Universal Waste – Fluorescent Light Management Practice

1.0 Purpose / Background
A majority of fluorescent lamps contain mercury in concentrations that exceed the US EPA regulatory limit (0.2 ppm) making them a hazardous waste. In July 1999, the US Environmental Protection Agency issued a final rule regulating mercury containing fluorescent lamps as a universal waste. As a result, the standards for storing, transporting, and collecting of the lamps have been reduced. This management practice has been developed to assure compliance with all regulatory standards regarding the handling of mercury containing fluorescent light bulbs.

2.0 Scope
This practice applies to employees in the Facilities Management (FMD) and Engineering & Operations (E&O) Departments at Duke University, Duke University Medical Center, and Duke University Health Systems and staff, faculty and students who, at times, need to dispose of “universal waste lamps”.

3.0 Procedures
3.1 General Procedures

3.1.1 Facilities Management (FMD) and Engineering and Operations (E&O) –
Personnel responsible for replacing or removing fluorescent lamps shall:

- Remove lamps from the fixture without breaking;
- Place spent lamps into empty fluorescent lamp boxes or a box supplied by OESO Environmental Programs (EP);
- Enter the accumulation start date on the container label on the box as the earliest date that the first lamp was placed into the container;
- Ensure that the container is closed at all times except when lamps are added or removed from the container;
- Place containers of spent lamps in designated areas for collection by OESO.
- Place any broken lamps into the 55 gallon drum in the designated storage areas.

3.1.2 Faculty, staff or students - who occasionally need to dispose of other mercury-containing lamps should contact OESO EP for assistance.
3.1.3 OESO Environmental Programs (EP) - Once a week, OESO EP personnel will collect all containers within designated storage areas and transport them to the OESO storage facility for packing and shipment to an approved recycler.

**GREEN TIP** and regular tip lamps w/ **GREEN WRITING** on the tube may be thrown away in the regular trash!!

### 3.2 Requirements for Handlers of Universal Lamps

#### 3.2.1 Waste Management

Universal waste lamps must be managed in a way that prevents releases of any universal waste or component of a universal waste to the environment in the following manner:

1. **(1) Containers** - Universal waste lamps must be placed into containers or packages that are structurally sound, adequate to prevent breakage, and compatible with the contents of the lamps. Containers and packages must remain closed and must lack evidence of leakage, spillage, or damage that could cause leakage.

2. **(2) Broken or Damaged Lamps** - Any lamp that has been broken or shows evidence of breakage, leakage, or damage that could cause a release of mercury must be immediately cleaned-up and placed into a container. Containers must be closed, structurally sound, compatible with the contents of the lamps and must lack evidence of leakage, spillage, or damage.

#### 3.2.2 Labeling and Marking

Each lamp or container or package in which such lamps are contained must be labeled and clearly marked with one of the following:

- “Universal Waste – Lamp(s)” and the earliest date
- “Universal Waste - Waste Lamp(s)” and the earliest date
- “Universal Waste - Used Lamps” and the earliest date

#### 3.2.3 Accumulation Time Limits

Universal waste lamps may be accumulated for no longer than one year from the date that they are generated or received by OESO. The length of time that the universal waste lamp has been accumulated may be demonstrated by:
1. Placing the universal waste in a container and marking or labeling that container with the earliest date that the first lamp placed in the container became a waste or was received;
2. Marking or labeling the individual item with the date it became a waste or was received; or
3. Maintaining an inventory system that identifies the date the universal waste being accumulated became a waste or was received.

3.2.4 Employee Training – All employees who handle universal wastes must be thoroughly familiar with proper waste handling and emergency procedures, relative to their responsibilities during normal operations and during emergencies.

3.2.4 Response to Releases – A handler of universal waste must immediately contain all releases of universal wastes and other residues from universal wastes. The handler must determine whether the material resulting from a release is a hazardous waste, and if so, must manage the hazardous waste in compliance with applicable requirements.

3.2.5 Off-site Shipment – Universal waste can be sent to or transported only to another universal waste handler or a destination facility.

If the universal waste offered for shipment meets the definition of hazardous materials under 49 CFR 171–180, it must be packaged, labeled, marked, placarded, and shipped with proper shipping papers in accordance with applicable Department Of Transportation regulations (49 CFR parts 172–180).

3.2.6 Tracking Universal Waste Shipments –

(1) Shipments Off-site – The handler of universal waste must keep a record of each shipment sent to other facilities. The record may be in the form of a log, invoice, manifest, bill of lading or other shipping documents. The record must include the following:

   a. The name and address of the universal waste handler and the destination facility;
   b. The quantity of each type of universal waste sent; and
   c. The date the shipment left the facility.
(2). Record Retention – The handler of universal waste must retain shipping records for a least three years from the date the shipment left the facility.

4.0 Roles & Responsibilities
Facilities Management and Engineering & Operations are responsible for:

- Purchasing and using low-mercury fluorescent light bulbs, where possible;
- The operation & management of fluorescent light fixtures;
- Collecting spent fluorescent bulbs;
- Packaging used fluorescent bulbs into structurally sound containers;
- Ensuring that containers are properly labeled according to section 3.2.2 of this practice;
- Dating of containers with an accumulation start date on the container label;
- Ensuring that containers in designated storage areas remain closed except when lamps are placed into or removed from a container.
- Placing containers into designated storage area for OESO pick-up.

OESO EP Personnel will:

- Collect and manage fluorescent light bulb containers;
- Arrange for the shipment and recycling of the bulbs with an approved recycling contractor;
- Ensure that all containers of bulbs are sent for recycling within one year from the date a container(s) was started;
- Maintain disposal documents in accordance with state and federal regulations; and
- Respond to spills.

Any Duke staff, faculty or students that need to dispose of fluorescent light bulbs other than ceiling light fixtures should contact OESO EP for assistance.

5.0 Training
Employees with fluorescent bulb responsibilities or who maintain fluorescent light bulb equipment shall receive training appropriate to their specified duties. Training records shall be maintained by the employee’s supervisor or designated individual.

6.0 Monitoring Requirements
Fluorescent light storage areas will be inspected to ensure that:
• Storage areas must be kept clean of debris and broken bulbs;
• Fluorescent bulbs within the storage areas are stored in labeled and dated containers; and
• Broken bulbs are be placed in a labeled and dated 55 gallon drum (provided by OESO EP);

7.0 Performance Monitoring
OESO will conduct periodic audits to assess compliance with the local, state, and federal regulations. Any deficiencies will be noted in writing and a corrective action plan will be developed to bring the program into compliance.

8.0 Documentation
The following records and/or reports will be maintained –

(1) Bills of Lading or other transportation records will be stored at OESO for at least 3 years.

(2) Any inspection and corrective action reports prepared by OESO will also be kept on record at OESO.

(3) Training records will be maintained by the operating department.

9.0 References
40 CFR 273 – Standards for Universal Waste Management

10.0 Definitions
Accumulation start date – date the earliest spent fluorescent light bulb was placed into the container.

Container – Structurally sound box that is capable of preventing leaks/releases of fluorescent light bulbs from occurring.

Lamp or “universal waste lamp” means the bulb or tube portion of an electric lighting device. 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.