

**The University of Southern Indiana
BATTERY RECYCLING AND DISPOSAL PROGRAM**

I. INTRODUCTION

The University of Southern Indiana uses many different kinds of batteries on campus. Determining how to dispose of dead or unwanted batteries can be tricky. This program lists the common types of batteries used and proper disposal methods for each. If you have unwanted batteries not listed in this program, please contact Environmental Health and Safety at 812 461-5393 for disposal instructions.

II. SCOPE

This program covers the all buildings on the campus. Universal waste and hazardous waste items will not be transported from one campus to another.

III. PERSONAL PROTECTIVE EQUIPMENT REQUIRED

A. USI Employees

Environmental Health and Safety performs annual hazard assessments for determination of hazardous conditions. A written assessment is generated, which certifies workplace evaluation; the person certifying that the evaluation has been performed; and the date(s) of the hazard assessment. If a hazardous condition exists, which cannot be avoided or engineered out by engineering controls, proper PPE will be selected. It is a departmental responsibility to provide a safe working environment, including the necessary PPE.

Based on the hazard assessment for handling used batteries containing hazardous material (i.e., mercury, cadmium, lead, silver and zinc), the following PPE is required to perform the task. Refer to **APPENDIX F** for the hazard assessment.

Leather Gloves (29 CFR 1910.138 – “Hand Protection”)
Safety Goggles (29 CFR 1910.133 – “Eye and Face Protection”)

B. Contractors, Sub-Contractors or any employee of such contracted companies performing work on The University of Southern Indiana campus

The contractor shall provide their employees with personal protective equipment in accordance with all federal and local safety and health regulations.

IV. REGULATIONS REGARDING UNIVERSAL WASTE

Used batteries containing hazardous material (i.e., mercury, cadmium, lead, silver and zinc) are classified as *universal waste* rather than hazardous waste. This allows The University of Southern Indiana to recycle the batteries, while continuing to ensure that the batteries are handled in an environmentally sound manner.

V. TYPES OF BATTERIES AND DISPOSAL PROCEDURES

A. Alkaline Batteries:

Alkaline batteries are commonly referred to as disposable or non-rechargeable batteries. They are often used in flashlights and some electronic equipment. They usually come in sizes such as AAA, AA, C, D and 9-volt. Alkaline batteries are non-hazardous and can be placed in the regular trash; however, in an effort to become **environmentally friendly** you may choose to

collect these batteries in a 1-gallon container for recycling purposes. The container can be obtained by contacting Environmental Health and Safety at 812 461-5393. Once the container is full, contact Environmental Health and Safety to schedule a pick up.

B. Nickel-Cadmium (ni-cad) Batteries:

Ni-cad batteries are the most common type of rechargeable battery. These are often found in cellular phones and some equipment. They also come in standard sizes such as AA, but often come in widely assorted sizes and shapes. Most equipment that comes with a recharger probably uses ni-cad batteries. Some rechargeable batteries are **lead-gel batteries**. Handle these batteries the same as ni-cad batteries.

Ni-cad batteries are composed of nickel oxide, cadmium compounds and use potassium hydroxide as an electrolyte. If not recycled, ni-cad batteries must be handled as hazardous waste. When you buy a new ni-cad battery, ask the point of purchase to take your old battery. If the company supplying the new battery will not accept the old ones, label the battery as "used battery", place the date on the label and contact Environmental Health and Safety, as soon as possible, at 461-5393 for pick up.

If your area generates a large amount of ni-cad batteries for recycling, follow the relevant guidelines in Section VI for proper management of universal waste according to the city of Evansville regulations.

If used batteries remain in your area for greater than a 24-hour period, then this area must be managed in accordance to the applicable universal waste regulations. Refer to Section VI for the universal waste management procedures.

NOTE: Sometimes rechargeable batteries are built into a machine or tool, such as in rechargeable flashlights. When these items no longer work or hold a charge, the complete unit must be managed as universal waste. Do not attempt to disassemble the equipment. Label the whole unit as "used battery" with the date and contact Environmental Health and Safety for collection (461-5393).

C. Button Batteries:

Button batteries are found in watches, calculators, hearing aids and other small electronic devices. They often contain mercury, silver or lithium and should be returned to the manufacturer when purchasing a new battery. If the manufacturer will not accept the item, label the battery as "used battery," place the date on the label and contact Environmental Health and Safety as soon as possible for collection (461-5393).

If your area generates a large amount of button batteries for recycling, follow the relevant guidelines in Section VI for proper management of universal waste according to the District of Columbia regulations.

In addition, if used batteries remain in your area for greater than a 24-hour period, then this area must be managed in accordance to the applicable universal waste regulations. Refer to Section VI for the universal waste management procedures.

D. Lead-Acid Batteries:

Lead-acid batteries include most car and motorcycle batteries. These batteries contain regulated amounts of lead and must be recycled. Most often, the manufacturer will accept used lead-acid batteries. However, if the manufacturer will not accept the trade-in, label the battery as "used battery", place the date on the label and contact Environmental Health and Safety as soon as possible at 461-5393 for pick up.

If your area generates a large amount of lead-acid batteries for recycling, follow the relevant guidelines in Section VI for proper management of universal waste according to the city of Evansville regulations.

If used batteries remain in your area for greater than a 24-hour period, then this area must be managed in accordance to the applicable universal waste regulations. Refer to Section VI for the universal waste management procedures.

E. Damaged or Leaking Batteries:

If used batteries containing hazardous material (i.e., mercury, cadmium, lead, silver and zinc) show evidence of leakage, spillage or damage that could cause leakage under reasonable foreseeable conditions, then the battery must be managed in accordance to the hazardous waste regulations. Once the battery leak has been contained, contact Environmental Health and Safety for clean-up and proper disposal. Refer to Section VII, Hazardous Waste Management.

VI. UNIVERSAL WASTE REQUIREMENTS FOR USED BATTERIES CONTAINING HAZARDOUS MATERIALS

According to **the city of Evansville's Universal Waste regulations**, incorporating by reference 40 CFR 273.2 (c), used and unused batteries become waste on the date the handler decides to discard it. USI will manage universal waste batteries in a way that prevents releases of any universal waste or component of universal waste to the environment. The following items describe how used batteries will be managed:

1. Place all used batteries containing hazardous material (i.e., mercury, cadmium, lead, silver and zinc) in the designated storage areas.
 - a.
 - b.
 - c.
2. Used battery storage areas must be identified with an easily readable sign stating "**WASTE BATTERY STORAGE**". Refer to **APPENDIX A**.
3. Label each battery or container in which the batteries are contained as "**USED BATTERY.**" **Labels can be obtained from Environmental Health and Safety**. Refer to **APPENDIX B**.
4. Label each battery or container in which the batteries are placed with the accumulation start date.
 - Individual battery - the date the handler decided to discard the battery.
 - Containers of batteries -the date the first battery is placed into the box. Refer to **APPENDIX B**
5. Store for no longer than one year from the accumulation start date.
6. At any given time, universal wastes (i.e., batteries, pesticides, thermostats or mercury-containing lamps, calculated collectively) will not exceed the 1000-kilogram (kg) storage limit established by the **city of Evansville (20 DCMR 4801.2 (c))**.
7. Contain any battery that shows evidence of leakage, spillage or damage. The container must be closed, structurally sound and compatible with the contents of the battery(ies). Do not package damaged batteries with undamaged batteries.
8. Conduct a weekly inspection of the lead-acid battery storage area and document on the inspection log (**APPENDIX C**). The inspection log should contain check marks by the items listed, inspector's name, date and time of inspection.
9. Please submit a copy of the inspection log every 16 weeks to Environmental Health and Safety Administrative Services Annex North, ATTN: Bryan Morrison). Maintain the storage location copies of the inspection logs for a minimum of two years to document weekly inspections. These copies should remain at the storage location.
10. Shipments of intact batteries must be accompanied by a bill of lading. Please send a copy of the bill of lading to Environmental Health and Safety.

VII. HAZARDOUS WASTE MANAGEMENT

In the event that a universal waste battery shows evidence of leakage, spillage or damage, the material

must be managed as hazardous waste.

1. Hazardous waste should be placed in a container that is structurally sound and compatible with the contents of the battery.
2. Label the container as "Hazardous Waste". Refer to **APPENDIX D**.
3. Store hazardous waste for no longer than 90 days from the date waste is first placed in a container.
4. Ensure the container is "**closed**" except when adding waste.
5. Storage area must be identified with an easily readable sign stating "**DANGER HAZARDOUS WASTE STORAGE AREA UNAUTHORIZED PERSONNEL KEEP OUT**". Refer to **APPENDIX E**.
6. Inspect hazardous waste container storage area at least weekly and maintain a log of all inspections.
7. Ensure communication equipment and emergency equipment is available where hazardous wastes are managed.

VIII. CONTAINER SUPPLIES

A. Alkaline Batteries:

Environmental Health and Safety will supply one-gallon or smaller containers to collect used batteries for recycling.

B. Used batteries containing hazardous material:

It is the individual department's responsibility for supplying battery-recycling pallets or secondary containment. These pallets may be purchased from any lab safety supply catalog. Pallets must meet the Environmental Protection Agency's (EPA) requirements for secondary containment of hazardous materials (40 CFR 264.175). Any questions may be directed to Environmental Health and Safety at 461-5393.

IX. TRAINING

USI's Office of Environmental Health and Safety must provide battery recycling and hazardous waste management training annually to all employees who handle used batteries containing hazardous materials. This training is documented and maintained in Environmental Health and Safety. Only employees that have attended the training session will be permitted to handle these batteries. All new employees that will be handling batteries with hazardous materials must attend this training within 30 days of their initial employment date. Please contact Environmental Health and Safety to schedule a training date. Refer to **APPENDIX F** for the Battery Recycling and Disposal Training Program. **APPENDIX G** will be used to track training attendance.

X. CONTRACTOR'S RESPONSIBILITIES

A. Third-Party Building Management

Third-party building management companies must present to Environmental Health and Safety a copy of their battery recycling and disposal program and training documentation for affected employees. In the event that a program does not exist or does not fulfill the requirements of the regulations, the third-party building management company will adhere to USI's battery recycling and disposal program.

XI. REFERENCES

- A. 20 DCMR Part 48 (incorporated by reference 40 CFR Part 273), Standards for Universal Waste Management
- B. 20 DCMR Parts 40 through 54 (incorporated by reference 40 CFR Parts 262 – 264, 266), Solid Wastes.
- C. 29 CFR 1910.133, Eye and Face Protection.
- D. 29 CFR 1910.138, Hand Protection.

APPENDIX A
Waste Battery Storage Area Sign

CAUTION

**Waste Battery
Storage Area**

Waste batteries containing hazardous materials

In the event of a leaking battery, please contact Risk Management at **465-7003**.
All damaged and leaking batteries must be managed in accordance with the
city of Evansville's Hazardous Waste regulations.

APPENDIX B
Used Battery Sticker

USED BATTERY

Accumulation Start Date:

**APPENDIX C
Weekly Inspection Checklist**

LEAD-ACID BATTERY STORAGE AREA INSPECTION CHECKLIST

Each week inspect the used battery storage area, checking off the inspection items. Completed checklists should be sent to Environmental Health and Safety (Administrative Services Annex North). Copies of checklist should be retained in the plastic sleeve.

INSPECTION ITEMS	WEEKLY INSPECTION CHECK														
	WEEK 1	WEEK 2	WEEK 3	WEEK 4	233K 5	WEEK 6	WEEK 7	WEEK 8	WEEK 9	WEEK 10	WEEK 11	WEEK 12	WEEK 13	WEEK 14	WEEK 15
All containers marked as "USED BATTERY"															
Accumulation start date recorded on label															
Batteries are free from leakage, spillage or damage															
All labels visible and legible															
Inspector's Name															
Date of Inspection															
Time of Inspection															

Anyone completing this form and all employees occupationally exposed to used batteries containing hazardous materials are required to attend training offered through USI's Environmental Health and Safety. To inquire about this course, please call 461-5393.

APPENDIX D
Hazardous Waste Label

HAZARDOUS WASTE

HAZARDOUS WASTE	
GENERATOR INFORMATION:	
CONTACT PERSON:	_____
DEPARTMENT:	_____
BUILDING / ROOM:	_____
PHONE NUMBER:	_____
ACCUMULATION START DATE:	FILL DATE: _____
HAZARD CLASS:	<input type="checkbox"/> Flammable <input type="checkbox"/> Reactive <input type="checkbox"/> Oxidizer
	<input type="checkbox"/> Corrosive <input type="checkbox"/> Toxic <input type="checkbox"/> Carcinogen
CHEMICAL	% / VOLUME
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
Please visit the hazardous waste web site at http://www.usi.edu/RiskMgt/HazWaste.asp or call (812) 461-5366 for evaluation and/or pickup.	

APPENDIX E
Hazardous Waste Storage Area Sign



HAZARDOUS WASTE
STORAGE AREA

UNAUTHORIZED PERSONNEL KEEP OUT

To dispose of hazardous waste submit Removal Request to
<http://www.usi.edu/Riskmgmt/HazMaterials.asp>

In case of emergency call Security (7777 or 812 464-1845) and
Environmental Health and Safety (812 461-5393)

APPENDIX F
The University of Southern Indiana
Hazard Assessment & PPE Selection Form

Job Task Evaluated: Handling Lead-Acid Batteries Date: October 15, 2005
 Evaluator: John Hunt

Eye and Face Protection (29 CFR 1910.133)

Eye/Face Hazard	Yes/No	Task/Source	Assessment of Hazard	Personal Protective Equipment
	No	N/A	N/A	N/A
Heat	No	N/A	N/A	N/A
Chemical	Yes	Placing battery onto pallet. Moderate probability of battery leaking as it is being placed onto the pallet for recycling.	Chemical exposure	Goggles
Radiation	No	N/A	N/A	N/A
Light	No	N/A	N/A	N/A
Glare	No	N/A	N/A	N/A

Head Protection (29 CFR 1910.135)

Head Hazard	Yes/No	Task/Source	Assessment of Hazard	Personal Protective Equipment
Impact	No	N/A	N/A	N/A
Penetration	No	N/A	N/A	N/A
Burn	No	N/A	N/A	N/A
Chemical	No	N/A	N/A	N/A
Electric Shock	No	N/A	N/A	N/A

Foot Protection (29 CFR 1910.136)

Foot Hazard	Yes/No	Task/Source	Assessment of Hazard	Personal Protective Equipment
Impact	No	N/A	N/A	N/A
Chemical	No	N/A	N/A	N/A
Penetration	No	N/A	N/A	N/A

Hand Protection (29 CFR 1910.138)

Hand Hazard	Yes/No	Task/Source	Assessment of Hazard	Personal Protective Equipment
Chemical	Yes	Placing battery onto pallet. Moderate probability of battery leaking as it is being placed onto the pallet for recycling.	Chemical exposure	Neoprene or natural rubber gloves*
Impact	No	N/A	N/A	N/A
Penetration	No	N/A	N/A	N/A
Burn	No	N/A	N/A	N/A

* Gloves should not be worn while working on moving machinery such as drills, saws, grinders or other rotating and moving equipment.

Machine parts might catch the glove and pull it and the worker's hand into hazardous areas.

I, John Hunt (Environmental Health & Safety Specialist), certify that the assessment of the job category was conducted on October 15, 2005.

APPENDIX G
Used Battery Training

**Contact Environmental Health and Safety to
schedule Used Battery Training.**

461-5393

