

# **Universal Waste Management Plan**



## 1.0 PURPOSE

Bucknell University is committed to operating its buildings and academic programs in the safest manner possible, with concern for the individual and the protection of the environment in accordance with all applicable Federal and State statutes. This Universal Waste Management Plan has been prepared as a companion to the institution's Hazardous Waste Management Plan. This supplemental document outlines regulations for handling commonly generated, relatively low-risk hazardous wastes in compliance with Universal Waste regulations issued by the United States Environmental Protection Agency (US EPA), and by the Pennsylvania Department of Environmental Protection (PA DEP).

## 2.0 AUTHORITY

Title 25 PA Code 266b, Standards for Universal Waste Management.

Title 40 CFR 273, Standards for Universal Waste Management.

## 3.0 SCOPE

Universal Wastes, as defined by the Pennsylvania regulations, are those hazardous wastes, which are "universal" to all work environments. Currently, the list of universal wastes consists of four categories of commercial products. These include certain types of batteries, lamps, pesticides, and mercury-containing devices such as mercury thermostats. This program describes general management requirements for all Bucknell supplied universal wastes and focuses on each universal waste with specific management requirements. These include prohibited and allowed activities and procedures for notification, management, labeling, accumulation time limits, training, response to releases, shipping documentation and record keeping. Bucknell University and each of the individual shops and work areas located within the campus community shall make every effort to maintain compliance with Small Quantity Handler of Universal Waste (SQHUW) standards.

## 4.0 APPLICABILITY

### 4.1 Waste Classes

**Battery-** a device consisting of one or more electrically connected electrochemical cells and designed to receive, store, and deliver electric energy.

**Pesticide-** any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any pest, or intended for use as a plant regulator, defoliant, or desiccant.

**Mercury Containing Device-** is a product or component of a product, which contains elemental mercury that is necessary for operation of the device. This includes thermostats which are temperature control devices that contain metallic mercury in an ampoule attached to a bimetal sensing element.

**Lamp-** is the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not



limited to, fluorescent, high intensity discharge, neon, mercury vapor, high-pressure sodium, and metal halide lamps.

## **4.2 Universal Waste Handler Classes**

Small Quantity Handler of Universal Waste (SQH) means a universal waste handler who does not accumulate 5,000 kilograms or more in total universal waste at any time. Bucknell University is a small quantity handler of universal waste. This plan will directly address the requirements for small quantity handlers.

## **5.0 GENERAL PROCEDURES**

### **5.1 Accumulation Time Limits**

Universal waste can be accumulated for up to one year from the date the materials became waste. The institution will transport all stored universal waste containers from the campus using a reputable transporter to a permitted offsite recycling, treatment, or disposal facility. All universal wastes will be managed according to local, state, and federal law and every effort will be made to reduce the potential long-term financial and legal liability to the institution.

Furthermore, Bucknell University will make every effort to reduce the quantity and/or toxicity of the universal waste it generates through material substitution, modified process practices, or other pollution prevention activities where possible.

The amount of time that a universal waste has been accumulated must be demonstrated in one of the following ways:

- Direct marking of the universal waste
- Marking the container the waste is in with the earliest date that waste began accumulating in that container
- Marking a designated accumulation area with the earliest date that waste began accumulating in that area

### **5.2 Universal Waste Accumulation Site**

Bucknell University has designated central locations for the collection and storage of universal wastes.

- The Recycling Barn
- The Geiger Storage Shed

## **6.0 GENERAL REQUIREMENTS FOR ALL UNIVERSAL WASTE TYPES (PART I)**

As with other hazardous waste, proper storage and handling of universal waste is critical to ensuring personnel safety and compliance with appropriate regulations. General management requirements for all types of universal wastes are as follows:

- Handlers are prohibited by regulation from disposing of universal wastes
- Handlers are prohibited by regulation from diluting or treating universal waste, except when



responding to releases

- Universal waste will be managed in a way that prevents a release of any component of the universal waste
- Universal waste stored outside must be covered, to prevent precipitation from coming into contact with the waste

## **7.0 UNIVERSAL WASTE-SPECIFIC MANAGEMENT REQUIREMENTS**

### **7.1 Requirements for Batteries**

A battery either becomes universal waste on the date that it is removed from service because it is no longer operable or because it is no longer wanted and/or needed. The materials of construction of the anode, cathode, and the electrolyte determine the waste battery's regulatory status.

**Table I: Common Universal Waste Battery Types**

<b>Battery Type</b>	<b>Uses</b>
Alkaline	~Most common battery type, found in cell sizes AAA, C, D, etc.
Nickel/Cadmium (NiCd)	~Some laptop computers ~Rechargeable 9-volt, AA, or D cell batteries ~Some walkie-talkies ~Cordless power tools
Lithium ion or nickel hydride	~Cell phones ~Cameras ~Newer laptop computers
Lead acid batteries	~Cars & mobile equipment ~Deep cycle electric backup power for lights and communications (Sealed lead acid batteries can be as small as a D-cell battery.)
Mercury or silver oxide	~Hearing aids ~Watches

- Batteries have traditionally contained large amounts of mercury and other heavy metals, which pose numerous threats to the environment. If disposed in a landfill, these metals could leach into ground water reserves and possibly contaminate surface waters and living organisms.
- Batteries are to be segregated into categories while being stored in a central accumulation site. (Battery type is usually indicated on battery labels.) To prevent a buildup of heat or sparks, batteries larger than 9-volt should be stored such that the terminals are not touching. A SQH must contain any universal waste battery that shows evidence of leakage, spillage, or damage. The container must be closed, structurally sound, and compatible with the contents of the batteries.



- Each battery, container of batteries, or battery accumulation area must be labeled with start accumulation date and the words “Universal Waste Batteries” or “Waste Batteries” or “Used Batteries.”

## **7.2 Requirements for Pesticides**

A pesticide becomes a Universal Waste when the handler decides to discard any unused pesticides. Universal waste pesticides must be containerized in a compatible container.

Storage requirements for universal waste pesticides are as follows:

- Universal waste pesticides must be stored on an impervious surface such as concrete or asphalt that is free of cracks and/or holes. Earth, wood, and gravel surfaces are not considered impervious surfaces.
- Waste pesticides containing free liquid may not be stored in an area with functional floor drains or manholes unless secondary containment is provided, in which case it must be sufficient to contain a spill from the largest container in the secondary containment.
- A handler of universal pesticide waste must clearly label or mark the waste container or accumulation area with:
  - The label that was on the product when purchased, if still legible
  - The appropriate label as required under the Department of Transportation regulation (49 CFR part 172).
  - If using the labels described above is not feasible, another label prescribed or designated by the waste pesticide collection program administered or recognized by a state
  - The words “Universal Waste Pesticide” or “Waste Pesticide.”

## **7.3 Requirements for Mercury Containing Devices**

Devices containing only mercury, such as mercury switches, older thermostats, blood pressure cuffs, thermometers, manometers, or pressure gauges that are unbroken, may be managed as Universal Waste. Call BU’s EH&S to have the items removed. If the device is a result of work being done on campus in a location where it would otherwise be left, you may bring the device directly to your own work area, provided you double bag the device. This will help prevent any possible release of mercury should it be dropped.

Any used or unused mercury-containing device becomes a waste on the date that it is no longer operable or on the date that the handler decides to discard it. To manage a mercury-containing device as a universal waste, the following requirements must be met:

- Mercury containing devices showing any sign of leaking, spilling, or damage that could cause spillage must be stored in a container that is closed, compatible with the waste, and free of defects that could cause a leakage.
- Ampoules containing mercury may be removed from a mercury containing device if:
  - The ampoule is removed in such a way that breakage does not occur
  - The ampoule is only removed over a containment device



- A mercury clean-up system is readily available
- Any spilled mercury from a broken ampoule is immediately transferred to containment
- The area where the ampoule is removed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury
- Employees removing ampoules are familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to appropriate container
- Removed ampoules are collected and stored in appropriate containers
- If any waste is generated from mercury containing device breakage it must be managed as a hazardous waste
- Mercury containing devices or mercury device storage area must be labeled with a start accumulation date and the words "Universal Waste Mercury Containing Device"

## **7.4 Requirements for Lamps**

Used unbroken lamps containing mercury are managed as universal waste. These include silver tip and green tip florescent lamps, CFLs, u-tubes, and HIDs.

A universal waste lamp becomes a waste on the day that it is removed from service, either because it is burned out or is no longer wanted. These lamps must be stored in containers which are capable of protecting the lamps from damage, such as a cardboard box or fiber drum. These containers must be kept closed at all times except when bulbs are actively being added. Lamps or lamp accumulation areas must be marked with the date it is removed from service and the words "Universal Waste Lamp" or "Waste Lamps" or "Used Lamps."

Lamps may not be intentionally crushed or dismantled unless a permit is obtained from the Pennsylvania DEP. If lamps are unintentionally broken, the broken lamps and residue must immediately be cleaned up, the area decontaminated, and the debris placed in a container and managed as hazardous waste.

Broken lamps are managed as hazardous waste and are not covered by this procedure.

## **8.0 GENERAL REQUIREMENTS FOR ALL UNIVERSAL WASTE TYPES (PART II)**

### **8.1 Employee Training**

Individuals who handle universal wastes will be trained in:

- state and federal requirements
- containers, handling, and storage procedures
- accumulation limits

### **8.2 Security Measures**

Universal waste lamps and Universal waste batteries are accumulated and prepared for transportation indoors at the Recycling Barn. The Recycling Barn is locked and access is restricted to authorized staff.



## **9.0 OFF-SITE SHIPMENT/ TRANSPORTATION**

The following requirements apply to all forms of universal waste removed from the Bucknell University campus.

- A small quantity handler of universal waste is prohibited from sending or taking universal waste to a place other than another universal waste handler or a destination facility.
- If a small quantity handler of universal waste self-transportes universal waste off-site, except from one institution-owned site to another, the handler becomes a universal waste transporter for those self-transportation activities and must comply with the RCRA universal waste transporter requirements.
- If a small quantity handler of universal waste sends a shipment of universal waste to another handler or to a destination facility and the shipment is rejected by the receiving handler or destination facility, the originating handler must either receive the waste back when notified that the shipment has been rejected or agree with the receiving handler on a destination facility to which the shipment will be sent.

## **10.0 RECORD KEEPING AND TRACKING**

### **10.1 Record Keeping**

The universal waste generator must keep a record of each shipment. The record can be in the form of a log sheet, invoice, manifest, bill of lading or another type of shipping document. The record must include the following information:

- The name and address of the universal waste handler
- Destination facility
- Quantity of each type of universal waste
- Date of shipment

Bucknell maintains both bills of lading and invoices for each shipment of universal waste for at least three (3) years from the date of shipment.