

## Managing Universal Waste Lamps for Businesses December 2009

*NOTE: This document is not a substitute for the rules. To properly manage mercury-containing waste lamps as universal waste, you must comply with all applicable provisions in the Arizona Universal Waste Rule (A.A.C. R18-8-273) and the Federal Universal Waste Regulation (40 CFR § 273).*

### BACKGROUND

The U.S. Environmental Protection Agency (EPA) finalized the Universal Waste Rule (40 CFR § 273) on May 11, 1995, to provide a streamlined approach for businesses to collect and manage certain widely generated hazardous wastes. The rule was intended to facilitate environmentally-sound collection and encourage proper recycling and/or treatment of these wastes.

The Universal Waste Rule became effective in the State of Arizona on June 13, 1996, mercury containing waste lamps were added to the list of universal wastes in Arizona effective Aug. 8, 1997. The Arizona rules can be found in the Arizona Administrative Code (A.A.C. R18-8-273). Handlers of universal waste lamps must follow the Arizona code. This fact sheet summarizes universal waste regulations for lamps, EPA's recommendations for management of fluorescent lamps, and ADEQ's adoption of the Universal Waste Rule for lamps.

### WHAT IS A UNIVERSAL WASTE LAMP?

A *lamp* is the bulb or tube portion of an electric lighting device that is designed to produce radiant energy. It includes, but is not limited to, fluorescent tubular and compact fluorescent lamps (CFLs); high intensity discharge; neon; mercury vapor; high pressure sodium; and metal halide lamps.

EPA encourages the use of fluorescent lamps because they use about 20 percent to 25 percent less electricity, which in turn reduces mercury and green house gas emissions from power generating stations.

The amount of mercury in a fluorescent lamp varies depending on the type and manufacturer of the lamp, but typically ranges from 1.7 milligrams – 15 mg, and can possibly be as high as 50 mg with some older lamps. Newer fluorescent lamps will

typically have less mercury, but mercury is an essential component in fluorescent lamps and cannot be eliminated completely.

### WHO IS AFFECTED BY THIS RULE?

#### *Businesses*

Businesses that generate less than 100 kilograms of hazardous waste in one calendar month [Conditionally Exempt Small Quantity Generators (CESQG)] are strongly encouraged to participate in voluntary collection and recycling programs by taking these spent lamps to collection centers for recycling or proper treatment and disposal. The amount of mercury in a fluorescent lamp typically exceeds the Toxicity Characteristic Leaching Procedure (TCLP) limit and, therefore, is a hazardous waste when disposed.

#### *Hazardous Waste Generators*

Small and large quantity hazardous waste generators are required to manage spent lamps under 40 CFR § 273 or 40 CFR § 261.

#### *Households*

Households that generate spent lamps are not regulated as hazardous waste. Households however are encouraged to recycle spent lamps at local retailers or collection centers that accept spent lamps (see back page).

### “GREEN” FLUORESCENT LAMPS

Green lamps usually will not fail the TCLP limit for mercury and can be managed as a solid waste. Please check manufacturer literature to ensure that these lamps are tested and do not fail the TCLP. Although these lamps may not fail the TCLP, they still contain mercury and should be managed to prevent breakage. These lamps can be recycled to recover mercury, glass, and metal.

### MANAGEMENT

#### *Handling and Storage*

Lamps can be managed as a hazardous waste (regulations found in 40 CFR § 262 and A.A.C. R18-

8-262) or as a universal waste (regulations found in 40 CFR § 273 and A.A.C. R18-8-273). If managing the lamps as a hazardous waste, the facility must make a determination of how many lamps are generated per month to determine the generator/handler status (ADEQ estimates that 350 four-foot lamps to generate 100 kg of hazardous waste).

#### *Location*

Identify an area in your facility where universal waste lamps will be stored. This area should be away from high-traffic areas, should be clean, dry, and free of broken lamp debris, and should ideally have an independent air handling system to help minimize employee exposure to mercury in the event a lamp is broken.



#### *Handling of Lamps*

Employees handling lamps must understand the Universal Waste Rule for lamps. The lamps should be handled carefully to prevent breakage, placed immediately in a sturdy container, and brought to the universal waste storage area.

#### *Storage of Spent Lamps*

Lamps must be stored in a container that is structurally sound and compatible with the contents of the lamp. It also should lack evidence of leakage, spillage, or damage that could cause leakage or releases of mercury. The container should be stored in a such a way that it will not tip over and must be closed unless actively adding or removing universal waste lamps.

The container must be labeled or marked with the words “Universal Waste – Lamp(s),” or “Waste Lamp(s),” or “Used Lamp(s).” A label with those words can be affixed to or the words can be written on the container.

A handler of universal waste lamps must be able to demonstrate the length of time that the lamps have been accumulated as a waste. The handler may not accumulate universal waste for longer than one year. Demonstrating accumulation time can be accomplished by:

(a) marking or labeling the container or storage area with the first date a lamp was placed in the container, or

(b) maintaining an inventory system onsite that identifies the date each lamp became a waste or the earliest date that a lamp in a group of lamps became a waste.

Containers holding lamps should not be overfilled or underfilled when shipped and care should be used when stacking boxes to keep the lamps from being crushed. Do not secure lamps together with tape or rubber bands.

#### *Broken Lamps*

Once a lamp breaks, it immediately releases mercury vapors into the air if not cleaned up. Ensure your facility has proper procedures for reporting and managing broken lamps. Follow OSHA, EPA, and state regulations when managing broken lamps.

Immediately contain the releases of fragments and residues from the broken lamp(s) and manage this debris as hazardous waste unless other exemptions apply (i.e. lamps were generated in a household or a CESQG facility). EPA recommends that broken lamps are to be kept in a sealed container, preferably glass or metal. Containers should be removed from the building as soon as possible and kept in a cool place, away from high-traffic areas, in the 180/90-Day Hazardous Waste Storage Area. Containers of broken lamps should not be opened to add or remove broken lamps.

### **DEVELOPING A RECYCLING PROGRAM**

1. Assess your facility with the following questions:
  - How many lamps are in your facility?
  - Where are they located?
  - How many lamps are replaced per month or year?
  - How do you currently manage and store spent lamps?
  - Do employees know who to call if a lamp is burnt out?
2. Consult federal and state regulations concerning universal waste lamps.
3. Select a recycler that will best serve your needs and can provide assurance that your lamps are being properly managed. Consider the following criteria in selecting a recycler:
  - Service: responsiveness, timeliness, flexibility, capabilities
  - Risk Management: environmental record and compliance history, government permits and approval for facility operations and transportation, maintained debris and dust-free public

areas, insurance requirements for general and pollution liability are met, and indemnities or other assurances offered to clients.

4. Establish a process for handling and storing spent lamps. See the above section for recommendations.
5. Getting your spent lamps to the recycler is important.
  - Pick-Up Service: offered by transportation companies or the recycler.
  - Mail-In or Box Program: the recycler may provide a container to fill, which is shipped when filled. In this program, your facility must ensure the containers must meet all proper packaging, labeling, and shipping requirements.
  - Self-Transport: you can transport the lamps to the recycling facility yourself. Ensure the lamps are managed in a way that prevents breakage.
6. Educate employees about the dangers of mercury, importance of minimizing the release of mercury, and your management procedures for lamp handling and storage. Employees must be trained in accordance with applicable state and federal requirements.
7. Keep records of your recycling efforts, including documentation like a receipt or certificate that the recycler is properly recycling the lamps.

## **DRUM TOP CRUSHERS**

In the state of Arizona, universal waste rules do not allow lamp crushing at the generator, transporter, or collection points. A business that uses a bulb crusher must follow applicable hazardous waste generator rules found in 40 CFR § 262 and A.A.C. R18-8-262. The crushed bulbs would then be counted in the generator's monthly hazardous waste generation. A generator of hazardous waste is obligated to minimize the release of mercury found in the lamps, so a control device is required on all crushers to prevent emissions. The Arizona Industrial Commission may specify additional requirements for businesses operating bulb crushers. For additional information, please call (602) 542-5795.

EPA has found that Drum Top Crushers (DTC) can cause exposures of mercury even with low-mercury lamps. In the event a DTC is used, filters used in the crusher may be hazardous waste and must have a waste determination performed. The DTC also must be used in a cool room with adequate ventilation that does not recirculate the air,

and crushed lamps should not be transferred to another container due to a significant release of mercury.

## **WHERE CAN I GET MORE INFORMATION?**

For additional information please contact ADEQ:

Hazardous Waste Inspections and Compliance Unit  
Waste Programs Division  
1110 W. Washington St.  
Phoenix, AZ 85007  
(602) 771-4673 or  
toll free at (800) 234-5677 Ext. 771-4673  
Hearing impaired persons call  
ADEQ's TDD line: (602) 771-4829  
[www.azdeq.gov/environ/waste/index.html](http://www.azdeq.gov/environ/waste/index.html)

*The following Web sites offer additional information:*

EPA's Spent Mercury-Containing Lamp Recycling:  
[www.epa.gov/bulbrecycling](http://www.epa.gov/bulbrecycling)

Energy Star on Compact Fluorescent Lamps (CFLs):  
[www.energystar.gov/cfls](http://www.energystar.gov/cfls)

EPA's Mercury and Mercury Containing Products:  
[www.epa.gov/mercury](http://www.epa.gov/mercury)  
[www.epa.gov/epr/products/mercury.htm](http://www.epa.gov/epr/products/mercury.htm)

EPA's Broken Lamps Clean-up Procedures:  
[www.epa.gov/mercury/spills/index.htm#fluorescent](http://www.epa.gov/mercury/spills/index.htm#fluorescent)

EPA's Local Recycling Options for Households:  
[www.epa.gov/bulbrecycling](http://www.epa.gov/bulbrecycling)

Earth 911:  
[www.earth911.org](http://www.earth911.org)

## **SPENT LAMP MANAGEMENT FACILITIES IN ARIZONA**

Recycling your lamps can be accomplished through regular pick up by hazardous waste transporters, mail-in prepaid boxes offered by a number of different retailers, or by dropping off your lamps at one of the following facilities:

*WM Universal Waste Lamp Tracker, Inc.*  
10 S. 48th St., Suite #4  
Phoenix, AZ 85043  
(602) 353-9282  
(800) 414-0443

*Lighting Resources, LLC*  
1522 E. Victory St., Suite #4  
Phoenix, AZ 85040  
(602) 276-4278

*Veolia Environmental Services*  
5752 W. Jefferson St.  
Phoenix, AZ 85043  
(602) 233-2955

**COMMERCIAL HAZARDOUS WASTE STORAGE  
FACILITIES IN ARIZONA**

*Clean Harbors*  
1340 W. Lincoln St.  
Phoenix, AZ 85007  
(602) 258-6155

*Heritage Environmental Services, LLC*  
284 E. Storey Rd.  
Coolidge, AZ 85228  
(520) 723-4167

*Safety-Kleen Corporation*  
4161 E. Tennessee St.  
Tucson, AZ 85714  
(520) 790-7714

*Safety-Kleen Corporation*  
6625 W. Frye Rd.  
Chandler, AZ 85226  
(480) 940-7202