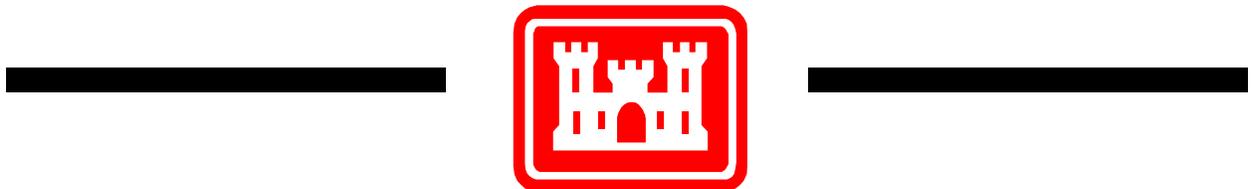


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**FLUORESCENT LIGHT BULB MANAGEMENT
AND DISPOSAL**



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FLUORESCENT LIGHT BULB MANAGEMENT AND DISPOSAL

1. Purpose. The purpose of this Public Works Technical Bulletin (PWTB) is to provide a review of the universal waste rule and to provide basic information that can be used by installation personnel responsible to make decisions on how best to manage and dispose of used fluorescent bulbs.
2. Applicability. This PWTB applies to all U.S. Army facilities engineering activities.
3. References.
 - a. AR 200-1, Environmental Protection and Enhancement.
 - b. 40 CFR Parts 260, 261, 264, 265, 268, 270, and 273, Hazardous Waste Management System: Modification of the Waste Management Program; Hazardous Waste Laws (06 July 1999).
 - c. 58 FR 8102, Universal Waste Rule: Proposed Rule (11 February 1993)
4. Discussion.
 - a. AR 200-1, paragraphs 4-2 and 4-3, contains policy for Army military and civil works activities that handle, use, or store hazardous material. It requires activities to apply best management practices throughout the life cycle of procurement, production, use, handling, storage, and disposition of hazardous materials.
 - b. 40 CFR Parts 260, 261, 264, 265, 268, 270, and 273, (hereafter cited as 260-273) contains streamlined hazardous waste management regulations governing the collection and management of certain widely generated wastes (batteries, pesticides, thermostats, etc.) known as universal wastes.
 - c. 40 CFR promulgated streamlined hazardous waste management regulations for hazardous waste batteries, certain hazardous waste pesticides, and mercury containing thermostats, and was later modified to include hazardous waste lamps.
 - d. On 6 July 1999, the USEPA published the expected Final Rule adding “hazardous waste lamps” to the Federal list of universal wastes regulated under the Resource Conservation and Recovery Act (RCRA). The Final Rule became effective on January 2000. The USEPA has concluded that many fluorescent and high intensity discharge lamps exhibit the toxicity characteristics for mercury (Hg) and in some types, for lead (Pb).

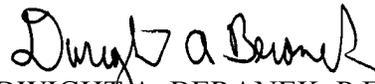
e. The proper management and disposal of mercury-containing wastes are very important to regulatory officials because recent data on the fate of mercury in the environment has shown that mercury has a greater mobility than previously thought. While advances in lamp technology have resulted in a significant decrease (up to 80%) in mercury, mercury-bearing lamps that fail the Toxicity Characteristic Leaching Procedure (TCLP) are still considered hazardous waste.

f. In the past, hazardous waste disposal had to be implemented according to the full requirements of the RCRA, however these bulbs may now be managed as universal wastes under 40 CFR 273. The universal waste rule has made disposal of used fluorescent bulbs less burdensome for installation personnel.

g. Appendix A to this PWTB outlines available management options for managing and disposing of fluorescent light bulb waste using the universal waste rule.

5. Points of Contact. HQUSACE is the proponent for this document. The POC at HQUSACE is Bob Fenlason, CEMP-RI, (202)761-8801206, or e-mail: bob.w.fenlason@usace.army.mil. Questions and/or comments regarding this subject should be directed to the technical POC: U.S. Army Engineer Research and Development Center, Construction Engineering Research Laboratory, at 1(800) USA-CERL, , for Mr. Bernard Donahue (e-mail: bernard.a.donahue@erdc.usace.army.mil).

FOR THE COMMANDER :



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Appendix A

Management Options Using the Universal Waste Rule

1. Management Options Using the Universal Waste Rule.

a. Regulatory Background. On 11 February 1993, the USEPA proposed streamlined hazardous waste management requirements for collecting and managing certain widely generated hazardous wastes (58 FR 8102). The Agency finalized the Universal Waste Rule on 11 May 1995 (40 CFR 260-273). The final rule promulgated streamlined hazardous waste management regulations for hazardous waste batteries, certain hazardous waste pesticides, and mercury containing thermostats. The rule modification adding hazardous waste lamps was finalized on 6 July 1999 (40 CFR 260-273). Handlers of universal wastes are subject to less stringent standards for storing, transporting, and collecting these wastes. These standards serve to encourage environmentally sound collection and proper management of these hazardous wastes.

b. Applicability. The universal waste regulations apply to handlers and transporters of universal wastes. Handlers include universal waste generators and collection facilities. The regulations distinguish between "large quantity handlers of universal waste" (those who accumulate more than 5,000 kg of total universal waste at one time) and "small quantity handlers of universal waste" (those who accumulate 5,000 kg or less of universal waste at one time).

c. Handler Requirements and Exemptions. Universal waste handlers who generate or manage items designated as universal waste are exempt from certain requirements routinely applied to hazardous waste management and instead are subject to the management standards under 40 CFR Part 273. These include streamlined standards for storing universal waste, labeling and marking waste of containers, preparing and sending shipments of universal wastes off-site, employee training, and response to releases. Large quantity handlers of universal waste (LQHUU) also must provide notification of universal waste management to the appropriate USEPA Region (or State director in authorized States), obtain a USEPA identification number, and retain records of off-site shipments of universal waste for 3 years. Small quantity handlers of universal waste (SQHUW) are not required to manifest wastes, notify the USEPA region, or keep records of universal waste shipments.

d. Transporters. Transporters of universal waste are also subject to less stringent requirements than the full subtitle C hazardous waste transportation regulations. Universal waste transporters must comply with all applicable Department of Transportation (DOT) regulations and ensure transportation of universal waste to a universal waste handler or a destination facility. Transporters may store universal waste at a transfer facility for 10 days or less and must contain any releases of

universal waste. Transporters of universal waste do not have to comply with RCRA hazardous waste manifest requirements

e. Destination facilities. Destination facilities are those facilities that treat, dispose, or recycle universal wastes. Universal waste destination facilities are subject to all currently applicable requirements for hazardous waste treatment, storage, and disposal (TSD) facilities and must receive an RCRA permit for such activities. Hazardous waste recycling facilities that do not store hazardous wastes prior to recycling may be exempt from permitting under Federal regulations (40 CFR 261.6(c)(2)).

f. For more information

i. Federal.

(a) The initial universal waste rule was published in the 11 May 1995 Federal Register and is found in the Code of Federal Regulations at 40 CFR Part 273. The rule adding hazardous waste lamps to the universal waste program was published in the 5 July 1999 Federal Register. Most of the information in paragraphs 1.a. through 1.e. above is taken directly from 40 CFR Parts 260, 261, 264, 265, 268, 270 and 273.

(b) The original universal waste rule and the rule adding hazardous waste lamps can be downloaded by visiting the USEPA Office of Solid Waste Internet site at:
<http://www.epa.gov/epaoswer/hazwaste/id/univwast.htm>.

ii. State.

(a) The universal waste rule is only immediately applicable in those States that do not have final RCRA authorization or have not yet adopted it. Since it is less stringent than the current RCRA authorization for spent lamps, States are not required to adopt it. A number of States have proactively added spent lamps to their universal waste programs or are in the process of doing so. Some of these States' universal waste standards allow for the crushing of lamps under certain conditions.

(b) Although the Federal universal waste rule does not provide for crushing, the USEPA believes that State programs could have standards for crushing which would be equivalent to the Federal rules and thus be appropriate for authorization. The agency will determine at the time of authorization whether a State regulation that allows crushing is equivalent to the Federal standard.

(c) Each Army installation should contact its State agency before implementing the universal waste rule. Information on each State's status in adopting the universal waste rule can be found at the USEPA's Office of Solid Waste Internet site:
<http://www.epa.gov/epaoswer/hazwaste/state/authstat.htm>

2. The Pollution Prevention (P2) Approach.

a. Alternative low-mercury fluorescent tubes now available contain approximately 70% less mercury when compared to standard light tubes. This technology usually enables the low mercury fluorescent light bulbs to pass the USEPA Toxicity Characteristic Leaching Procedure (TCLP) for hazardous waste. Low mercury fluorescent light bulbs passing the TCLP test may be disposed of as a nonhazardous solid waste. Low mercury fluorescent light bulbs are available from the Defense Industrial Supply Center of the Defense Logistics Agency in a variety of models

b. Low mercury fluorescent light bulbs may be identified by their Green End Caps. If you are a high volume user of fluorescent light tubes, the new "Green" low mercury bulbs are desirable for the following reasons.

i. They meet environmental compliance regulations by reducing the amount of hazardous wastes generated.

ii. They save money by reducing hazardous waste disposal costs, management costs, and environmental liabilities.

c. Additional information on low mercury fluorescent light bulbs may be found at the following sites:

i. Philips.

<http://www.lighting.philips.com/nam/index.htm>

ii. DLA.

<http://www.dscr.dla.mil/marketing/alto.html>

3. Hierarchy of Management of fluorescent light bulbs.

a. For new applications, pollution prevention (P2) is the desired long-range method for fluorescent bulb management. Used bulbs should be replaced with the low mercury "Green" bulbs, which should minimize disposal problems in the future.

b. For existing bulb disposal, recycle used bulbs according to guidance set forth in the Universal Waste Rule is the preferred method of disposal. Under the universal waste rule, the USEPA has lessened the requirements for generators, transporters, and recyclers of used fluorescent bulbs.

c. Disposal of spent bulbs as a hazardous waste under the RCRA Subtitle C is the least desirable and the most costly method of fluorescent bulb disposal. Additional discussion on the management of these bulbs as a RCRA hazardous waste can be found at:

<http://www.environmental.usace.army.mil/info/technical/comply/comply/complyfs/97-06/97-06.html>

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