

US EPA ARCHIVE DOCUMENT

DCN FLEP-00033

COMMENTER Brown and Caldwell

SUBJECT CURRENT

COMMENT The following is the procedure by which the tubes are crushed and the mercury disposed of: Light tubes are inserted into the crusher one at a time. When the tube is crushed, the mercury that is emitted is absorbed by a carbon filter in the fully-enclosed unit. Enclosed as Exhibit A are the test data specifications for the filters. [See hard copy of Comment FLEP-00033 for attachment.] Additionally, Client used the TCLP for the crushed glass resulting from this method and found that the crushed glass contained less than .2 milligrams per liter mercury. When the filter reaches its capacity, it is easily removed from its housing in the crusher, placed in a plastic wrap bag and then into a drum for disposal as hazardous waste. Client contends that this method not only addresses EPA's concerns regarding air emissions from breakage (in a significantly more efficient manner than transporting whole tubes), but it also reduces the volume of waste in landfills because more crushed glass than whole light tubes fit into 55-gallon drums. Additionally, the majority of the mercury present is handled as hazardous waste and less mercury actually goes to the landfill. EPA's data showed as much as 6.6 percent of mercury could be released in the area from a lamp broken during collection, storage and transportation of lamps. Crushing tubes in this manner prevents mercury from volatilizing to the air and being transported through the environment.

#### RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp crushing operations.

The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps is consistent with the universal waste rule and retains the treatment prohibition for universal waste handlers of hazardous waste lamps. The definition of treatment under RCRA includes ~~A~~any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent hazardous waste lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). Generators under Part 262 must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment.

In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush, universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN SCSP-00034

COMMENTS Dept. of the Army (AEHA)

SUBJECT CURRENT

COMMENT 3. LAMPS. It is estimated that over 2 billion mercury-containing fluorescent lamps are produced each year and eventually require disposal. Recovering mercury, glass, and other metals should be encouraged and may be profitable. (enclosure 3a).

RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp recycling alternatives. The final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. Today's final rule requires that hazardous waste lamps be stored

and transported in a way that minimizes releases of mercury into the environment.

The Agency agrees with the commenter that the recycling of recoverable materials is a preferred management option for solid and hazardous wastes, when these activities are conducted in a safe and protective manner. In addition, the Agency wants to encourage resource conservation and energy efficiency. Today's final rule may promote energy conservation and reduce potential emissions of mercury from fossil-fuel fired electric utilities by encouraging increased participation in lamp replacement programs such as those promoted through EPA's Green Lights program. By reducing the regulatory burdens associated with the management of hazardous waste lamps under the full Subtitle C management standards, today's final rule may encourage increased collection and recycling of spent lamps, as well as increased participation in energy-efficient lighting programs.

Based on the belief that less complex regulations will increase the collection of universal wastes, the Agency did not limit the universal waste system to the recycling of waste. Generators have several options with regard to waste management, but the ability to access large quantities of universal waste from central collection centers may encourage the development of safe and effective methods to recycle universal waste.

DCN FLEP-00068

COMMENTS H.B. Fuller Company

SUBJECT CURRENT

COMMENT H.S. Fuller is also a Partner in the U.S. EPA's Green Light

Program. Several facilities have converted to energy-efficient lighting; however, the majority of this conversion is ahead.

Those facilities that have completed the conversion have not generated more than 350 lamps per month because the facility size is small or small portions of the facility were converted.

At present, the facilities that have converted lighting are primarily located in the state of Minnesota. In Minnesota these lamps are considered hazardous waste and were disposed through a mercury reclaimer. The additional disposal cost did not make the conversion economically unfeasible.

RESPONSE

The final rule adds hazardous waste lamps to the scope of the universal waste rule (40 CFR Part 273), which provides a reduced, or streamlined set of requirements for handlers of universal waste. Today's rule includes specific management standards to control potential emissions during storage and transport.

Studies show that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation. In addition, the regulatory approach finalized today requires hazardous waste lamps to be ultimately

treated, disposed of or recycled at a fully-regulated full Subtitle C management facility to further ensure proper management of hazardous waste lamps.

The universal waste rule will encourage participation in energy-efficient lighting programs because standards are less stringent and less costly than full Subtitle C management standards. A significant number of commenters indicated that savings from reduced energy usage more than covers the cost of managing lamps as hazardous waste under full Subtitle C regulation.

The Agency notes that although today's final rule provides a reduced set of management standards for the management of hazardous waste lamps at the Federal level, state regulations may be more stringent. Given that today's rulemaking is less stringent than the previous regulations governing the management of hazardous waste lamps, state agencies are not required to seek authorization for the new requirements. Today's rule becomes effective only in states that are not authorized for the Federal Subtitle C hazardous waste program, because the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA encourages states to adopt today's final rulemaking that add hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00077

COMMENTS Brown and Caldwell

SUBJECT CURRENT

COMMENT In its proposal, the EPA does not discuss the method currently being utilized by Client to dispose of these bulbs-i.e., a fluorescent lamp disposer with mercury vapor control, commonly referred to as a "crusher." Client's device is manufactured by Dextrite, Inc., of Rochester, New York.

RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements governing the management of certain widely-generated hazardous wastes, but also sets specific management standards to control potential emissions from particular wastes. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency and information from commenters indicate that a significant potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Crushing and breaking of lamps allows mercury to be emitted to the air. The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps is consistent with the universal waste rule and retains the treatment prohibition for universal waste handlers of hazardous waste lamps. The

definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent hazardous waste lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). Generators under Part 262 must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment.

In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush, universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN SCSP-00077  
COMMENTER U.S. Department of Energy  
SUBJECT CURRENT

COMMENT (2)The hazardous waste is present in significant amounts in the municipal waste stream (e.g, commercial, agricultural, or community activity waste streams); Fluorescent, incandescent, and high-intensity-discharge lamps generated by households, schools, churches, shopping centers, as well as those contributed by conditionally exempt small quantity generators or uninformed small or large quantity generators, continue to be buried in vast numbers in sanitary landfills across the country while knowledgeable generators with TCLP data (indicating these lamp types generally fail TCLP for characteristic metals) must manage these wastes as hazardous. Prior to the effective date of the TCLP (September 25, 1990, for large quantity generators), it is reasonable to assume that all generators would have disposed of these lamp types by sending them to municipal landfills. Also, the "Green Lights" effort endorsed by EPA, lighting manufacturers, and utility companies encourages consumers to switch to newer, energy-efficient fluorescent lamps, thus increasing the numbers of older fluorescent lamps that are discarded. A safe assumption would be that hundreds of millions of each lamp type are landfilled annually. A nationwide estimate of the numbers of lamps landfilled could probably be calculated based on annual lamp sales, estimated lamp service life, and landfill records. Fluorescent, incandescent, and high-intensity discharge lamps generally meet the proposed criteria of 40 CFR 273.2(a)(2) (i.e., that the candidate waste stream is present in significant amounts in the municipal waste stream from commercial, agricultural, or community activities). (3) The number of generators, on a national basis, is greater than 1,000; Based on the information presented under 40 CFR 273.2(a)(2) criteria above, it is reasonable to assume that the number of generators, on a national basis, is greater than 1,000, thereby meeting the proposed criteria of 40 CFR 273.2(a)(3). (4)Typical generation sites include. (I) Isolated locations where no other hazardous wastes are generated; (ii) Locations where the hazardous waste is typically the only hazardous waste generated; (iii) Locations where the hazardous waste is generated only sporadically or infrequently; or (iv) Locations where there are small quantities generated per month; There are numerous examples of locations that meet the above proposed criteria of 40 CFR 273.2(a)(4). These include small office's, warehouses, pumping stations, meteorological towers, and similar isolated locations where lamps are generated

sporadically. Changeout of traffic lights, or incandescent lamps, or high-intensity discharge lamps on utility poles or in signs located on public highways presents complex regulatory issues as a result of sporadic generation of hazardous lamps in isolated areas. These locations are typically not associated with an EPA generator identification number and the conditionally exempt small quantity generator regulations generally do not apply to these particular situations. Fluorescent, incandescent, and high-intensity discharge lamps generally meet the proposed criteria of 40 CFR 273.2(a)(4) (i.e., that the candidate waste stream is found in isolated locations, sporadically generated, typically the only hazardous waste generated, or generated in small quantities on a monthly basis).

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The Agency agrees with the commenter that hazardous waste lamps meet most of the criteria established for waste to qualify as universal waste, in ' 273.81. Discarded lamps that exhibit any of the hazardous waste characteristics are subject to today's rulemaking. Types of lamps included in today's rule include, but are not limited to, incandescent, fluorescent, high intensity discharge, and neon lamps.

The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency and information from commenters indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Regarding the disposal of hazardous waste lamps, today's rule specifies that universal waste destination facilities (i.e., facilities that treat, dispose, or recycle universal waste) are subject to all applicable full Subtitle C requirements for hazardous waste treatment, storage, and disposal facilities and must receive a 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)). Today's rule does not change the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generates less than 100 kg of hazardous waste in any given month). Household and CESQG hazardous waste lamps may continue to be disposed of at Subtitle D disposal facilities. However, the streamlined regulations will provide an incentive for these categories of generators to collect the unregulated portions of the wastestream and manage them using the same systems developed for the regulated portion, thereby removing



hazardous waste lamps from the municipal wastestream and minimizing the amount of hazardous waste going to municipal landfills and combustors.

DCN FLEP-00114

COMMENTS Meijer, Inc.

SUBJECT CURRENT

COMMENT This letter is in regards to the proposed rule concerning Mercury-Containing Lamps. This rule potentially has a major impact on Meijer, Inc. Meijer is a retail company with its headquarters in Grand Rapids, Michigan. We operate 75 retail stores throughout Michigan, Ohio, and Indiana and soon will be opening new stores in Illinois and Kentucky. The average size store is 225,000 square feet and contains approximately 3000 fluorescent and HID lamps. Our current policy is to relamp every store every twenty four months at a cost of \$25,000 per store. Prior to relamping a representative sample of lamps is collected and tested for mercury and the other seven RCRA metals by an approved laboratory using the TCLP procedure. Disposal at Class II Sanitary Landfills is arranged if the test results are within the acceptable range. This provides the most cost effective and efficient lighting program. Disposal/recycling requirements could have a great impact on the this policy and final energy and waste disposal costs.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule. Spent lamps that exhibit any of the hazardous waste characteristics are subject to today's rulemaking. Types of lamps included in today's rule include, but are not limited to, incandescent, fluorescent, high intensity discharge, and neon lamps. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency and data from commenters indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Adding hazardous waste lamps to the universal waste rule will improve waste management practices for lamps. The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters. Fewer hazardous waste lamps will be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and decreasing the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks). In addition, today's final rule allows more flexibility than full Subtitle C

management standards and may encourage greater participation in energy-efficient lighting programs.

Today's rule specifies that universal waste destination facilities (i.e., facilities that treat, dispose, or recycle universal waste) are subject to all applicable full Subtitle C requirements for hazardous waste treatment, storage, and disposal facilities and must receive a 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)).

Today's rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs are facilities that generates less than 100 kg of hazardous waste in any given month). CESQG hazardous waste lamps may continue to be disposed of at Subtitle D disposal facilities. Under the universal waste system, CESQGs can choose to manage their universal waste lamps in accordance with either the CESQG regulations under 40 CFR ' 261.5 or as universal waste under Part 273 (40 CFR 273.8(a)(2)). Hazardous waste lamps that are managed as universal waste under 40 CFR Part 273 do not have to be included in a facility's determination of hazardous waste generator status (40 CFR 261.5(c)(6)). Therefore, if a generator manages such lamps under the universal waste system and does not generate any other hazardous waste, that generator is not subject to other Subtitle C hazardous waste management regulations, such as the hazardous waste generator regulations in Part 262.

DCN FLEP-00115

COMMENTS American Textile Manufacturers Institute

SUBJECT CURRENT

COMMENT On average, a textile facility consumes an estimated 6,500 tubes a year. In concert with the industry's voluntary Encouraging Environmental Excellence (E3) initiative, most domestic textile facilities have converted or are in the process of converting to energy efficient lamps. In addition, most textile facilities are classified as conditionally exempt, small quantity generators (CESQG) of hazardous waste. In fact, many facilities do not generate any hazardous waste. Many of our manufacturers currently mark spent tubes and safely store them in original shipping containers for later disposal. This practice greatly reduces the chance of tube breakage during transportation and diminishes the possibility of the questionable release of mercury. Other textile manufacturers are crushing spent tubes and placing them in drums for safe transfer and disposal in solid waste landfills. One manufacturer recently completed a TCLP test of its spent tubes for lead, copper and mercury. All three metals were found non-detect. As a result, the tubes were sent to a local landfill.

## RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport. EPA studies have determined that the majority of hazardous waste lamps fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit any hazardous waste characteristic are subject to today's rulemaking.

Uncontrolled crushing and breaking of lamps allows mercury to be emitted to the air. The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes *any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.*<sup>6</sup> The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 **FR** 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner *that prevents releases*<sup>7</sup> to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush, universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

Furthermore, today's rule specifies that universal waste destination facilities (i.e., facilities that treat, dispose, or recycle universal waste) are subject to all applicable full Subtitle C requirements for hazardous waste treatment, storage, and disposal facilities and must receive a 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)). Today's rule does not affect the regulatory status conditionally exempt small quantity generators (CESQGs are facilities that generates less than 100 kg of hazardous waste in any given month). CESQG hazardous waste lamps may continue to be disposed of at Subtitle D disposal facilities. Under the universal waste system, CESQGs can choose to manage their universal waste lamps in accordance with either the CESQG regulations under 40 CFR ' 261.5 or as universal waste under Part 273 (40 CFR 273.8(a)(2)). Hazardous waste lamps that are managed as universal waste under 40 CFR Part 273 do not have to be included in a facility's determination of hazardous waste generator status (40 CFR 261.5(c)(6)). Therefore, if a generator manages such lamps under the universal waste system and does not generate any other hazardous waste, that generator is not subject to other Subtitle C hazardous waste management regulations, such as the hazardous waste generator regulations in Part 262.

DCN SCSP-00118

COMMENTS Robert M. Quintal

SUBJECT CURRENT

COMMENT INTEGRATED WASTE MANAGEMENT APPROACH

Some 34 tons of mercury are exposed to the environment annually due to disposal of these lamps. An alarming amount considering that in parts of Europe disposal of fluorescents has been regulated for many years. As a result, several handling/recycling technologies have been developed. A NEMA task force that toured several of these facilities in October and November of 1991 identifies 8 different companies that have emerged to handle this problem. [6] [Reference 6: "Methods for the Reclamation of Electric Lamps Containing Mercury" - NEMA, July 1992.] One of these companies, MRT System AB of Sweden, has a recycling facility operating in Minnesota, and pending agreements for additional facilities in other states.

#### EUROPEAN POSITION

Consumption of fluorescent lamps in Europe is slightly less than the US total annual (approx. 470 million). Europe is ahead of the US by about 3-5 years. Most leading edge recycling technologies are European, largely due to impressed importance. Some European recycling companies have been in business ten years. Regulations were introduced in Europe in 1990 to legislate collection and treatment of fluorescent lamps. Several countries had already initiated special handling, and now include: - The Nordic Countries (SE, DK, FI, NO) - Germany - The Netherlands - Switzerland - Austria New directives have been introduced in Belgium, Luxembourg and France. European communities (EC) council directives are being implemented, with individual countries given five years to adopt fully. In 1993, 80-85 million units (approx. 20%) will be collected and recycled. In addition, most lamp manufacturers in Europe utilize recycling technologies in their facilities. Soon, one manufacturer will start to take back old lamps when selling a new one. [8] [Reference 8: "New Developments in Europe ", Christer Sundberg, Marketing Manager MRT System AB Sweden. Presented to US EPA Conference on Household Hazardous Waste Management - December 1992.

#### RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp recycling alternatives. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule (40 CFR Part 273). The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

The Agency agrees with the commenter that the recycling of recoverable materials is a preferred management option for the management of such wastes. In addition, the Agency wants to encourage resource conservation and energy efficiency. Today's final rule may promote energy conservation and reduce potential emissions of mercury from fossil-fuel fired electric utilities by encouraging increased participation in lamp replacement programs such as those promoted through EPA's Green Lights program. In addition, by reducing the regulatory burdens associated with the management of hazardous waste lamps, the final rule may encourage increased recycling of spent lamps.

DCN FLEP-00130

COMMENTER U.S. Department of Energy

SUBJECT CURRENT

COMMENT 1. DOE supports EPA's efforts to modify the hazardous waste program to exclude mercury-containing lamps or to consider such lamps to be universal wastes that are subject to lesser regulatory requirements. DOE is a large quantity generator of mixed and/or hazardous waste at more than 30 sites throughout the United States. Some DOE sites have tested fluorescent and high intensity discharge lamps and have found, like EPA, that when spent, these lamps exhibit the characteristic of toxicity for mercury. Other DOE sites consider these lamps to be hazardous by process knowledge and manage them as hazardous waste, even though they have not been tested. If these mercury-containing lamps are also radioactively contaminated, they are managed as radioactive mixed waste (RMW).

II. B. Energy Efficient Programs (59 FR 38289) EPA hopes that promulgation of the proposed rule will help to encourage the replacement of lighting systems that are not energy-efficient with new, energy efficient lighting systems. EPA's Green Lights program encourages the use of energy efficient lamps using initial and scheduled periodic relamping to achieve higher energy efficiency and reduce energy costs. The cost associated with managing, transporting and disposing of lighting wastes as hazardous waste creates a disincentive to joining Green Lights and to making the initial investment in energy efficient light technologies. DOE agrees that the costs associated with managing, transporting, and disposing of light wastes as hazardous waste creates a disincentive to joining Green Lights and making the initial investment in energy efficient light technologies. At large Federal facilities such as Oak Ridge National Laboratory (ORNL), over 10,000 lamps are currently generated each year from routine maintenance. Currently these lamps are crushed in a 90-day accumulation area to reduce the volume of hazardous waste that must be stored and ultimately disposed. These lamp crushers have air permits that limit the number of lamps that can be crushed during a given time period. The limits were established based on average lamp generation, not massive relamping that will occur under the Green Lights Program. Therefore, the additional waste lamp generation could require a significant percentage of lamps to be stored intact at

ORNL's permitted and interim status facilities, thereby increasing the cost of storage. EPA believes that lamp generation under the Green Lights Program, will be sporadic (every three to four years) rather than continuous. This belief is not valid where the generator has a large office complex or a process that requires well lit, close work. In these areas, lamps are replaced as required. ORNL has more than 80,000 lamps on-site. The relamping program at ORNL will probably take up to six years to complete, given funding and staffing limitations. Some locations will use lighting 24 hours a day, 7 days a week; therefore, even the new longer-life lamps will only last about 1.5 years. Thus, ORNL expects to generate waste lamps continuously.

Many low-level radioactive waste (LLW) disposal facilities operated by DOE can be shown to provide protection that is at least equivalent to that of a landfill meeting the standards of 40 CFR 258 for municipal solid waste landfills. Radioactive solid waste disposal sites are subject to parallel or more stringent controls than municipal waste landfills. For example, at ORNL, radioactive solid waste disposal is currently limited to the Interim Waste Management Facility which wastes are placed in concrete boxes that are placed on a concrete pad. Rain that falls on the pad is collected and managed/treated as radioactive wastewater, as appropriate. When filled to capacity, the unit will be covered with dirt and will, in essence, be a landfill equipped with a leachate collection system. If radioactive mercury-containing lamps were disposed in that unit, there should be no environmental releases of mercury at the site.

#### RESPONSE

The Agency appreciates the commenter's submission of information on current lamp management practices. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

By removing some of the burden of full Subtitle C management for lamps, the universal waste management approach should minimize concerns about decreased participation in energy-efficient

lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining full Subtitle C control over final treatment and disposal (or recycling) for these lamps. Waste management costs under the universal waste rule will be lower than the management costs associated with full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between mercury lamp generators and collection points or disposal or recycling facilities. In addition, permits are not required for storage at interim collection facilities, provided that spent lamps are not accumulated for a period of time longer than one year. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation in these programs under the universal waste approach.

The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes ~~A~~any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.® The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

You describe the process at Oak Ridge National Laboratory that includes crushing of spent lamps. Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow universal waste handlers of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 **FR** 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner ~~A~~that prevents releases®to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.



For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal universal waste regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

Under the universal waste rule, destination facilities (i.e., recycling facilities and treatment facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment and storage facilities. Although hazardous waste lamps are included in the universal waste rule under today's final rule, the radioactive components in mixtures of solid and/or hazardous wastes and radioactive wastes must still be managed in compliance with the Atomic Energy Act.

DCN SCSP-00140

COMMENTS Advanced Environmental Recycling Corp.

SUBJECT CURRENT

COMMENT In addition, several state officials also stated that they were receiving numerous inquiries regarding fluorescent light disposal. This was of particular concern for state officials where participation in the EPA's Greenlights Program (or companion state programs) is resulting in large scale disposal of fluorescent light bulbs.

RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Today's final rule allows more flexibility in the management of hazardous waste lamps and may encourage greater participation in energy-efficient lighting programs. By removing some of the burden of full Subtitle C management for lamps, the universal waste management approach should minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining full Subtitle C control over final treatment and disposal (or recycling) for these lamps. Waste management costs under the universal waste rule will be lower than the management costs associated with full Subtitle C management because hazardous waste transporters and manifests

would not be required for lamp shipments between mercury lamp generators and collection points or disposal or recycling facilities. In addition, permits are not required for storage at interim collection facilities, provided that spent lamps are not accumulated for a period of time longer than one year. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation in these programs under the universal waste approach.

Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level; however, individual states may have more stringent requirements for the management of this waste. Today's rule becomes effective in states that are not authorized for the Federal full Subtitle C hazardous waste program, but will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00156

COMMENTER National Electrical Manufacturers Assn.

SUBJECT CURRENT

COMMENT V. POSITION ON RETAINING THE STATUS QUO

NEMA is completely opposed to retaining the status quo with respect to mercury-containing lamps. The current situation, where lamps are technically subject to Subtitle C but governmental agencies are not consistently enforcing the requirements is equally as untenable as a situation where the Subtitle C regulations are fully enforced. The rationale for NEMA's position is explained below.

A. Subtitle C WITHOUT ENFORCEMENT Leaving lamps within the Subtitle C system but inconsistently enforcing the requirements is leading to tremendous generator uncertainty about regulatory requirements; long term and illegal storage of massive quantities of lamps while generators await the outcome of this rulemaking; state enactment of widely varying requirements for lamp disposal and recycling that are at variance with Universal Waste and are less stringent than Subtitle C [22] [Footnote 22: Examples of state requirements that are inconsistent with both Subtitle C and Universal Waste are discussed on page 22.] ; recycling of lamps at facilities that vary greatly in quality, ranging from sophisticated processes with little to no releases to crude operations with

significant mercury emissions; sham recycling of lamps due to the fact that the reclaimed materials are simply disposed; incorporation of mercury-contaminated glass into products through heat processes which causes release of mercury into the environment in amounts greater than those from landfilling or recycling; and potential delays in EPA Green Lights and other lighting upgrade projects due to the cost and uncertainty, associated with hazardous waste. [23] [Footnote 23: See comments in rulemaking docket for this rule from the Tennessee Valley Authority and the University of Texas for corroboration of this point.] Clearly, no interests, including environmental protection, are served by a continuation of these conditions. EPA must take action in the near term to resolve this situation.

B. FULLY ENFORCED Subtitle C NEMA has made EPA aware on numerous occasions of the serious problems that would be created if EPA fully enforced the Subtitle C program with respect to spent lamps. NEMA has explained those problems in some detail in the enclosed report entitled "Analysis of Three Regulatory Scenarios for Spent Mercury-Containing Lamps" (Enclosure 7). The key points of the analysis are listed below.

1. Businesses not normally included in the Subtitle C system will be brought in by virtue of their generation of spent lamps, unnecessarily complicating waste management and increasing its costs. Businesses now regulated in one quantity category will be elevated to higher more heavily regulated generator categories. LDR requirements will further add to the regulatory burden of companies brought under RCRA management standards for the first time.
2. Lamps cannot be stored on a generator's site for more than 90 days without a RCRA storage permit and any storage that does occur must be in RCRA tanks, containers, or containment buildings. Today, most facilities are not equipped to store spent lamps in these ways.
3. Treatment permits are required for crushing of lamps except for crushing that occurs on a generator's site within 90 days and in a RCRA tank, container, or containment building. Landfills that crush before disposing in order to maintain the integrity of the landfill will require treatment permits as well.
4. Recyclers that store longer than 24 hours will require hazardous waste storage permits.
5. States will have few options for spent lamp management and will be required to expend significant resources implementing and enforcing lamp requirements, when such resources are better

spent on more important risks. For example, hazardous waste identification numbers will have to be issued for hundreds of thousands of new Small Quantity Generators. The vast increase in the size of the regulated community alone will strain the existing state hazardous waste budgets. 6. EPA must fully implement the lamp program in unauthorized states and must monitor program implementation in authorized states. EPA must take action to withdraw programs that do not comply with the delegated Subtitle C program. 7. The resultant slowdown in lighting upgrades delays reductions in emissions from electric power plants, resulting in greater overall mercury emissions than would be the case if lamps were conditionally excluded.

#### RESPONSE

The Agency appreciates the commenter's submission of information on current lamp management practices. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

By removing some of the barriers to full Subtitle C management for lamps, the universal waste rule will minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining full Subtitle C control over final treatment and disposal (or recycling) for these lamps. Waste management costs under the universal waste rule will be lower than the management costs associated with full Subtitle C management because hazardous waste transporters and manifests are not required for lamp shipments between mercury lamp generators and collection points or disposal or recycling facilities. In addition, permits are not required for storage at interim collection facilities, provided that lamps are not accumulated for a period of time greater than one year. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation in these programs. Studies also have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation.

The universal waste rule includes standards for small quantity handlers of universal waste and large quantity handlers of universal waste. Standards for both types of universal waste handlers are greatly reduced over the full Subtitle C management standards. In addition, small quantity handlers of universal waste are defined as generators who accumulate 5,000 kilograms or less of universal waste at any one time. Therefore, the Agency points out that a handler's regulatory

status is very unlikely to change to a more stringent regulatory level as a result of today's rulemaking.

This final rule provides a uniform approach for the management of hazardous waste lamps at the Federal level; however, individual states may have more stringent requirements for the management of this waste. Today's rule becomes effective in states that are not authorized for the Federal full Subtitle C hazardous waste program, but will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program. EPA expects the universal waste approach will relieve most of NEMA's concerns regarding the scenarios they outlined in their comments (i.e., the status quo or a fully enforced full Subtitle C scenario).

DCN FLEP-00159

COMMENTS Motorola, Inc.

SUBJECT CURRENT

COMMENT Crushing reduces the volume of the fluorescent lamps by greater than 90% and thus minimizes storage and transportation costs. It has been our experience, that crushing can be conducted safely with proper controls. The majority of the seven referenced facilities utilize fluorescent lamp crushers manufactured by Dextrite. These devices include mercury vapor control with a filter system that traps mercury vapor gases in a filter cartridge. (See Attachment A). [See hard copy of FLEP-00159 for attachment.] Typically, a bulb crusher with a 540 bulb per 55 gallon drum capacity is utilized to accomplish size reduction. Personnel risk assessment has shown minimal exposure potential. Specifically, Los Alamos National Laboratory ("LANL") generated a paper entitled "Managing Fluorescent Light Bulbs as Hazardous Waste" which indicates that personal monitoring results for employees engaged in operating the Dextrite bulb crushers was a fraction of the OSHA permissible exposure level. (See Attachment B). [See hard copy of Comment FLEP-00159 for attachment.] Motorola's sampling results for this process corroborate LANL's results. Motorola utilized a Jerome Hg Vapor Analyzer Model 411 and obtained sample results that are approximately 10% of the OSHA PEL. (See Attachment C). [See hard copy of Comment FLEP-00159 for attachment.] The bulb crusher's filters are sent off-site to a permitted facility for metals reclamation. The crushed glass, which sometimes is below

TCLP thresholds, is also sent to permitted facilities for recycling. Los Alamos National Laboratory and a significant number of Motorola sites have concluded that the on-site crushing of fluorescent light bulbs ensures minimal handling, shipping and exposure potential.

#### RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp crushing operations. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner Athat prevents releases@to the environment. In addition, information available

to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN SCSP-00159

COMMENTS Robert K. Stockett

SUBJECT CURRENT

COMMENT Comment 2: Fluorescent Light Bulbs Are Generated in a Large

Variety of Settings Not Usually Associated with Hazardous Waste.

The Number and Variety of Sources Poses Regulatory Difficulties.

Fluorescent lights are used in residences, offices, and other commercial and institutional buildings [5] Not all of these sources are industries usually associated with hazardous waste generation. Sources of used fluorescent light bulbs include exempt households and conditionally exempt small quantity generators. The number and variety of sources generating used fluorescent bulbs could pose difficulties in implementing hazardous waste regulations.

In California, used fluorescent lights are regulated as hazardous waste because their mercury content exceeds the state's limit for mercury of 20 mg/kg. California regulations have spurred four companies in that state to develop fluorescent bulb handling and recycling capabilities [5].

#### RESPONSE

The Agency agreed with the commenter that fluorescent and other hazardous waste lamps are generated by a wide variety of generators. This is one factor in EPA's decision to add hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions.

Today's rule does not affect the regulatory status of generators of small volumes of hazardous waste, including households and conditionally exempt small quantity generators (CESQGs).

CESQGs are facilities that generate less than 100 kg. of hazardous waste of all kinds in any given month. Household and CESQG hazardous waste lamps may continue to be disposed of at Subtitle D disposal facilities. However, EPA expects that the streamlined universal waste approach will encourage these categories of generators to manage hazardous waste lamps under today's rule, thereby removing some hazardous waste lamps from the municipal waste stream.

The Agency notes that although today's final rule provides a reduced set of management standards for the management of spent lamps at the Federal level, state regulations may be more stringent. Today's rule becomes effective only in states that are not authorized for the Federal full Subtitle C hazardous waste program. It will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

Today's final rule will facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps. The ability to access large quantities of universal waste from central collection centers may encourage the development and use of safe and effective ways to recycle universal waste.

DCN SCSP-00166

COMMENTER Hennepin Cty. (MN) Dept. of Environ. Mgmt.

SUBJECT CURRENT

COMMENT The county has addressed ash and emission contamination with a two part program. The county has addressed the problem from a control standpoint by special air pollution control equipment including an activated carbon injection system for mercury that will be added this summer. The ash from the facilities is taken to special ash cells and the county has also considered metal fixation prior to landfilling. The other part of the county's program has been to collect the materials that can cause the contamination. In 1989 the county began developing programs to collect household batteries, brown goods (electronic equipment), white goods (large appliances), mercury items, and fluorescent tubes. The county's efforts have had to focus on household waste because this same waste from a business would be regulated. In Minnesota since 1979 all business waste has been regulated. These regulations are very cumbersome for small businesses and very restrictive in terms of consolidation sites. While the County's Department of Environmental Management (DEM) currently licenses and inspects approximately 5500 companies, there are over 43,000 industrial/commercial sites within the county.



Almost every one of these sites would have fluorescent tubes, batteries, electronic items, or a pesticide. These very common wastes find their way into the solid waste system and lead to ash contamination or air emissions.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions.

Adding hazardous waste lamps to the universal waste rule will improve waste management practices for lamps. The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters. Fewer hazardous waste lamps will be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and decreasing the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Today's rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs are facilities that generate less than 100 kg of hazardous waste in any given month). CESQG hazardous waste lamps may continue to be disposed of at full Subtitle D disposal facilities. Under the universal waste system, CESQGs can choose to manage their universal waste lamps in accordance with either the CESQG regulations under 40 CFR ' 261.5 or as universal waste under Part 273 (40 CFR 273.8(a)(2)). Hazardous waste lamps that are managed as universal waste under 40 CFR Part 273 do not have to be included in a facility's determination of hazardous waste generator status (40 CFR 261.5(c)(6)). Therefore, if a generator manages such lamps under the universal waste system and does not generate any other hazardous waste, that generator is not subject to other Subtitle C hazardous waste management regulations, such as the hazardous waste generator regulations in Part 262. In addition, household waste can continue to be disposed in municipal landfills.

The Agency notes that although today's final rule provides a reduced set of management standards for the management of spent lamps at the Federal level, state and local regulations may be more stringent. Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level; however, individual states may have more stringent requirements for the management of this waste. Today's rule becomes effective in states that are not authorized for the Federal full Subtitle C hazardous waste program, but will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00167

COMMENTER Florida Power and Light Company

SUBJECT CURRENT

COMMENT Florida Power and Light is currently considering dismantling company-generated High Intensity Discharge lamps as part of a disposal/reclamation program. These lamps have an inner arc tube which contains all the mercury. Our dismantling method would produce contained mercury, clean glass, brass, solder and ceramic. All these materials could then be more effectively stored, handled, recycled or disposed of after the dismantling.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@

The commenter does not provide sufficient information for the Agency to determine, at this time, whether the described activities would constitute treatment, and thus be prohibited under the universal waste rule for lamps. Similarly, the Agency does not at this time have sufficient information about these activities to develop specific management standards for these activities that could be included in the final universal waste rule for lamps. If, in the future, the commenter wishes to pursue such activities in states that adopt the universal waste program for lamps, the commenter should discuss with the state implementing agency how these activities would be regulated under the state's universal waste program for lamps. The Agency also notes that such activities could be conducted under the current hazardous waste program. The commenter could also discuss with the appropriate implementing agency how the existing hazardous waste regulations would apply to such activities.

DCN FLEP-00169

COMMENTER Advanced Environmental Recycling Corp.

SUBJECT CURRENT

COMMENT DRUM-TOP CRUSHING: There appears to be many groups encouraging the use of drum-top crushing as an effective approach for consolidating lamps. These crushers provide the operational capability of consolidating approximately 800 to 1,200, 4-foot

lamps within a 55-gallon drum. The drums can then be directed to a landfill for ultimate disposal. Although the concept sounds good, there are the following two serious flaws. 1. Drum-top crushing units are not designed to provide short or long-term environmental controls and, 2. The concept of recycling remains non-existent. Viable recycling facilities currently in operation throughout the country are designed with several thousand pounds of activated carbon, monitoring, and other pollution control technology. The use of drum-top crushers and their associated small canisters of carbon and HEPA filters clearly do not provide protection to workers and will, in the long run, be harmful to the previous areas discussed. The USEPA's own studies dispute the drum-top crushing theory. In addition, Exhibit 5 provides further independent analysis.

#### RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp crushing operations. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions.

The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 **FR** 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable

requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

The Agency notes that the universal waste rule for hazardous waste lamps does not extend to mercury-contaminated filters and residues from crushing devices and reclamation processes. These wastes from crushers must be managed in accordance with all applicable solid and hazardous waste management requirements. If the filters or residues exhibit a hazardous waste characteristic, then they are subject to full Subtitle C hazardous waste regulation.

DCN SCSP-00172

COMMENTS Advanced Environmental Technology Corp.

SUBJECT CURRENT

COMMENTS AETC would like to specifically comment on fluorescent lamp management. The EPA has identified fluorescent lamps as the second largest source of mercury in the municipal solid waste stream. Although these materials are hazardous wastes by the Toxic Contaminant Leaching Procedure (TCLP), the vast majority of the regulated and unregulated community manage these wastes through municipal facilities. This is due to a lack of awareness and/or fear of the existing regulatory system.

RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for

mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

The Agency believes that adding hazardous waste lamps to the universal waste rule will improve waste management practices for lamps. The universal waste rule represents a significant cost reduction over full Subtitle C management requirements of generators, collectors, and transporters. Fewer hazardous waste lamps should be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and decreasing the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level; however, individual states may have more stringent requirements for the management of this waste. Today's rule becomes effective only in states that are not authorized for the Federal full Subtitle C hazardous waste program. It will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00182

COMMENTS Eastman Kodak Company

SUBJECT CURRENT

COMMENT There should not be any special handling requirements attached to the exclusion to reduce breakage. Many generators find it useful to intentionally crush spent lamps to reduce the space required for their storage, and reduce transportation costs. This crushing is generally currently allowed by the Agency if done in non-leaking RCRA tanks or containers within 90 days of generation. While there may be good reasons to be concerned about the mercury emissions from broken lamps, there are safe and efficient crushers on the market which are designed to protect both human health and the environment from mercury vapor. Uncontrolled breakage should be discouraged, but here should be no prohibition on intentional crushing lamps when done in equipment which is sufficiently protective as evidenced by being in compliance OSHA mercury standards.

RESPONSE

The Agency appreciates the commenter's submission of information on hazardous waste lamp crushing operations. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of

requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport due to breakage. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

The commenter describes lamp crushing that is operated under full Subtitle C requirements. Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 **FR** 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases@to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the

Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN FLEP-00185

COMMENTS British Things, Inc.

SUBJECT CURRENT

COMMENT II. BACKGROUND ON THE BTI TECHNOLOGY

A. General Description. BTI's technology was developed in England over ten years ago, primarily to reduce the volume of lamps going to landfills. The system reduces the volume of lamps by ninety percent. More importantly, using ion-exchange filtration, the machine separates mercury from the lamp and traps it in filters. This allows for the transportation of non-hazardous crushed residue glass and metal to a recycling plant or landfill while the mercury can be retorted or disposed of in a hazardous waste landfill. In its current configuration, the BTI system measures 42" x 22" x 73", weighs 288 pounds, and resembles a large photocopier with a square tube extending up and outward from the top. Its size and weight make it relatively easy to transport from location to location, or to economically locate at the source generating spent lamps. BTI's technology was originally introduced in the United Kingdom (UK) and the European Economic Community. The machine has been tested and approved by independent laboratories and authorities in the UK and has a 12-year proven performance record. As an example of its efficacy, the Government of Spain, after reviewing a wide range of central plant and portable lighting waste reclamation technologies in Europe and the United States, cited BTI's technology as the preferred technology due to its lower cost flexibility, and capability of dealing with any and all lighting waste simultaneously. A translation of this analysis, prepared by the environmental engineering department of the University of Barcelona, will be available in early 1995. We would be pleased to provide EPA with a copy when it becomes available. The BTI System has been adapted to conform to U.S. electronics and has incorporated improved air controls. The State of California, a leading State in mercury lamp management, is reviewing BTI's technology for its AB2060 Technology Innovation Program. The BTI System is also undergoing thorough performance testing through a

demonstration program hosted at a California State University Campus.

**B. How the BTI System Solves the Mercury Lamp Problem** The BTI System provides numerous environmental and economic benefits. These benefits directly address the many concerns regarding spent mercury lamps being raised by EPA in its rulemaking. Removes Mercury and Other Contaminants From Lamps and Facilitates the Safe Management of Mercury. Using a water wash system, incorporating four stages of filtration including ion exchange, the system traps mercury in a filter, leaving glass, end caps and other residues. In addition to removing mercury, the BTI System also traps other contaminants, such as cadmium. This process is over 90 percent efficient. The filters, which are contained in sealed containers, are replaced after the management of approximately 20-30,000 lamps depending on the mix of lamps. Releases from changing the filter are negligible because the filters are never removed from their sealed container by the system operator. The filters in their containers are replaced as complete assemblies by the operator. The filter still in its sealed container can either be managed as a hazardous waste or retorted for recovery of the mercury, depending on the cost of retorting and the price of mercury. The entire system is ventilated by a three stage air filtration system that is 99.97% efficient on 0.31u particles and unique mercury sensitive carbon filters that remove toxic vapors. This ventilation system design returns cleaner air to the space--cleaner than when it was drawn into the system. Reduces Air Emissions from Uncontrolled Product Breakage. Air releases from uncontrolled product breakage during storage and transportation is perhaps the most important source of mercury releases from spent lamps. Other "package" and/or "portable" systems have been lacking in design by ignoring such fugitive air emissions. Because the BTI System can be used on-site, it significantly reduces the storage time for unbroken lamps and the need for off-site transportation of unbroken lamps. Broken lamps can be safely stored in drums on-site until transported for recycling or disposal. When used at an off-site landfill the BTI System can also reduce uncontrolled mercury emissions from the transfer of unbroken lamps into landfills and from the long-term landfill management of unbroken lamps. Reduces Transportation Impacts and Costs. By reducing lamp volume, the



BTI System reduces the total amount of off-site transportation required. This results in a reduction in the amount of energy needed to transport spent lamps and in the amount of transportation-related pollutants, such as NO<sub>x</sub> and hydrocarbons. It also reduces the transportation costs for lamp generators lowering their overall costs for upgrading their lighting systems. Reduces the Costs of Managing Spent Lamps. The BTI System provides lamp generators with a very cost-effective management technique. The amortized cost of using the BTI System is approximately 10-15 cents per lamp. The large volume reduction in lamps reduces transportation costs significantly as well as the costs associated with manifesting wastes. The system also saves generators time and money in storing lamps. Lamps are usually managed in the BTI System soon after they are spent. Thus, the time spent boxing and stacking lamps is eliminated and no large storage space is needed for uncrushed lamps. BTI technology makes lighting waste management affordable and available to a wider population of smaller generators, remote locations, small towns, and other generators who can afford neither the high cost of hazardous waste manifested cargos of lighting waste nor the charges of the large central plant recycling centers. One of the most important advantages of the BTI System is its mobility. a lamp generator with several different facility locations can use a single, portable BTI System to manage lamps at each location. Thus, the system can be used by lighting contractors, large universities, municipalities with multiple household hazardous waste collection points, owners of multiple retail outlets, and others. Such flexibility can offer significant cost-savings to these users. The BTI System can also reclaim all types of lamps safely without adjustment or additional costs. Facilitates Record-Keeping. Another advantage of the BTI System is that it provides the control to track all lamps as they are input into the machine. The system can also be designed to keep an automatic record of the number of lamps managed. Such tracking can facilitate the proper management of lamps as well as make it easier for lamp generators to respond to regulatory agencies. Facilitates Lamp Recycling. The end result of the BTI System process is a filter containing mercury separated from the glass and other lighting waste. The filter can be sent to a retorting facility to recover the mercury. The remaining lighting waste can now be recycled depending on the market conditions for recycling. If not

recycled, the material can be safely landfilled in a Subtitle D facility.

#### C. The BTI System Presents Virtually No Risk Concerns

In addition to providing solutions to the Lamp Management issues, the BTI system presents virtually no environmental risk to operate. **Air Emissions.** The BTI System crushes lamps in a water bath, resulting in reduced air emissions. The BTI System will meet all OSHA emissions standards, as well as more stringent standards from the California Environmental Protection Agency and the South Coast Air Quality Management District. The ventilation cycle is a suction system and includes high efficiency particulate (99.97% on 0.3u particles) and vapor filters. The system operates at all times the machine is in use and remains on for a period after use to purge the air left in the machine. Exhausted air is usually cleaner than the ambient air at the location. Moreover, as pointed out above, the BTI System reduces needless air emissions which occur during lamp storage and transportation. The ventilation system continues to operate after the cycle is completed to ensure that all fugitive emissions are trapped. **Water Discharges.** The BTI System uses a recirculating water pump unit with filters and there are no water discharges. Similar to the ventilation, the pump operates at all time the machine is in use and remains on for a specified period after use to purge the water. **Risks of Fire From Sodium Lamps.** The recirculating water process neutralizes sodium in sodium-containing lamps and protects against the risk of fire. The University-sponsored demonstration project and independent assessment of the BTI System in California will generate additional data on the BTI System. The assessment should be completed in early 1995 and we will provide the Agency with the results as soon as they are available.

#### RESPONSE

The Agency appreciate's the commenter's submission of information on lamp crushing technology. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. As the commenter is aware, the potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport due to breakage. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN FLEP-00185  
COMMENTER British Things, Inc.

SUBJECT CURRENT

COMMENT B. The Current Regulatory System is Inappropriate for Spent Mercury-Containing Lamps. The current regulatory system, in which lamps failing the TC are subject to full Subtitle C regulation, would also discourage the use of environmentally beneficial on-site management methods such as the BTI System. While current RCRA regulations allow certain types of on-site tank treatment for up to 180 days, many states do not allow such treatment without a permit. In these states, it is unlikely smaller lamp generators would spare the time and resources necessary, to obtain a permit to manage their lamp wastes. Thus, many parts of the country would not be able to cost-effectively use the BTI System. In addition, Subtitle C would not allow small generators to utilize mobile treatment units without obtaining a permit. This would essentially eliminate the use of mobile systems such as BTI's for on-site lamp management at multiple generator locations. Subtitle C also discourages the use of systems such as BTI by requiring stringent regulation of the separated lamp residues. Under the land disposal restrictions, lamp residues separated from the mercury and other contaminants in the BTI machine would not be allowed to be disposed of in a Subtitle D landfill, even though such residue easily passes the Toxicity Characteristic test for all contaminants of concern. The hazardous waste regulatory system under Subtitle C of RCRA was clearly not intended for wastes such as mercury-containing lamps. The entire structure of Subtitle C is primarily designed to protect soil and groundwater from the mismanagement of wastes. All of the available evidence on mercury-containing lamps points to air emissions from uncontrolled breaking of the product as the primary risk concern. Thus, Subtitle C provides stringent regulation in an area that is not the real concern and provides little regulation of inorganic air emissions. As an example, Subtitle C management encourages generators to store their lamps and ship off-site to a RCRA treatment, storage, or disposal facility (TSDF). However, both storage and off-site transportation represent the most likely situations in which lamps can break. Finally, as pointed out repeatedly by EPA in its proposal, the costs associated with management under Subtitle C discourages entities from replacing old, energy-inefficient lighting. Many generators of lamps are not generators of other hazardous waste streams and do not want to be viewed or regulated as such. If a safe, cost-effective

approach to controlling the associated with lamps is available outside of Subtitle C it will reap significant energy and environmental benefits.

#### RESPONSE

EPA agrees with the commenter that full Subtitle C regulation is inappropriate for hazardous waste lamps. EPA believes that the management requirements finalized today for hazardous waste lamps provide adequate protection of human health and the environment. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Studies also have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation. By removing some of the barriers to full Subtitle C management for lamps, the universal waste rule will minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining full Subtitle C control over final treatment and disposal (or recycling) for these lamps. Waste management costs under the universal waste rule are lower than the management costs associated with full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between mercury lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities, provided spent lamps are not accumulated for a period of time longer than one year. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

However, regarding the use of on-site crushing facilities, today's rule does not change existing requirements. The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes "any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume." The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN FLEP-00186

COMMENTER Building Owners or Managers Assn. Int.

SUBJECT CURRENT

COMMENT INTRODUCTION. Over the past several years, energy consumption and conservation in office buildings has been a growing concern for building owners, managers, and tenants. Building owners have been challenged to find and employ the most energy efficient, environmentally friendly technologies, without asking tenants to sacrifice quality. Lighting technology has sufficiently advanced in recent years to satisfy both conditions. Building owners and managers are able to retrofit lighting systems without compromising quality of light. Though the up-front costs can be high, payback may often be achieved in under three years -- and

with rebates and low-interest financing, sometimes in as little as one and a half years.

#### RESPONSE

EPA believes that today's rule may encourage greater participation in energy-efficient lighting programs. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. By allowing more flexibility in the management of hazardous waste lamps, participation in energy-efficient lighting programs may increase because the management standards are less stringent and less costly than full Subtitle C management standards. A significant number of commenters indicated that savings from reduced energy usage more than covers the cost of managing lamps as hazardous waste. Reduced management costs associated with the final hazardous waste lamps rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

Today's final rule is designed to reduce mercury emissions from hazardous waste lamps. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport. Studies also have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation.

DCN FLEP-00191

COMMENTER Utility Solid Waste Activities Group

SUBJECT CURRENT

COMMENT a. Crushing Can be Conducted on an Environmentally Sound Manner. EPA's analysis of lamp crushing technologies reveals that generators are perfectly capable of employing appropriate technologies to conduct crushing in a manner that is both protective of human health and the environment and cost-effective. See EPA Report, Evaluation of Mercury Emissions From Fluorescent Lamp Crushing, Control Technology Center (Feb. 1994)("Report"). EPA's Report points out that crushing of mercury-containing lamps serves two vital purposes: to recover mercury from the lamps and to reduce the volume of the lamps being disposed in landfills. Report at 8. According to the Report, recovery of mercury in lamps, which begins with crushing, is "desirable" as recovery results in a net reduction of mercury potentially capable of being released to the environment. Id. at 22. EPA's Report discusses at least two "well-controlled crusher systems" which use a vacuum collection

system to prevent release of mercury. Id. In both cases, the air is passed through a cyclone, a HEPA filter, and a carbon absorber before being exhausted . The cyclone removes glass particles; the HEPA filter removes the phosphor powder, which contains most of the mercury; and the carbon absorber captures mercury vapor. Id. at 22. These controls, the Report notes, reduce mercury levels near the crusher to "well below the 0.05 mg/m<sup>3</sup> OSHA, limit," which implies an emission reduction of at least 90 percent. Id. at 23 (emphasis added). Such crushers result in mercury emissions "well below" OSHA limits. Id. at 23. Thus, at a minimum, crushing can be conducted in an environmentally sound manner in these two types of units.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The final rule requires that spent lamps be managed in a manner that prevents mercury emissions.

The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 **FR** 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of



one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN FLEP-00191

COMMENTS Utility Solid Waste Activities Group

SUBJECT CURRENT

COMMENT It also is important for EPA to clarify -- as it has done in the past -- that not all activities that result in altering the physical characteristics of lamps is necessarily "regulated" treatment. Specifically, the Agency has explained on several occasions that the physical alteration of a material that is incidental (i.e., not intended) to transportation or collection is not "regulated" treatment -- i.e., in other words, a permit is not required for such unintended, incidental changes to the physical composition of a waste. See e.g. Letter from Skinner, Director, Office of Solid Waste, EPA, to Scarbrough, Chief, Residuals Management Branch, EPA Region IV (Nov. 26, 1984) (process that is simply to "facilitate disposal" does not constitute "treatment"); Letter from Williams, Director, Office of Solid Waste, EPA, to Manthey, GW Inc. (Sept. 19, 1985) (bulking and consolidating of waste from multiple generators in a single tanker truck does not constitute "treatment"); Letter from Lowrance, Director, Office of Solid Waste, EPA, to Jaekels, GSX Government Services, Inc. (March 1, 1990) (incidental effects of bulking of hazardous waste to facilitate transportation may not meet the definition of treatment, since there is no intent to render the waste nonhazardous or less hazardous). See Also *United States v. Great Lakes Casting Corp.*, No. 1:92-CV-645 (W.D. Mich. March 23, 1994). This point is

especially important in the case of lamps that are removed from service during relamping activities which, as a result of consolidation or transportation activities, may undergo changes in physical composition incidental to such activities. If such "changes" are purely incidental to the associated consolidation and/or transportation activities, then such activities do not fall within the definition of "treatment" as defined by EPA and do not trigger RCRA's permit requirements.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport.

Under today's final rule, lamps must be packed to minimize breakage and packaging materials must be designed to contain potential releases due to breakage during transport. Hazardous waste lamps must be stored in containers and/or packaging that remains closed, is structurally sound, adequate to prevent breakage, compatible with contents of lamps, and must lack evidence of leakage, spillage, or damage that could cause leakage under reasonably foreseeable conditions. Handlers must also contain any universal waste lamps that shows evidence of breakage, leakage, or damage that could cause the release of mercury or other hazardous waste to the environment. Prior to shipment off-site, handlers must store spent lamps in a manner that minimized breakage and prevents releases of mercury to the environment in the case of unavoidable breakage.

The universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The intentional crushing of hazardous waste lamps would clearly fall within the definition of treatment under RCRA (40 CFR 260.10).

Other activities may or may not constitute treatment depending on the specific activity. These decisions would be made on a case-by-case basis in consultation with the implementing agency. However, with respect to incidental breakage of hazardous waste lamps, the management practices contained in today's final rule are designed to minimize such changes.

DCN FLEP-00193

COMMENTS Sunset Lighting Services

SUBJECT CURRENT

COMMENT CRUSHING. Disposal often involves crushing the lamps on the generators site and transportation of crushed material to either Subtitle D disposal or to a recycler. Our company believes crushing reduces the volume of fluorescent lamps by greater than 90% and, reduces the storage and transportation costs. Crushing can be done safely with proper controls.

#### RESPONSE

The current universal waste rule prohibits universal waste handlers from treating universal wastes (40 CFR ' 273.11 and 273.31). The final rule for hazardous waste lamps retains the treatment prohibition for universal waste handlers and applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Any method, technique, or process...designed to change the physical, chemical, or biological character or composition of any hazardous waste, so as to neutralize such waste, or so as to recover energy or material resources from the waste, or so as to render such waste non-hazardous, or less hazardous; safer to transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume.@ The shredding or crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

Some commenters to the proposed spent mercury-containing lamps rule requested that the Agency allow generators of such lamps to crush them on-site before sending them off-site for treatment or disposal. However, as explained in the preamble to the final universal waste rule (60 FR 25519), the Agency believes that it is not appropriate to allow universal waste handlers to treat universal wastes because the handlers are not required to comply with the full Subtitle C hazardous waste management standards for generators (40 CFR Part 262). These hazardous waste generators must obtain EPA identification numbers, are subject to the 90-day (or 180-day) accumulation limit, and must comply with the technical standards of 40 CFR Part 265 for storage and accumulation units. Because these standards are relatively stringent, EPA's policy is that generators may treat hazardous wastes on-site, provided that they comply with all applicable requirements of 40 CFR Part 262 for storage and accumulation of hazardous wastes.

Universal waste handlers, on the other hand, are allowed a much longer accumulation time limit of one year and need not comply with specific technical standards for accumulation and storage units. Instead, they are subject only to the general performance standard of managing universal wastes in a manner that prevents releases@to the environment. In addition, information available to the Agency on drum top crushing systems for lamps indicates that these units may allow significant air emissions of mercury, particularly when the units are not in operation, and emissions often may exceed the OSHA limit of 0.05 mg/m<sup>3</sup>.

For these reasons, the Agency is not allowing crushing of hazardous waste lamps under Federal

regulations. However, generators located in a state with an authorized universal waste program may be allowed to crush universal waste lamps, if within the state authorization process the Agency determines that a state's program allowing generators to treat lamps under controlled or restricted conditions is equivalent (per RCRA ' 3006) to the Federal prohibition. EPA believes that this approach both ensures protection of human health and the environment while allowing for the development of state regulatory programs that include specific standards for the safe crushing of hazardous waste lamps.

DCN FLEP-00210

COMMENTS Tampa Electric Company

SUBJECT CURRENT

COMMENT Disposal of fluorescent lighting waste in processable municipal solid waste (MSW) dumpsters by commercial or industrial generators was prohibited in Tampa and Hillsborough County as of July 1, 1994. The purpose of the ordinance was to reduce mercury emissions in the area by minimizing the number of mercury containing devices incinerated in MSW incinerators. In order to encourage universal compliance with this ordinance, the City of Tampa initiated a public education campaign. The campaign has been a team effort supported by representatives of regulatory agencies and local industries. Tampa Electric Company was asked to be a member of the team. As part of the campaign, the City of Tampa has agreed, on a temporary basis, to pay the costs for recycling fluorescent lighting waste diverted from the processable MSW waste stream by commercial and industrial generators. Tampa Electric was asked to identify large customers who had expressed interest in relamping their facilities, in accordance with the EPA Green Lights program.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport. Studies also have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation. The final rule allows more flexibility in the management of hazardous waste lamps and may encourage greater participation in energy-efficient lighting programs.

Adding hazardous waste lamps to the universal waste rule will improve waste management

practices for lamps. The universal waste rule represents a significant cost reduction over full Subtitle C management requirements of generators, collectors, and transporters. Fewer hazardous waste lamps should be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and decreasing the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

The Agency notes that although today's final rule provides a reduced set of management standards for the management of spent lamps at the Federal level, state and local regulations may be more stringent. Given that today's rulemaking is less stringent than the previous regulations governing the management of hazardous waste lamps, state agencies are not required to seek authorization for the new requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00211

COMMENTS Active Electric Supply, Inc.

SUBJECT CURRENT

COMMENT On July 1, the State of Florida's legislation on disposal of mercury-containing lamps went into effect. At that time there wasn't any notice sent to any generators of mercury-containing lamps. The notice was via the recycling centers trying to drum up business. With the increased interest in recycling lamps, Active Electric decided to provide a vehicle for our customers to dispose of their mercury-containing lamps. Our company has had significant difficulty obtaining consistent advice from regulatory agencies in the proper procedures for disposing of lamps. Each government agency seems to have a different interpretation of requirements, providing little confidence that we are in compliance. When we applied and received our Consolidator and Transporter EPA ID# what we received back was that we were a "non-hauler". That is a very confusing term to a customer. We have been consolidating and transporting for our customers since July 1, 1994. Our recycler picks up from us once a week. It has worked very well for us and our customers. We feel that the EPA could make the paperwork much easier.

#### RESPONSE

Today's rule ensures protection of the environment while reducing the regulatory burden for generators and transporters previously required to manage spent lamps in accordance with full Subtitle C hazardous waste regulations. Hazardous waste lamps are now subject to reduced regulatory requirements which provide a simple and consistent management scheme to facilitate the proper disposal or recycling of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule

provides a streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The universal waste rule represents a significant cost reduction over full Subtitle C management requirements of generators, collectors, and transporters. Fewer hazardous waste lamps should be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and decreasing the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

The universal waste rule includes a basic recordkeeping requirement to track waste shipments arriving at and leaving from handlers of large quantities of universal waste (i.e., one who accumulates greater than 5,000 kg total universal waste at one time). The required records make take the form of a log, invoice, manifest, bill of lading, or other shipping document and are to be maintained for three years. The Agency believes that standard business records that would normally be kept by any business will fulfill this requirement.

Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level; however, individual states may have more stringent requirements for the management of this waste. Today's rule becomes effective only in states that are not authorized for the Federal full Subtitle C hazardous waste program. It will not be immediately effective in authorized states since the requirements are not promulgated pursuant to HSWA. These requirements will not be effective in authorized states until such states revise their solid waste management programs to adopt equivalent requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00214

COMMENTS American Municipal Power-Ohio, Inc.

SUBJECT CURRENT

COMMENT AMP-Ohio appreciates that USEPA has recognized the disincentives to relamping with more efficient light bulbs when the spent bulbs are fully regulated as Subtitle C hazardous waste. The problem is even more severe in Ohio, where state regulations require conditionally exempt small quantity generators (CESQGs) to dispose of all hazardous wastes at Subtitle C facilities. Many of our members and their retail customers are small enough (less than 350 four foot fluorescent lamps) to relamp and remain a CESQG. Others choose to relamp incrementally (staying under the 100 kg per month CESQG ceiling) to spread capital costs. Even though current Federal rules allow disposal of spent lamps from these facilities as municipal solid waste, state rules do not.

RESPONSE

Under RCRA, generators who generate less than 100 kg per month of hazardous may be excluded from the Federal full Subtitle C hazardous waste management requirements. Today's final rule governing the management of hazardous waste lamps does not affect this provision. Such generators are not required to comply with the management provisions finalized today for spent lamps. These generators may, however, be subject to applicable state regulations, which may be more stringent than the Federal regulations governing small quantity generators. Although the Agency acknowledges that some municipal solid waste landfills prohibit the disposal of CESQG waste, the existing regulations for CESQGs do not include a time limit for the storage of waste, therefore allowing these facilities sufficient time to properly dispose or recycle their waste.

In addition, the regulations promulgated today for the management of hazardous waste lamps are less stringent, and therefore less burdensome, than the current Federal regulations governing the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. Under the universal waste rule, all generators of hazardous waste lamps, regardless of the quantity of lamps generated in any given month (and regardless of the quantities of other hazardous wastes generated in any given month) may manage their spent lamps in accordance with today's streamlined provisions.

The Agency notes that although today's final rule provides a reduced set of management standards for the management of spent lamps at the Federal level, state regulations may be more stringent. Given that today's rulemaking is less stringent than the previous regulations governing the management of hazardous waste lamps, state agencies are not required to seek authorization for the new requirements. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN FLEP-00217

COMMENTER Lighting Management, Inc.

SUBJECT CURRENT

COMMENT In the past two years, we have developed major headaches in the area of ballast and lamp disposal. Due to the fact that there is an accepted general consensus and documented paperwork detailing how PCB must be disposed of, the ballast problem has basically been resolved. There are written rules stating that all ballasts which are not stamped ("NO PCB's") must be handled as PCBs. That makes it clear! The end users have written direction of how things must be done. The disposal companies have policies on how they must truck, dispose, incinerate, recycle and generate manifestation paperwork. This makes it easy because there is specific direction.

RESPONSE

Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level. Today's final rule adds hazardous waste lamps to the scope of

the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. Today's rule ensures protection of the environment while reducing the regulatory burden for generators previously required to manage spent lamps in accordance with the Federal Subtitle C hazardous waste regulations. Generators of hazardous waste lamps are now subject to reduced regulatory requirements which provide a simple and consistent management scheme to facilitate the proper disposal or recycling of hazardous waste lamps.

DCN SCSP-L0007

COMMENTS Large Public Power Council

SUBJECT CURRENT

COMMENT Currently, most of these wastes are either managed under the Subtitle C regulatory regime or are managed in the municipal waste stream. Both of these management alternatives are problematic. Management of these wastes in the municipal waste stream poses environmental risks and potential liability for clean-up and corrective actions at municipal waste disposal facilities which were not designed for hazardous wastes. On the other hand, the imposition of complex and burdensome Subtitle C regulatory requirements not only is a disincentive to the recycling of these wastes, but also threatens to become a serious disincentive to the implementation of energy efficiency and conservation programs. Under the current Subtitle C regulatory scheme, an entity who wants to collect these wastes at a central collection point will most likely be required to obtain a permit as a RCRA storage facility. This is an immense regulatory burden that has and will continue to dissuade such collection. Consequently, each generator of such wastes will either 1) dispose such wastes as a Conditionally Exempt Small Quantity Generator (CESQG), or under the Household Hazardous Waste exemption, creating the high likelihood such wastes will enter the municipal waste stream, or 2) in the alternative, will accumulate such wastes - triggering notification, manifest, land ban and other RCRA requirements - and dispose the wastes by sending them to a qualified hazardous waste disposal facility. In either case, the opportunity to recycle these wastes is lost. In the latter, compliance costs are high and commensurate protection of human health and the environment is marginal. These costs can also be a real deterrent for a commercial, industrial, or other entity which is considering whether to undertake an energy efficiency and conservation program within buildings or other facilities it owns.



## RESPONSE

EPA agrees with the comments that the current management scenarios are not working as well as the Agency would like for lamps. Therefore, today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport.

Today's final rule allows more flexibility in the management of hazardous waste lamps and should encourage greater participation in energy-efficient lighting programs. The universal waste rule should encourage participation because standards are less stringent and less costly than full Subtitle C management standards. A significant number of commenters indicated that savings from reduced energy usage more than covers the cost of managing lamps as hazardous waste. Reduced management costs associated with the final hazardous waste lamps rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

Under RCRA, generators who generate less than 100 kg per month of hazardous may be excluded from the full Subtitle C hazardous waste management requirements. Today's final rule governing the management of hazardous waste lamps does not affect this provision. Such generators are not required to comply with the management provisions finalized today for spent lamps although they may choose to handle their lamps under the universal waste program. These generators may, however, be subject to applicable state regulations, which may be more stringent than the Federal regulations governing conditionally exempt small quantity generators. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the Federal universal waste program.

DCN SCSP-L0009

COMMENTER National Electric Manufacturers Assn.

SUBJECT CURRENT

COMMENT The current confusion about the regulatory status of lamps and the unavailability of storage facilities is adding to the delays. In addition, spent lamps are generated by businesses unaccustomed to managing hazardous waste, and thus the stigma effect and potential future liability are very real disincentives to upgrading lighting systems. Further, NEMA is aware that at least 13 electric utilities have sent letters informing you of their reluctance to participate fully, if at all, in EPA's Green Lights program if they are forced to manage

used lamps containing mercury as hazardous waste.

#### RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport. Studies also have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation.

Today's final rule may reduce much of the current confusion over the regulatory status of spent lamps, at least at the Federal level. Today's rule ensures protection of the environment while reducing the regulatory burden for generators previously required to manage spent lamps in accordance with the full Subtitle C hazardous waste regulations. Generators of hazardous waste lamps are now subject to reduced regulatory requirements which provide a simple and consistent management scheme to facilitate the proper disposal or recycling of hazardous waste lamps.

Today's final rule allows more flexibility in the management of hazardous waste lamps and should encourage greater participation in energy-efficient lighting programs. The universal waste rule should encourage participation because standards are less stringent and less costly than full Subtitle C management standards. A significant number of commenters indicated that savings from reduced energy usage more than covers the cost of managing lamps as hazardous waste. Reduced management costs associated with the final hazardous waste lamps rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN SCSP-00154

COMMENTS Lighting Recycling, Inc.

SUBJECT CURRENT

COMMENT Lighting Recycling, Inc. (LRI) is a start-up company which has been working for the last 12 months to establish a regional facility in New England for the collection and recycling of fluorescent and other mercury-bearing lamps. The company has identified safe and effective technology for the recycling of these wastes. It has also found many potential customers, who would use such a service if they believed EPA was serious and committed to enforcing the hazardous waste laws against generators of fluorescent lamp waste (which clearly is characteristically toxic for mercury when correctly tested under TCLP using the recommended protocols developed by SAIC).

## RESPONSE

Today's final rule adds hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements, but also allows the Agency to set specific management standards to control potential emissions. The potential for mercury emissions occurs when hazardous waste lamps are not managed in a protective manner. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport. The universal waste rule provides standards to minimize mercury emissions during storage and transport. Today's final rule allows more flexibility in the management of hazardous waste lamps and may encourage greater participation in energy-efficient lighting and/or recycling programs.

Today's final rule will facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps. Less complex and less costly regulations will increase collection of universal wastes, and the ability to access large quantities of universal waste from central collection centers may encourage the development and use of safe and effective ways to recycle universal waste. Under the universal waste approach, hazardous waste lamps ultimately must be managed at RCRA Subtitle C hazardous waste facilities. One reason the Agency did not choose to promulgate a conditional exclusion was the difficulty in monitoring compliance and enforcing controls if handlers were completely outside the RCRA Subtitle C system.

DCN SCSP-00199

COMMENTS Minnesota Office of Waste Management

SUBJECT CURRENT

Minnesota's Management Requirements for Mercury-Containing Lamps

The 1992 Minnesota Legislature directed the Office of Waste Management to undertake a study of fluorescent and HID lamp management and make recommendations for ensuring that the toxic materials contained in lamps are recycled, reused, or otherwise managed to ensure that they are not placed in the solid waste stream or a waste water disposal system.

The report recommended that fluorescent and HID lamps be separately collected and managed. The report identified recycling as the preferred management option, and hazardous waste disposal was identified as the only other acceptable management option. A copy of the report is included with these comments.

The 1993 Minnesota Legislature is expected to pass a law by late May prohibiting the disposal of both household and commercially generated fluorescent and HID lamps in municipal solid waste as of August 1, 1994. Continuing to allow lamp management in MSW as the rule suggests would not help Minnesota generators.

## RESPONSE

EPA thanks the state of Minnesota for their comments on their study and report about hazardous waste lamps. EPA has decided to add hazardous waste lamps to the scope of the universal waste rule, 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of

requirements, but also allows the Agency to set specific management standards to control potential emissions. The universal waste rule provides standards to minimize mercury emissions during storage and transport. Today's final rule allows more flexibility in the management of hazardous waste lamps and may encourage greater participation in energy-efficient lighting programs.

Today's final rule will facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps. Less complex and less costly regulations will increase collection of universal wastes, and the ability to access large quantities of universal waste from central collection centers may encourage the development and use of safe and effective ways to recycle universal waste. Ultimately, the lamps must still be managed in a RCRA hazardous waste facility (i.e., destination facility) under the universal waste program.