteries
- Codified as Chapter 70A.555RCW
- Create a statewide system for the collection and recycling of batteries
- Use of “environmentally sound management practices”
- Many types of batteries covered



# Best Practices for Battery Collection

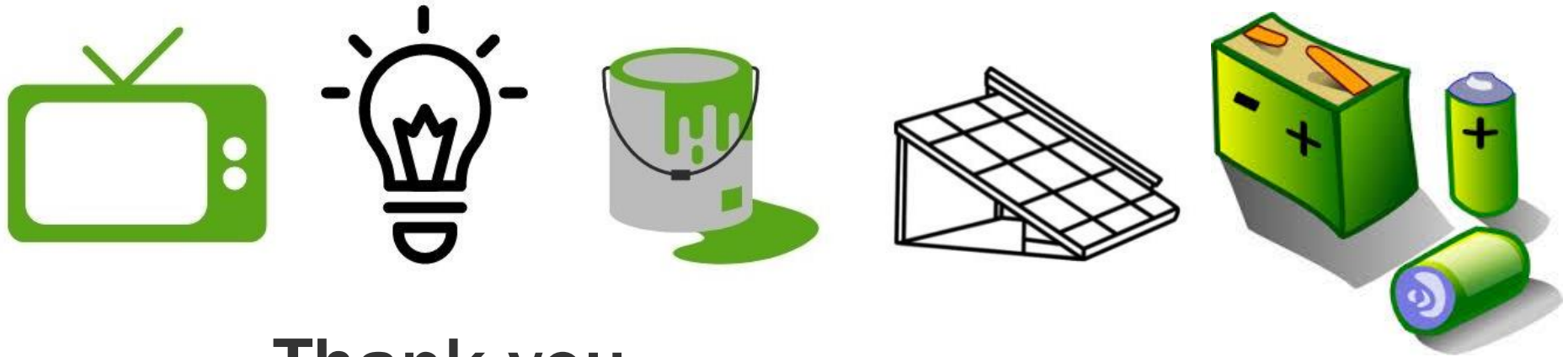
- Make it convenient
  - 95% of residents must have 1 permanent collection site within 15 miles
  - 1 additional site for every 30,000 residents in an urban area
  - Consideration given to overburdened populations and vulnerable communities
- Make it easy: accept all chemistries
- Training to collection sites
- Resources to provide oversight





## Challenges

- Working within existing regulatory framework
  - Solid waste regulations
  - Hazardous waste regulations (universal waste rules)
  - International Fire Code
  - U.S. DOT transportation regulations
- Staffing & resources to provide oversight
- Damaged batteries



## Thank you

<https://ecology.wa.gov/Waste-Toxics/Reducing-recycling-waste/Our-recycling-programs>



Megan Warfield  
360-701-9683  
[megan.warfield@ecy.wa.gov](mailto:megan.warfield@ecy.wa.gov)





# State and Local Government Perspectives

- **Deb Ferraro, City of Mesa Environmental & Sustainability Department**





# Lithium-Ion Battery Fires

- Increase in battery-related fires beginning in 2022
  - Currently averaging 3 fires / month
- Water not sufficient to keep fires out
- City was not prepared to respond
- Fires at residential and business locations and in solid waste trucks





# Preparedness

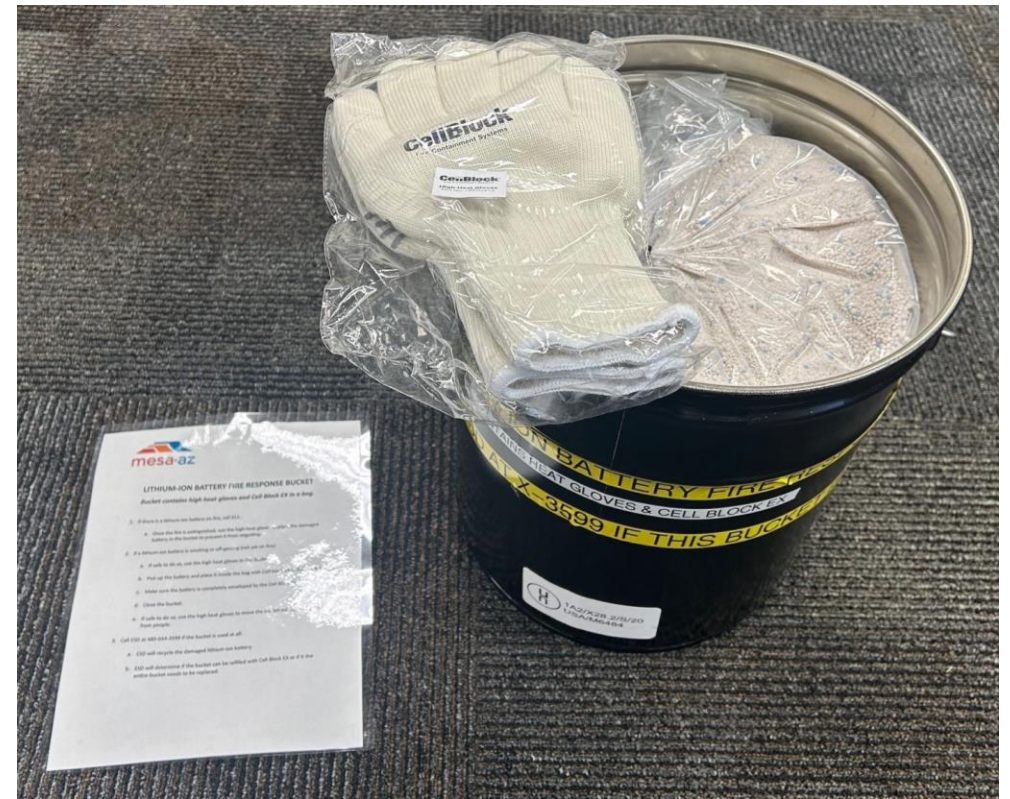
- Reached out to existing emergency response contractors for better solutions
- Who would be prepared to assist with emergency response:
  - DOT Damaged Defective Recalled (DDR) Permit
  - Equipment – roll-offs, skid steers, loader
  - Materials – Cell Block EX, fire blankets, high heat gloves
- Contract addendum with new pricing





# Preparedness

- Worked with Mesa Fire Department
- Lithium-Ion Battery Fire Response Buckets
  - Cell Block EX
  - High heat gloves
  - Response Procedure
- Buckets now located on all 3 HazMat Trucks
- Prepared for recycling of DDR batteries





# Preventive Measures

- Used Battery Procedure for City Operations
- Taping of high energy batteries and damaged batteries
  - All batteries over 9V
  - All lithium and lithium-ion batteries w/ exposed terminals
  - Electronic batteries with cracked plastic casing
- Additional staff training



# State and Local Government Perspectives

- **Billy Puk, Santa Clara County**



# Household Hazardous Waste (HHW) Program



- “Household hazardous waste” means hazardous waste generated incidental to owning or maintaining a place of residence. Household hazardous waste does not include waste generated in the course of operating a business concern at a residence. ([HSC 25218.1\(d\)](#))
- HHW Program is a result of mandatory HHW element written in all integrated solid waste management plan in all jurisdictions in California.

# Conservatorship Program/ Public Guardian Service



- Public Guardian or Conservator Program serves adults with cognitive impairments by managing their personal and financial needs after a legal proceeding with a judge appointment.
- If Santa Clara County were appointed by court to assist the adult and/or to manage his/her estate as public conservator, the County has the responsibility to clear this adult's home after the passing in preparation for probate court.
- Hazardous materials found in adult's home after passing = HHW
- Most common waste stream:
  - 1) Household batteries,
  - 2) electronic waste,
  - 3) pharmaceuticals,
  - 4) sharps and
  - 5) other weird waste materials (i.e. fireworks, ammunition, lab chemicals).





# Unhoused Population: San José BeautifySJ

1. Unhoused/Homeless = Residents
2. Recreational vehicles and other lived-in vehicles
3. Tents encampment
4. Removal services:
  - Biowaste (sharps & human waste),
  - Regular trash
  - **Household batteries**, paint, used motor oil, etc. hazardous waste materials





# CA upcoming EPRs

## 1. AB 2440 (2022) – loose batteries EPR

a) Law:

[https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=202120220AB2440](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220AB2440)

b) State Information website:

<https://calrecycle.ca.gov/epr/batteries/>

## 2. SB 1215 (2022) – embedded batteries

a) Law:

[https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill\\_id=202120220SB1215](https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202120220SB1215)

b) State Information website:

<https://calrecycle.ca.gov/electronics/embeddedbatteries/>



# Billy Puk

408-918-1967

[billy.puk@cep.sccgov.org](mailto:billy.puk@cep.sccgov.org)

[www.hhw.org](http://www.hhw.org)

X (Twitter)



Instagram



Facebook



# End of Life/Next Life

- **Ryan Nolte, Recycled Materials Association**



# Fire Issues in Recycling & MRF Facilities

**Dr. Ryan Nolte**  
**Sr. Director of Safety Outreach**  
**Recycled Materials Association**

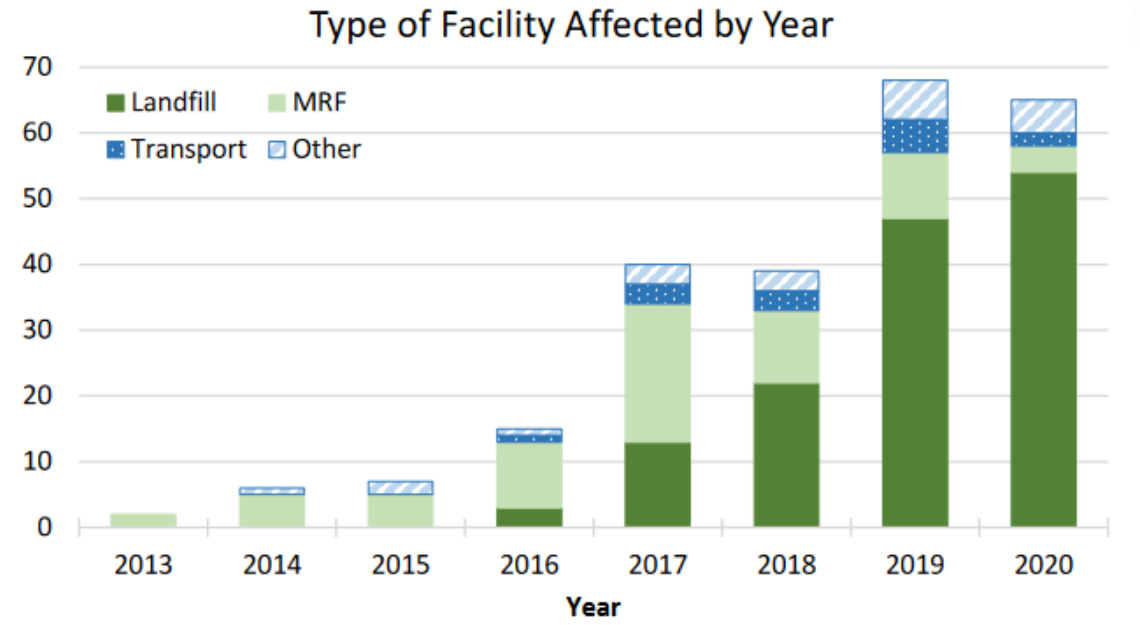
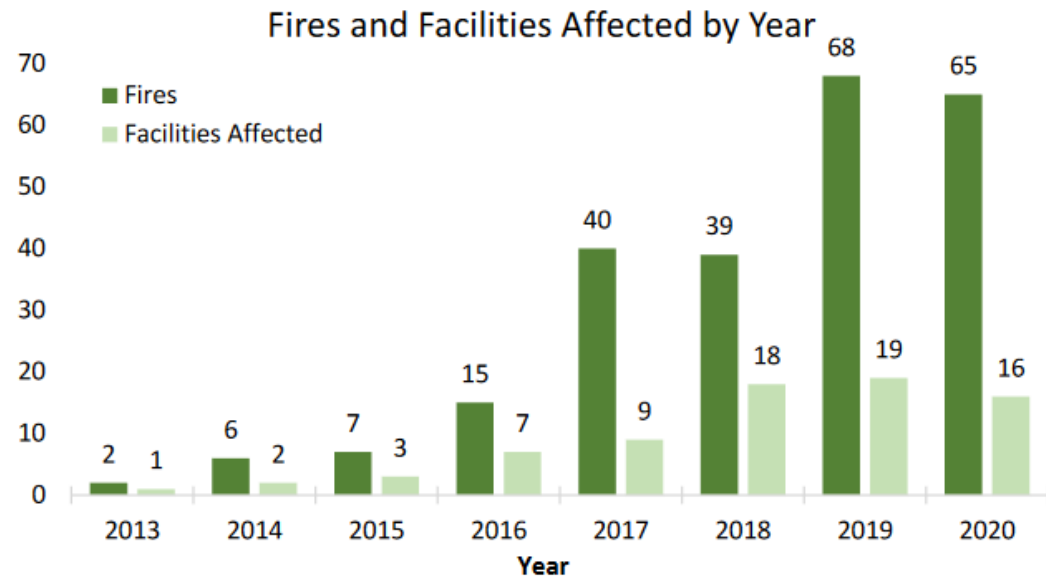
**May 14, 2024**



Recycled Materials  
Association  
*Sustainable. Resilient. Essential.*

[recycledmaterials.org](https://recycledmaterials.org)

# Fires in Recycling Facilities



Source: [https://www.epa.gov/system/files/documents/2021-08/lithium-ion-battery-report-update-7.01\\_508.pdf](https://www.epa.gov/system/files/documents/2021-08/lithium-ion-battery-report-update-7.01_508.pdf)

# Why this is an issue



- Both domestic and imported batteries are entering recycling streams at an increasing rate
- Demand is increasing while the ability to handle, store, ship, and recycle is not keeping up
- Financial constraints to recycle batteries

---

# Small Lithium Primary and Lithium- Ion Batteries



ReMA  
Recycled Materials  
Association



# Common Devices with Lithium Batteries

Examples of common electronic devices containing lithium cells or batteries

Video cameras	Walkie talkies (2 way radio)	GPS devices	Radio controlled toys
			
Cameras	Scanner	Cellular Phones	MP3 players
			
Bluetooth headsets	Smartphones/mobiles	Laptop computers	Shavers
			
Power Drills	Tablets	Portable DVD players	Measuring equipment
			

# Lithium Batteries in Recycling Streams



Tire Pressure Sensors

# Lithium Batteries in Recycling Streams

## Vape Devices Left in Cars



## Key Fobs



## Shopping Cart Wheels

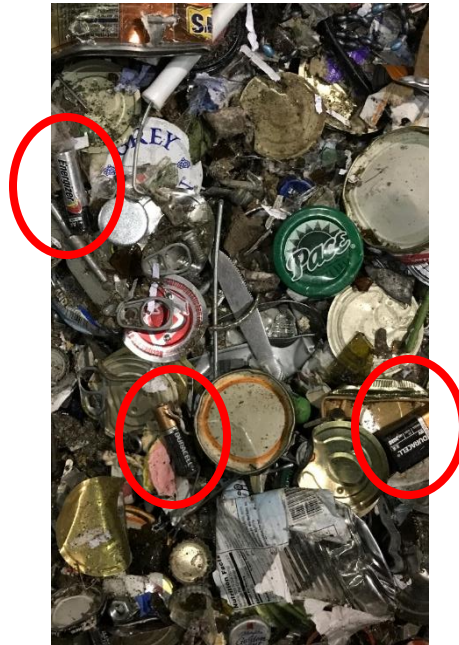


# Lithium Batteries in Recycling Streams

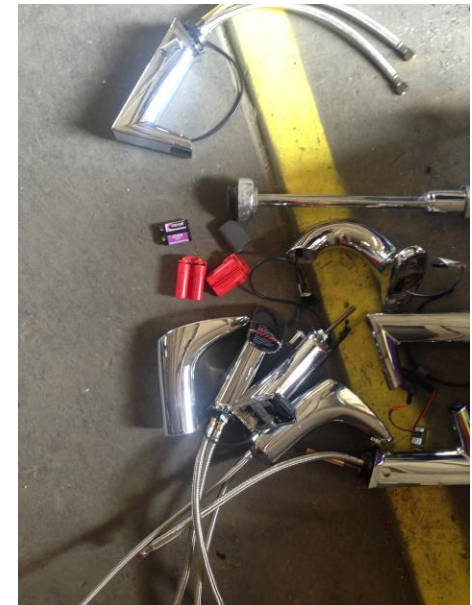
## Drone Batteries



## Small Batteries Mixed with Metal



## Automatic Faucets



# Lithium Batteries in Recycling Streams

## Digital Water Meters



## Handheld Power Tools



## Power Tools



---

# Handling Lithium Batteries



Recycled Materials  
Association

# Damaged, Defective, Recalled (DDR) Batteries

DDR batteries have different safety requirements from EOL batteries



DDR batteries have different shipping requirements from EOL batteries



DDR batteries need to be managed separately from EOL batteries

# Identifying DDR Batteries

## SIGHT

- Arcing
- Fire/Smoke/Gas
- Discoloration
- Deformity/Physical Damage
- Leaking Fluids

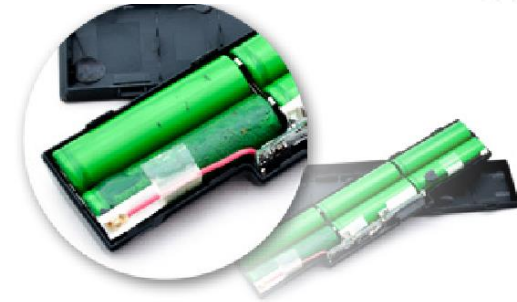


## SMELL

- Sweet Electrical Burning Odor

## SOUND

- Buzzing
- Popping
- Hissing





# DDR Lithium Batteries Proper Storage

## Damaged, Defective or Recalled (DDR) Lithium-Ion Battery Recycling Steel Drums Kit



### Contents List



Shipping Pallet x1



55-Gallon Pack Group 1 Steel Drum w/ Lids x (1, 2, 3 or 4)



Drum Liners x (1 per drum)



5-Gallon Bags of CellBlockEX Fire Suppressant x (7 per drum)



Packaging Labels: Class 9/UN3480 Lithium Ion Battery & DOT SP 20549

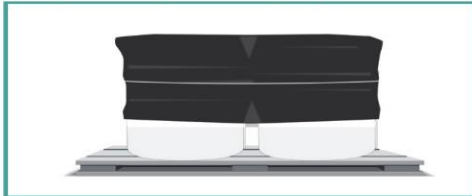


Bag Roll (1 per drum)



Instructions x1

### Step 1: Unpack & prepare



Remove plastic cover. Open a drum & remove all bags of CellBlockEX. Reserve 2 bags of CellBlockEX for the final layering step.

### Step 2: Bag each battery



Place each DDR battery in one of the provided bags. If bag is too small, another clear bag that fully encloses the battery may be used.

### Step 3: Battery layer 1



Verify the drum liner is installed in each drum. Pour in one 5-gallon bag of CellBlockEX. Place bagged batteries into the first layer of CellBlockEX, completely surrounding them.

### IMPORTANT

- ! Individual batteries not to exceed 25 lbs (11 kgs).
- ! Total battery weight not to exceed 132 lbs (60 kgs) per drum.
- ! Lithium Ion watt-hour rating not to exceed 300 wh for a single battery

### Step 4: Repeat layering



Pour in a new bag of CellBlockEX, covering first layer of batteries. Repeat layering batteries & CellBlockEX until the drum is nearly full. Place last battery layer leaving 8-10 inches of open space to the top of drum rim.

### Step 5: Final layer & seal



Fill drum with remaining 2 bags of CellBlockEX, completely covering last battery layer. Tuck liner inside of the drum, and close & seal the lid. See back for closure instructions.

### Step 6: Label & secure



Secure drum(s) tightly to a pallet with shrink wrap & affix the Class 9/UN3480 Lithium Ion Battery and DOT SP 20549 labels to the outside of the wrapping on the same side of the pallet.

### Step 7: Schedule shipment



Contact our customer success team at 1-877-723-1297 to schedule your shipment. Once scheduled, print the BOL & place on the same side of the pallet as the labels in step 6.

# DDR Lithium Batteries Proper Storage



*Picture 18. Example of procedure for filling a LIB barrel (Source: INOBAT, LIB barrel)*

# Storage of Non-DDR Batteries

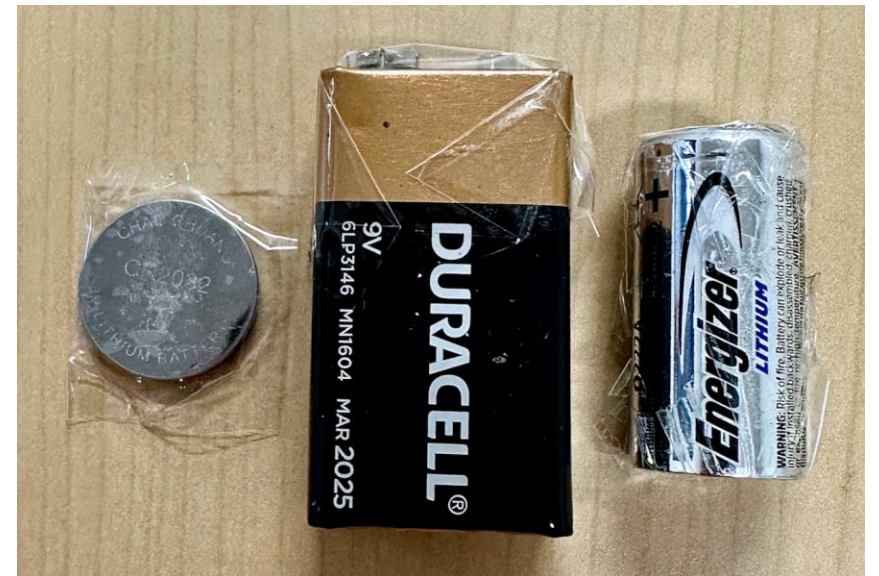
Store batteries and devices in locations with temperatures not to exceed 90°F

Remove batteries from devices for long-term storage

Keep charged and depleted batteries separate

Cover the contacts with electrical, clear packing, or duct tape

Place individual batteries in separate plastic bags



---

# Thank You



Recycled Materials  
Association

[recycledmaterials.org](http://recycledmaterials.org)

# Wrap up/next steps

Pat Tallarico, ERG Team

# Upcoming Small Format Consumer Electric and Portable Batteries Working Sessions

Meeting Focus	Meeting Topic	Meeting Date	Meeting Time	Format
✓ Labeling and Collection	Kickoff: Current Landscape and Engagement Overview	March 19, 2024	2:00-3:30 PM EDT	Virtual
✓ Collection	Collection Systems and Locations	April 11, 2024	2:00-4:00 PM EDT	Virtual
✓ Labeling and Collection	Tribal Waste Management Webinar	May 2, 2024	1:00-3:00 PM EDT	Virtual
Collection	Safe Collection, Storage, and Transport	May 14, 2024	2:00-4:00 PM EDT	Virtual
Labeling	In-Person Meeting Participant Prep Call (placeholder)	June 6, 2024 (TBD)	TBD	Virtual
Labeling	In-person Intensive Session: Label Contents	June 12-14, 2024	9:00 AM-4:00 PM EDT	In-Person
Collection	Education and Outreach	June 20, 2024	2:00-4:00 PM EDT	Virtual
Labeling	Report Out from In-Person Intensive and Additional Input	July 16, 2024	2:00-4:00 PM EDT	Virtual



# Next Steps

---

- Register for the June 20 Small Format Batteries: Education and Outreach webinar: [https://www.zoomgov.com/webinar/register/WN\\_leVclIqHTGiLmFzWG3yvdg](https://www.zoomgov.com/webinar/register/WN_leVclIqHTGiLmFzWG3yvdg)
- Email [batteries@epa.gov](mailto:batteries@epa.gov) if you have an interesting story to tell about consumer education and outreach

