



UNIVERSITY *of* NEW HAMPSHIRE

# UNIVERSAL WASTE MANAGEMENT PLAN

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## Revision History

<b>January 2003</b>	Original Plan Development
<b>January 2005</b>	Periodic review for regulatory changes; minor formatting changes; minor word usage changes
<b>July 2006</b>	Periodic review; update to indicate new storage locations for universal waste

## 1.0 Introduction

Universal waste is a category of widely generated hazardous waste that poses a relatively low risk to human health and/or the environment during accumulation, storage, and transport. While a majority of hazardous waste is generated by laboratories or in industry, universal wastes are generated by nearly every type of business, as well as in private homes. Because of the low risks and widespread use associated with universal waste, the regulations pertaining to universal waste management are much less stringent than those for non-universal hazardous wastes.

## 2.0 Regulatory Authority

Universal waste is regulated by the Environmental Protection Agency under 40 CFR 273 (Standards for Universal Waste Management) and the New Hampshire Department of Environmental Services Env-Wm 1100 (Requirements for Universal Waste Management).

## 3.0 Universal Waste Types/Definitions

Hazardous wastes that can be handled as universal waste include the following:

- Batteries
- Pesticides
- Mercury containing devices
- Lamps
- Cathode ray tubes
- Antifreeze

### 3.1 Batteries

There are many types of batteries with various chemistries. They can be of varying shapes and sizes: cylindrical, rectangular, flat cells, button cells, lantern, nine volt, and battery packs are all common. The battery chemistry is what determines its regulatory status. Batteries regulated as universal waste have one of the following chemistries: lead acid, nickel cadmium, silver, mercury or lithium.

Alkaline, zinc carbon, zinc chloride, and lithium-ion batteries are not universal waste and are non hazardous, and can be disposed of through recycling or the municipal waste stream.

Automotive lead acid batteries can be handled as universal waste or as spent lead acid batteries being reclaimed under Env-Wm 809 of the New Hampshire Hazardous Waste Rules.

### 3.2 Pesticides

Pesticides that are listed in the New Hampshire Hazardous Waste Rules, Env-Wm 403.06 Table 4.9 can be managed as universal waste provided that one of the following conditions is met:

- 1) The pesticide is a recalled pesticide that has been suspended or cancelled and is either part of the voluntary or mandatory recall under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) or is not in compliance with FIFRA or
- 2) The pesticide is part of a collection and management program administered or recognized by the NHDES or the New Hampshire Department of Agriculture.

### **3.3 Mercury Containing Devices**

Thermostats, thermometers, sphygmotonometers, relays and switches are all devices that can contain mercury. These devices can be managed under the universal waste rule provided they are intact.

### **3.4 Lamps**

A lamp, the bulb or tube portion in an electrical lighting device, contains a small amount of mercury. Small amounts of cadmium can also be present in some types of lamps. For these reasons, they must be managed as universal waste.

As with batteries there are several shapes and sizes of lamps available. Small compact, U-tubes, circline, four foot straight, eight foot straight, and standard light bulb shapes are all very common. Lamps regulated as universal waste can be fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps

### **3.5 Cathode Ray Tubes**

Cathode ray tubes (CRTs) are the video display portion of a computer monitor or television set. CRTs contain a significant amount of lead - a 27-inch television contains about 8 pounds of lead. The presence of lead requires that CRTs be managed as universal waste.

### **3.6 Waste Antifreeze**

Ethylene glycol and propylene glycol are the common constituents of antifreeze. Neither of these is regulated as a hazardous waste if not used in an automotive application. During automotive use, antifreeze chemically breaks down and becomes acidic, corroding the engine's cooling system. This corrosion causes the antifreeze to become contaminated with lead particles. Additionally, the antifreeze may become contaminated with gasoline, which contains benzene. Waste antifreeze may be managed under the New Hampshire Universal Waste Rule.

## **4.0 Universal Waste Handler Status**

The first step in management of universal waste is to determine the handler classification. Handler classification is based on the total amount of all of the universal waste that is accumulated.

The three classifications for handling universal waste are small quantity handler, large quantity handler and very large quantity handler.

- A small quantity handler accumulates less than 5000 kilograms (11,000 pounds) of universal waste on site at any time;
- A large quantity handler accumulates more than 5000 kilograms (11,000 pounds) but less than 20,000 kilograms (44,000 pounds) of universal waste on site at any time and
- A very large quantity handler accumulates 20,000 kilograms (44,000 pounds) or more of universal waste on site at any time.

The University of New Hampshire is a large quantity handler of universal waste. The remainder of this document will address only the requirements for large quantity handlers of universal waste.

## **5.0 Universal Waste Accumulation Sites**

The University has several locations for collection and storage of universal wastes:

- Perpetuity Hall: The CAA is used to store universal waste antifreeze, mercury containing devices, and pesticides.
- Rudman Hall, Basement level room B26A: Universal waste batteries and lamps are stored at his location.
- Poultry Lab/Human Nutrition Center, room 8: Cathode ray tubes, as well as other non-regulated scrap electronic devices, are stored here.

## **6.0 Accumulation Time Limits**

Universal waste can be accumulated for up to year from the date the universal waste became a waste. The amount of time that a universal waste has been accumulated must be demonstrated, in one of the following ways:

1. direct marking of the universal waste with the date that the universal waste became a waste;
2. marking the container the waste is in with the earliest date that waste began accumulating in that container;
3. marking a designated accumulation area with the earliest date that waste began accumulating in that area;
4. keeping an inventory that identifies the date that each universal waste became waste or
5. keeping an inventory that identifies the earliest date that a universal waste became waste in a designated accumulation area.

Universal waste may be accumulated for longer than a year from the date that the universal waste became a waste provided the sole purpose of accumulation of such quantities is necessary to facilitate proper recovery, treatment, or disposal. If this is the case, the handler must provide proof, through a letter or contract, from a destination disposal facility confirming that accumulation beyond a year is necessary.

## **7.0 Universal Waste Management Requirements**

### **7.1 General Requirements for All Universal Waste Types**

Like 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:

1. Handlers will not dispose of universal waste;
2. Handlers will not dilute or treat universal waste, except when responding to releases;
3. Universal waste will be managed in a way that prevents a release of any component of the universal waste;
4. If containment of a universal waste is required, the container will be (a) closed at all times except when adding or removing waste (b) compatible with the universal waste and its contents, and (c) free of defects, design characteristics or damage that would lead to leakage, spillage or other environmental releases;
5. Universal waste stored outside must be covered, to prevent precipitation from coming into contact with the waste.
6. Large quantity handlers of universal waste must notify the Department of Environmental Services prior to accumulating more than 5,000 kilograms of universal waste. Notification will include:
  - Company name,
  - name of company owner
  - mailing address,
  - contact person title and telephone number
  - address of accumulation site(s)
  - list of all types of universal waste managed at accumulation site(s)
  - handler classification, and
  - certification as to the accuracy of the provided information.
7. AN EPA identification number is required for large quantity handlers of universal waste. The EPA ID number already assigned to the UNH Durham campus (NHD000790923) will be used for universal waste.

## 7.2 Requirements for Batteries

A battery becomes universal waste on the date that it is removed from service, either because it is no longer operable or because it is no longer wanted or needed.

The following management activities are allowed provided the individual battery cases are not breached, are intact, are closed except to remove electrolyte, and are immediately closed after electrolyte is removed:

- Battery sorting
- Mixing battery types in one container
- Removing the electric charge by discharging
- Regenerating used batteries
- Disassembling battery packs into individual batteries or cells
- Removing batteries from consumer products
- Removing electrolyte from batteries

Each battery or container of batteries must be labeled with one of the following: *Universal Waste – Battery*, *Waste Batteries*, or *Used Battery(ies)*.

## 7.3 Requirements for Mercury Containing Devices

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:

1. Mercury containing devices that show 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 leakage.
2. Ampules containing mercury may be removed from a mercury containing device if:
  - The ampule is removed such that breakage does not occur;
  - The ampule is only removed over a containment device
  - A Mercury clean-up system is readily available
  - Any spilled mercury from a broken ampule is immediately transferred to containment
  - The area where the ampule is removed is well ventilated and monitored to ensure compliance with applicable OSHA exposure levels for mercury
  - Employees removing ampules are familiar with proper waste mercury handling and emergency procedures, including transfer of mercury from containment devices to appropriate container
  - Empty ampules are collected and stored in appropriate containers.
3. If any waste is generated from a mercury-containing device breakage or emptying of ampules (ampules themselves, spill clean-up debris, etc), the waste handler must determine if it exhibits the characteristic of hazardous waste for mercury. If the waste does meet the characteristic, it must be managed as a hazardous waste.

Mercury containing devices or mercury device storage areas must be labeled with one of the following: *Universal Waste – Mercury Containing Device(s)*, *Waste Mercury-Containing Device(s)*, or *Used Mercury-Containing Device(s)*.

#### **7.4 Requirements for Lamps**

A lamp becomes a waste on the day that it is removed from service, either because it is burned out or is no longer wanted or needed.

Lamps may not be intentionally crushed or dismantled unless a permit is obtained in accordance with Env-Wm 353. If lamps are unintentionally broken, the broken lamp and residue must be cleaned up and the area decontaminated. The broken lamps and clean-up debris may be managed as universal waste.

Lamps or lamp accumulation areas must be marked with the date the lamp is removed from service or the date the first lamp was placed in the storage accumulation area **and** one of the following: *Universal Waste – Lamp(s)*, *Waste Lamp(s)*, or *Used Lamp(s)*.

#### **7.5 Requirements for Cathode Ray Tubes (CRTs)**

A cathode ray tube becomes a waste on the day that it is determined to be non-repairable or unusable for its original purpose.

Any CRT that shows signs of breakage, spillage, or damage must be contained as prescribed in section 7.1, item 4 of this document.

Handlers of CRTs may not intentionally break or shred a cathode ray tube unless the following are met:

- The handler installs and maintains a system designed to minimize release via wind dispersal, run-off, and direct releases
- Breaking, shredding, and storage practices do not pose a hazard to human health or the environment
- The handler prevents exposure of humans or the environment to harmful quantities of lead or other hazardous constituents
- Shredded and broken cathode ray tubes are stored in containers that meet the requirements of section 7.1, item 4 of this document
- Before transporting or offering shredded CRTs for transport, the handler packages the CRTs in containers that are impermeable, closed, and designed to prevent a release to the environment
- Any spill clean-up debris, or other residual waste generated from the breaking or shredding of CRTs that exhibits a characteristic of hazardous waste, must be managed as a hazardous waste

A cathode ray tube or CRT accumulation area must be marked with the one of the following: *Universal Waste – Cathode Ray Tube(s)*, *Waste Cathode Ray Tube(s)*, or *Used Cathode Ray Tube(s)*.

#### **7.6 Requirements for Used Antifreeze**

Used antifreeze becomes a waste on the date that the antifreeze becomes unsuitable for its original purpose due to the presence of physical or chemical impurities or loss of original properties, or on the date that the handler decides to discard it.

Used antifreeze must be stored in containers that meet the requirements of section 7.1, item 4 of this document

Used antifreeze containers must be marked with one of the following: *Universal Waste – Antifreeze*, *Waste Antifreeze*, or *Used Antifreeze*.

#### **7.7 Requirements for Pesticides**

A recalled pesticide will become waste on (a) the date that the manufacturer of the recalled pesticide agrees to participate in the recall *and* the person conducting the recall decides to discard the pesticide, or (b) when the handler decides to discard the unused pesticide.

Universal waste pesticides must be containerized in a container compatible with the waste, or over-packed in a waste container that is compatible.

Universal waste pesticides must be labeled with the original label that accompanied the pesticide at the time of sale or distribution and the words *Universal Waste-Pesticide(s)* or *Waste- Pesticide(s)*.

Universal waste pesticide handlers must comply with the New Hampshire Department of Labor rules *Lab 1400 "Safety and Health of Employees"*.

Storage requirements for universal waste pesticides are as follows:

1. Universal waste pesticides must be stored on an impervious surface. An impervious surface may be concrete or asphalt (without cracks or holes). Earth, wood, and gravel surfaces are not considered impervious surfaces.
2. Waste pesticides that contain free liquid may not be stored in an area with functional floor drains or manholes unless secondary containment is present. If secondary containment is necessary, it must be sufficient to contain a spill from the largest container in the secondary containment. Containment is not required in areas with functional floor drains or manholes provided:
  - The waste pesticide contains no free liquid **and**
  - The area is sloped or drained to remove precipitated liquid or containers are elevated or otherwise protected from accumulated precipitation

#### **7.7.1 Security Measures**

The following security measures must be provided at all outdoor storage areas for universal waste pesticide:

- An artificial or natural barrier that completely surrounds the universal waste pesticide storage area to prevent unauthorized entry by people or livestock
- An entry that is controlled at all times
- A sign at all entries to the storage area with the legend *Danger – Unauthorized Personnel Keep Out* or other words indicating that only authorized personnel are allowed entry and that the area is dangerous.

#### **7.7.2 Preparedness and Prevention**

The following applies only to the management of universal waste pesticides:

1. The following equipment must be present in sufficient quantity to handle the amount of universal waste pesticide accumulated:
  - portable fire extinguishers,
  - fire control equipment,
  - spill control equipment, and
  - decontamination equipment.
2. Aisle space must be maintained to allow unobstructed movement of personnel, fire control equipment, spill control equipment, and decontamination equipment.
3. Emergency contact information must be posted at the telephone nearest to the accumulation site. The posted information must include
  - local fire departments phone number (or 911),
  - local police department phone number (or 911),

- DES emergency response phone number (603-271-3899, M-F 8 am-4 pm only)
- Department of Safety telephone number (1-800-346-4009, 24 hours/per)
- local response teams telephone number
- steps to take in an emergency

## **8.0 Inspection**

There are no inspection requirements for large quantity handlers of universal waste.

## **9.0 Off-site Shipment/Transportation**

Universal waste may only be sent to another universal waste handler or a transfer, storage, disposal, or recycling facility (TSDRF). Prior to shipping universal waste off-site the generator of the waste must obtain approval from the destination facility.

If a universal waste meets the definition of a hazardous material, under US Department of Transportation regulations, the handler must comply with the DOT requirements set forth in 49 CFR 172-180.

The university may self-transport universal waste to another handler or TSDRF. In the event that UNH decides to self-transport universal waste, the university will comply with the requirements in Env-Wm 1106 Standards for Universal Waste Transporters.

## **10.0 Record Keeping and Tracking**

A record of each shipment must be kept by the handler. The record can be in the form of a log sheet, an invoice, a manifest, a 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

The University keeps both bills of lading and invoices for each shipment of universal waste in the EHS office. These records will be kept for at least three years from the date of shipment

## **11.0 Employee Training**

A large quantity waste handler must ensure that all employees who manage or handle universal waste are thoroughly familiar with waste handling methods and emergency procedures applicable to the waste they are handling, relative to their responsibilities during normal University operations and emergencies. Additionally, employees who handle or manage universal waste pesticides must be trained in accordance to the requirements of 40 CFR 265.16 (Hazardous Waste training requirements)

EHS personnel who manage universal waste are trained annually in accordance with the requirements of the Hazardous Waste Regulations (Env-Wm 100-1000). See the Hazardous

Waste Management Plan for details of this training. This training meets the training requirements for hazardous waste and universal waste (including universal waste pesticides).

Hourly and student employees, whose duties require them to handle universal waste, complete on-the-job training, in addition to the Blackboard Hazardous Waste training detailed in the Hazardous Waste Management Plan. This training includes proper waste handling techniques, storage practices and emergency procedures.

### Appendix A Universal Waste Label (example)

The label below or one containing the same information will be used to mark universal wastes

**UNIVERSITY OF NEW HAMPSHIRE**  
Environmental Health and Safety  
Perpetuity Hall • UNH • Durham, NH  
Telephone (603) 862-3526 • 862-0683 • 862-4041

**UNIVERSAL WASTE**

- Antifreeze
- Batteries
- Cathode Ray Tubes
- Mercury Containing devices

Accumulation Start Date \_\_\_\_\_  
Month / Day / Year