DCN FLEP-00001
COMMENTER Missouri Department of Natural Resources
SUBJECT EXCL1
COMMENT In spite of the further reduced workload and business cost that would result from the exclusion of mercury lamps, the Hazardous Waste Program is not comfortable with excluding from regulation a waste stream which is clearly a characteristic hazardous waste. Excluding the waste from regulation will encourage disposal, and waste a valuable renewable resource. Option 2 is the best of the alternatives offered.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00002
COMMENTER Ward Paper Company
SUBJECT EXCL1
COMMENT With respect to the disposal of fluorescent lamps, I would encourage the EPA to pursue its proposal to declassify fluorescent light bulbs as a hazardous waste, provided said bulbs are disposed of at a composite lined landfill meeting the

latest solid waste requirements, or by recycling the bulbs at a permitted facility. Fluorescent bulb management by the regulated community would be greatly simplified.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00004

COMMENTER Dial Corporation

SUBJECT EXCL1

COMMENT We support Option 1, to exclude mercury containing lamps from being regulated as hazardous wastes. We oppose Option 2.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds

hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00004
COMMENTER Dial Corporation
SUBJECT EXCL1
COMMENT DISCUSSION. Prior calls to the EPA RCRA Hotline, asking if spent fluorescent tubes were regarded by EPA as hazardous wastes, were not answered. Instead we were told, "It is a generator's obligation to determine if generated wastes are hazardous." Not a very helpful answer. We have contacted lamp suppliers to find out if used mercury containing spent lamps fail TCLP for mercury. What we were told is "the jury is still out," i.e., some lamps pass, some fail, even in a given batch. Thus we were given no clear direction from lamp suppliers as to whether or not spent lamps should be handled as RCRA hazardous wastes. We were told that newer fluorescent tubes, while still containing mercury, have a much lower level than older tubes. The vast majority of spent mercury containing lamps are generated by offices, governments, stores, large and small businesses which are currently normally exempt from RCRA regulations (40 CFR 262). These businesses mainly put spent lamps in their trash and will continue to do so after this rule is finalized. Therefore this rule, regardless of its outcome, will have very little practical effect in better managing spent lamp disposal in general. Given this reality, it seems to be in the best interests of EPA to produce as simple a rule here as possible for the extremely minor universe of spent lamps that will be impacted by this rule. Option 1 of the proposed rule is

therefore superior to Option 2.

RESPONSE

Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. The Agency is clarifying that all waste lamps exhibiting any hazardous waste characteristic for mercury or any other hazardous constituent fit the definition of hazardous waste lamps. Spent lamps that do not exhibit any hazardous waste characteristic are not subject to Subtitle C regulation or universal waste management regulations. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Prior to today=s final action, spent lamps that failed the toxicity characteristic leaching procedure (TCLP) test were subject to full Subtitle C management requirements, unless the lamps were generated by a household or a conditionally-exempt small quantity generator (a generator of less than 100 kilograms of hazardous waste in a calendar month). EPA recognized the confusion and mismanagement patterns historically associated with maintaining spent mercury-containing fluorescent lamps within the Subtitle C system. The Agency is taking today=s final action of adding hazardous waste lamps to the scope of universal waste regulations in an effort to streamline the current regulations governing the management of hazardous waste lamps, increase lamp management efficiency, and ultimately to cause a potential reduction in aggregate mercury emissions. Under the universal waste system, conditionally-exempt small quantity generators (CESQGs) can choose to manage their universal waste lamps as hazardous waste in accordance with the CESQG regulations under 40 CFR 261.5 or as universal waste under Part 273 (40 CFR 273.8(a)(2)).

DCN FLEP-00006
COMMENTER Owens Brockway Glass Container Inc.
SUBJECT EXCL1

COMMENT Owens Brockway concurs with the EPA proposed exclusion of used mercury-containing lamps from hazardous waste regulation as being the most effective procedure for reducing mercury emissions to the environment. Although the second option potentially ensures lower emissions through restriction on the landfill disposal of waste, mercury-containing lamps, it appears the greatest overall reduction in mercury emissions would result from increased participation in energy efficient lighting program through adoption of Option 1, the exemption of spent lamps from the hazardous waste regulations.

Owens Brockway feels that the greatest participation in energy efficient lighting programs such as Green Lights will occur if Option I is adopted. This position is based on the choices that companies will have to make with regards to economics and time allocation as a result of the proposed Options. As companies operate in an increasingly competitive economic environment, consistent low cost delivery of products is of paramount importance.

Owens Brockway concurs with Option I due to the fact that economic and efficient landfill disposal of potentially hazardous and non-hazardous mercury-containing lamps would result in the greatest reduction of mercury released into the environment via increased participation in energy efficient lighting programs

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Studies have shown that participation in energy-efficient lighting programs reduces potential mercury (as well as other pollutant) air emissions associated with the burning of fossil fuels for electricity generation. The amount of air emissions associated with the generation of electricity will continue to decrease with continual declines in the demand for electricity due to participation in energy-efficiency programs. Today's final rule allows more flexibility in the management of hazardous waste lamps by providing reduced management standards for handlers of hazardous waste lamps. Therefore, today=s final rule may encourage greater participation in energy-efficient lighting programs.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00007
COMMENTER Gates Corporation
SUBJECT EXCL1
COMMENT 2. Gates supports EPA's conditional exclusion alternative. EPA proposes two alternatives for the management of lamps that fail the TCLP test because of their mercury content. The first alternative is the "conditional exclusion" alternative. This alternative would regulate the lamp waste as solid waste under Subtitle D of RCRA. The second alternative would incorporate the lamps into EPA's "universal waste" system. It would create a new, somewhat less stringent regulatory scheme for lamps under

> Subtitle C's hazardous waste program. Gates supports the first alternative. It believes that the first alternative is more appropriate in view of the lamps' low environmental risk. EPA's proposal indicates that mercury is not a significant ground water contamination issue even at uncontrolled Superfund sites, let alone at well managed municipal solid waste landfills. The proposal convincingly demonstrates that the mercury in the lamps will not pose a significant threat to human health or the environment if the lamps are managed in the solid waste system. The conditional exclusion alternative also avoids the costly complexity associated with the Subtitle C program.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency believes that management controls for hazardous waste lamps are necessary to minimize releases of mercury and other hazardous constituents to the environment during lamp accumulation and transport, to ensure safe handling of such lamps, and to keep hazardous waste lamps out of municipal waste facilities (both landfills and solid waste incinerators). Mercury is high on the Agency=s priority list of toxic pollutants, along with other heavy metals such as cadmium and lead. These metals have been identified as constituents of some waste lamps. The primary health effects from mercury are on the neurological development of children exposed through fish consumption and on fetuses exposed through their mother=s consumption of fish.

As required by the Clean Air Act Amendments of 1990, the Agency issued the *Mercury Study Report to Congress*. The study estimates the quantity of mercury emissions to the air from a number of human activities, estimates the health and environmental impacts associated with these mercury emissions, and describes the technologies available to control mercury emissions from these sources. The report concludes that there is cause to seek further reductions in mercury releases and exposures to mercury.

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Spent mercury-containing lamps are a significant source of mercury in the municipal solid waste stream, possibly accounting for as much as 3.8 percent of all mercury now going to municipal landfills. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes.

DCN FLEP-00008
COMMENTER Continental Lighting Services, Inc.
SUBJECT EXCL1
COMMENT I am writing to urge you not to relax current RCRA standards for lamps containing mercury. The incentives for business and industry are adequate and the costs for proper disposal are more than offset by avoided costs in utility expenses.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards) for handlers and transporters but still requires ultimate disposal as hazardous waste.

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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00009
COMMENTER Repap Wisconsin, Inc.
SUBJECT EXCL1
COMMENT In response to your request for comments regarding the disposal/recycling of fluorescent lamps, Repap Wisconsin Inc. a coated paper production facility, producing 1400 tons per day of coated paper and employing 1200 people would favor a proposal whereby fluorescent bulbs could be disposed of at a composite lined landfill meeting current requirements or treatment by a permitted recycling facility.

On the other hand, we believe that a non-punitive alternative to recycling needs to be available to businesses that do not have ready access to the recycling choice. We believe that required use of a hazardous waste disposal facility (landfill) is an expensive, restrictive alternative and that an up-to-date landfill can adequately protect the environment from contamination from fluorescent bulb disposal.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management

of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The deposition of atmospheric mercury into surface waters, its presence in runoff from soil, or the recycling of mercury from sediment into the water column can result in the accumulation of the metal in many animal species, particularly aquatic organisms. The EPA has recently published a Mercury Study Report to Congress (December 1997) that examines many of the health effects resulting from mercury exposure. Examples of mercury-related risks include neurotoxicological problems and developmental effects in fetus and adults (e.g., AMad Hatters= disease), and accumulation of the metal in many animal species, particularly aquatic organisms. For example, fish with high levels of mercury in their tissues have exhibited increased mortality, reduced reproductive success, impaired growth, and behavioral abnormalities.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00010
COMMENTER Wisconsin Public Service Corporation
SUBJECT EXCL1
COMMENT Recently, the USEPA requested input from concerned parties regarding two proposed options that would reduce the regulatory

burden for the management of mercury containing lamps. Wisconsin Public Service Corporation (WPSC) can comment on the issue from a unique perspective because the Wisconsin Department of Natural Resources (WDNR) has already published guidance which is very similar to one of the EPA's proposed options. The policy in Wisconsin for all intents and purposes is the same as the EPA's proposal to move the management of lamps under the Universal Waste Rule. Based on experience with this approach, WPSC urges the EPA to adopt an exclusion from regulation as hazardous waste if the waste is disposed in a municipal landfill.

Allowing disposal of lighting waste in municipal landfills will also help to promote the EPA's Green Lights-program. It is important that unnecessary regulations that impede the implementation of these programs be removed as soon as possible. The regulation of lighting wastes has affected our conservation programs as well as the EPA's Green Lights program. The costs of managing lighting wastes and additional work required to manage these wastes as a Universal Waste, although better than the existing situation, may cause companies to forfeit important lighting upgrades that would result in overall air emission savings. The EPA's Green Lights program will not achieve their full potential unless EPA excludes lighting wastes which are disposed in municipal landfills.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency

savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00011
COMMENTER General Motors
SUBJECT EXCL1
COMMENT GM strongly supports proposed Option One: the exclusion of mercury lamps from regulation as hazardous waste, provided that they are disposed or recycled under certain conditions. Our comments on these conditions are outlined below. Management Options (Page 38293) Option One: Conditional Exclusion (page 38293) GM agrees that available data supports the expectation that the amount of mercury released from mercury-containing lamps in MSW landfills is very small. We also agree that limiting disposal to only MSW landfills (or recycling at approved facilities) will provide further assurance that human health and the environment will be protected. The new requirements for MSW landfills promulgated on October 9, 1991 provide the essential controls, including location, design and operation, groundwater monitoring, corrective action, financial assurance, and closure conditions. We therefore strongly support the basic concept of Option One, including the conditions that (1) mercury-containing Lamps be disposed only in municipal solid waste landfills permitted under an EPA-approved MSW permitting program, or sent to state permitted, licensed, or registered mercury reclamation facilities; and (2) that generators be

required to keep records of shipments to management facilities.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency has decided to retain the current tracking requirements in Subpart D of Part 273 for hazardous waste lamps. Under the universal waste system, hazardous waste manifests need not accompany off-site shipments of universal waste. Small quantity handlers (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not required to keep records of shipments of universal waste lamps. Large quantity handlers (those who handle more than 5,000 kilograms of total universal waste at one time) must track waste lamp shipments by

maintaining records documenting shipments received by and sent from the facility. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The Agency believes that standard business records that are normally kept by businesses will fulfill this requirement.

DCN FLEP-00012
COMMENTER Arkansas Dept. of Poll. Cont. and Ecol.
SUBJECT EXCL1
COMMENT The main problem with option one is its lack of control, allowing mercury to be released into the environment. Allowing mercury- containing lamps to be crushed in landfills will allow not only land and water mercury pollution but also would allow mercury air pollution. This lack of control of mercury pollution rules out option one.
RESPONSE
The Agency appreciates the commenter's support of the proposed universal waste option. In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00013
COMMENTER Coors Brewing Company
SUBJECT EXCL1
COMMENT Coors Brewing Company supports the first management approach

(Option 1) postulated: A conditional exclusion for mercury-containing lights from regulation as a hazardous waste. We believe your data sufficient to no longer consider these lights as hazardous waste provided that they are managed under the two conditions described on pages 38293 and 38294.

Coors notes your several requests for comment on other items in the Proposed Rules concerning notification, collection and management of mercury-containing lights. We would comment only that the approaches to these and other related issues should be such as to advance and complement your basic intent, which is to encourage increased participation in Green Lights and other programs which have a positive impact on the environment. EPA's efforts to simplify and clarify the procedures and to make the management and disposal less burdensome should be paramount.

RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds all hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00014
COMMENTER Diversey Corporation

SUBJECT EXCL1
COMMENT In summary, Diversey Corp. recommends that the EPA consider the exclusion of mercury containing lamps from the regulation as a hazardous waste provided these lamps are disposed of in municipal landfills that are permitted with the EPA or a state approved municipal landfill.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00015
COMMENTER USPCI
SUBJECT EXCL1
COMMENT On July 27, 1994 (59 FR 38228), EPA published a Proposed Rule which would modify the hazardous waste program with respect to the characterization and/or handling of mercury containing lamps. USPCI wishes to comment on that proposal. EPA's proposed rule contains two alternative management options. Under the first option, mercury containing lamps would be excluded from the definition of hazardous waste. The exclusion would only apply if generators complied with two conditions. First, the lamps would have to be either disposed in an MSW landfill which

has been permitted by a state/Indian tribe under an EPA approved permitting program, or state permitted mercury reclamation facility. The second condition would require generators to maintain certain records of lamps sent to management facilities.

There are several problems with EPA's proposal to exclude mercury lamps from the definition of hazardous waste. First, if financial benefits for generators who switch to energy efficient lights are as stated, the cost of disposal in hazardous waste landfills versus MSW landfills should not be a disincentive. This is due to extreme pricing pressures in the hazardous waste marketplace which has reduced pricing for hazardous waste lamp disposal.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00015
COMMENTER USPCI
SUBJECT EXCL1

COMMENT Finally, EPA admits that "further analysis may be needed on the behavior and movement of mercury in municipal landfills and in groundwater...." USPCI believes that the decision to exclude mercury lamps should be based on data which EPA believes is complete, not on partial data. In conclusion, USPCI believes that the proposal to exclude mercury lamps from the definition of hazardous waste is not adequately supported by appropriate justification.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment in part because of remaining concerns over the long-term potential of mercury to release from landfills. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from

the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00016
COMMENTER Illinois Power Company
SUBJECT EXCL1
COMMENT Many electric utilities are involved in demand side management programs that replace large numbers of existing lighting systems with energy efficient systems. These programs are coincidental with USEPA's "Green Lights" initiative. IP is concerned that management of lighting wastes under RCRA Subtitle C will negate the cost effectiveness of energy conservation programs for utilities and their customers. The Edison Electric Institute has predicted that reduced implementation of energy saving programs will result in more mercury emissions to the environment via increased electrical generation than would be avoided by Subtitle C land disposal management. Given USEPA mercury migration studies that indicate mercury's inability to migrate readily through soil, exemption from Subtitle C with management standards requiring disposal in a Subtitle D specification landfill yields a lower exposure risk to human health and the environment.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The

Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00016

COMMENTER Illinois Power Company
SUBJECT EXCL1
COMMENT Further, small business is an integral part of IP's service territories as in the economy at large. IP believes a de minimis level (at least 220 lbs/mo.) of lighting waste should remain fully excluded from Subtitle C regulation. A de minimis level for such small volume generators demonstrates RCRA's priority in requiring responsible management by large quantity generators as opposed to placing excessive regulatory burden on small generators and their limited resources.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. Today's rule does not affect the current hazardous waste generator status determination. Generators of less than 100 kg per month of hazardous waste (or 220 lbs/mo) remain conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 for conditionally exempt small quantity generators (CESQGs) are met. CESQGs have the option of managing their hazardous waste lamps under '261.5 or as universal waste under 40 CFR Part 273.

DCN FLEP-00017
COMMENTER Charles W. Knight
SUBJECT EXCL1
COMMENT Mercury-containing lamps should be excluded from Hazardous waste regulation for several reasons. The lamps contain a de minimus amount of mercury and potential impact on human health and environment are extremely minute.

The new landfills which meet Subtitle D requirements are essentially equal to Subtitle C facilities, and any mercury which might subsequently leach out would be contained and removed prior to causing any environmental release. Disposal of these lamps in Subtitle D facilities would, therefore, offer adequate environmental protection.
RESPONSE
Studies have shown that mercury-containing lamps often exhibit the hazardous waste toxicity characteristic for mercury and sometimes for lead. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency does not have extensive data characterizing the behavior of mercury released from

spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00018
COMMENTER Sony Electronics, Inc.
SUBJECT EXCL1
COMMENT As a company involved in the Green Lights Program, we actively support EPA's initiative in developing alternative approaches for the management of mercury-containing lamps. Our site's across the USA have experienced various levels of difficulty associated with lamp disposal during major lighting upgrade efforts. Depending on the amount of bulbs involved in variations in State rules, and the proximity or availability of bulb recycling and/or disposal options, managers currently can face serious disincentives when evaluating the disposal costs of a Green Lights proposal. It is clear that combustion of coal, for the generation of electricity, contributes significant amounts of air borne mercury. Reducing electrical demand therefore has an immediate and beneficial environmental impact. Evidence also supports EPA's conclusion that mercury wastes in a properly managed landfill pose a very low and acceptable risk. Hence expansion of energy efficient lighting upgrades, supported by low cost but appropriate disposal or recycling options for older lamps, needs to be strongly encouraged. Option 1, a conditional exclusion, affords a readily available, relatively low cost option to all sites contemplating Green Light upgrades. It

minimizes paper work and tracking burdens which consume more and more of company time and resources. And most importantly, it serves to have a very positive effect on the environment in terms of controlling mercury emissions.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency

savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00019
COMMENTER United States Air Force
SUBJECT EXCL1
COMMENT 1. Proposed Option 1 (i.e Conditional Exclusion) is the preferred option for the management of mercury-containing lamps. Because option 1 results in much greater compliance savings in comparison to Option 2 (Universal Waste Management System/Universal waste) , Option 1 is more likely to promote greater participation in EPA' s "Green Lights" program. Further, Option 1 imposes the fewest and least exigent additional requirements on the already heavily regulated community while still accomplishing the desired environmental protections.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage

trucks) will decline.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00020
COMMENTER Deere and Company
SUBJECT EXCL1
COMMENT We encourage EPA to promulgate the exemption for mercury-containing lamps to ensure their proper, economical disposal and recycling. After reviewing the proposed options, we recommend selection of Option 1. It would place the lowest burden on the generator, yet still protects the environment. Your own data show that disposal of these lamps, in properly designed Subtitle D landfills does not pose a risk to the environment. The greater flexibility and reduced cost allowed by Option 1 make it the preferred option.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term

and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00021
COMMENTER Indianapolis Power and Light Co.
SUBJECT EXCL1
COMMENT The Indianapolis Power & Light Company strongly supports the conditional-exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

The proposed exclusion is grounded on a compelling technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010. Regulation of mercury-containing lamps under a hazardous waste regime is not only unnecessary, but equally important such regulation impedes Indianapolis Power & Light Company's full participation in Green Lights and other energy-efficient relamping programs. The cost of managing lighting wastes as hazardous makes participation in relamping programs economically impractical, both for the electric utility and any large customer which chooses to participate in these

programs on their own. EPA itself acknowledges in the proposal that "the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy- efficient light technologies." 59 Fed. Reg. 38288, 38290 (July 27, 1994). EPA's assessment is correct. Because of these costs, Indianapolis Power & Light may simply shift its DSM dollars to other DSM efforts and forego Green Lights and similar DSM programs altogether. The conditional exclusion will remove the major cost impediment to participating in energy efficient relamping programs that Indianapolis Power & Light Company and its customers would otherwise undertake.

Keeping lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record is clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system. EPA itself has stated in a recent letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels." EPA letter dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to Alabama Department of Environmental Services. Indianapolis Power & Light Company agrees with this assessment and believes that this conclusion, coupled with the fact that spent lamps can be safely managed-in qualified MSWLFs, clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other DSM programs are removed. Failure to pursue the conditional exclusion will result in a continuing reluctance by electric utilities and their customers to participate in energy efficient relamping programs. As a result, EPA and the country will needlessly forfeit significant reductions in air emissions

that are otherwise available through full participation in energy-efficient relamping programs.
As Manager of Environmental Affairs, I will be unable to continue to encourage IPL's participation in "Green Lights" unless mercury-containing lamps are declared not subject to Subtitle C regulation. I believe this would be unfortunate, but unavoidable unless EPA makes the correct ruling.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels

for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00022
COMMENTER Cooper Industries
SUBJECT EXCL1
COMMENT We have also committed, as a Green Lights partner, to voluntarily upgrading to more efficient lighting where economically feasible; however, it can be very difficult to justify upgrade projects because the cost to property dispose-of lamps at a recycler or Subtitle C landfill is substantial since the Green Lights program fits in with our philosophy of waste elimination at the source, we would be disappointed to see the program not succeed due to unnecessarily high lamp disposal costs. Cooper Industries strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle

> C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental, benefit achieved. In fact, U.S. lamps contain less than 0.2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from the landfilling of lamps (0.04 to 0.31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion rather than on unnecessarily regulating a minor mercury source such as fluorescent lamps. Cooper has had significant difficulty obtaining consistent advice from regulatory agencies in the proper procedures for disposing of lamps. In fact, similar to what industry is experiencing, most state agencies with whom Cooper has talked are anxiously awaiting the EPA's decision so they know how to property handle their own mercury-containing lamps. EPA should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefits of energy efficient relamping by promulgating a conditional exclusion.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a

more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste

Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

The Agency notes that many states have already adopted or are considering adopting universal waste standards for spent lamps. Since this rule is not promulgated pursuant to HSWA it is applicable on the effective date only in states that do not have final RCRA authorization. Authorized states that wish to adopt this rule will have to seek authorization for the adoption of spent lamps to their universal waste programs. Today=s rule is also less stringent than the current federal program. States are not required to adopt less stringent regulations, and therefore, need not adopt the universal waste regulations for spent lamps. However, EPA strongly encourages them to do so, not only to achieve the most benefits of the universal waste program but also to reduce the complexity of interstate transportation of these universal wastes.

DCN FLEP-00023
COMMENTER Kmart Corporation
SUBJECT EXCL1
COMMENT Kmart Corporation strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills making RCRA Subtitle C landfilling unnecessary. Moreover, relative to air emissions, Subtitle C does not offer significant protection over that offered by RCRA Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, U.S. lamps contain less than 0.2 % of total mercury in the environment and account for only 3.8 % of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as fluorescent lamps.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion

approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

DCN FLEP-00024
COMMENTER EG&G Rocky Flats, Inc.
SUBJECT EXCL1
COMMENT Instead of adopting one of the options, we urge the EPA to declassify the fluorescent light bulbs as hazardous waste and allow disposal of the bulbs in Subtitle D landfills. The EPA has, in the past, agreed with this approach as reflected in a memo (D. R. Clay, EPA Office of Solid Waste and Emergency Response [OSWER] memo to the Director of the Department of Environmental Services for the State of Alabama, December 7, 1992). In that memo, the EPA stated that it had preliminarily concluded that used bulbs "can generally be managed safely without keeping them under the umbrella of hazardous waste regulation." Additionally, the July 9, 1993 issue of Inside EPA states, "Industry sources say the bulbs generally fail the EPA's to toxicity test because they contain mercury, but agency sources maintain that mercury has not been shown to pose a risk when disposed in landfills." While these statements are not definitive of the EPA's past position, they do indicate that the concept of not regulating fluorescent light bulbs is not unique and has been seriously considered by the Agency. Nothing in the data developed since the EPA issued the December 7, 1992, memo to the State of Alabama appears to provide any justification for the EPA abandoning its earlier position and requiring disposal of the light bulbs in a lined landfill, or forcing business and industry to develop special handling, storage, record keeping, transportation, and disposal procedures. In conclusion, if the EPA does not declassify the fluorescent light bulbs as hazardous waste, but selects one of the options outlined in the NPR, we recommend that the EPA allow the lamps to be disposed or recycled under the conditional exclusion.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less

stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The deposition of atmospheric mercury into surface waters, its presence in runoff from soil, or the recycling of mercury from sediment into the water column can result in the accumulation of the metal in many animal species, particularly aquatic organisms. The EPA has recently published a Mercury Study Report to Congress (December 1997) that examines many of the health effects resulting from mercury exposure. Examples of mercury-related risks include neurotoxicological problems and developmental effects in fetus and adults (e.g., AMad Hatters= disease), and accumulation of the metal in many animal species, particularly aquatic organisms. For example, fish with high levels of mercury in their tissues have exhibited increased mortality, reduced reproductive success, impaired growth, and behavioral abnormalities.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00025
COMMENTER Environmental Energy Group/NAEP
SUBJECT EXCL1
COMMENT A selection of Option 1 may also impact the clarity of life cycle costing concepts as applied to the general purchase of products containing hazardous waste constituents and environmentally sensitive services. It is questionable as to whether continued, uncontrolled land disposal of mercury should be considered an environmentally sensitive service". Elemental mercury is highly changeable between the different states of matter depending on chemical and environmental conditions. From the standpoint of selecting Option 1 as a means of managing the disposal of electric lamps, we question the rationale of an exemption for electric lamp products without extending this

exemption to other mercury bearing product wastes already proposed, suggested, or which may likely be proposed in the future as universal wastes. For universal product wastes which contain mercury, the electric lamp seems to be most likely (through airborne and IAQ releases during breakage) to present the greatest potential for adverse impacts to human health and the environment.

RESPONSE

The Agency appreciates the commenter's support of the proposed universal waste option. In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00026

COMMENTER Thomas Industries, Inc.

SUBJECT EXCL1

COMMENT General Support for Conditional Exclusion Thomas Industries strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The

Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00027
COMMENTER Castrol North America Auto Division
SUBJECT EXCL1
COMMENT Castrol supports EPA's proposed conditional exclusion approach to management of mercury-containing lamps. The conditional exclusion approach is a simple, straightforward method which encourages companies to dispose of wastes in a desired manner. Regulated companies will readily comply with the conditional exclusion because it will reduce their workload and cost when disposing of a waste stream. The success of the conditional exclusion approach has been proven by its use for lead-acid batteries returned to manufacturers.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA

decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00029
COMMENTER Texaco, Inc.
SUBJECT EXCL1
COMMENT Texaco supports the EPA's proposed option to conditionally exclude mercury-containing lamps from the definition of hazardous waste that are disposed in permitted municipal solid waste (MSW) landfills. Based on the EPA data presented on leachate from MSW landfills, Texaco would agree with the EPA's indication that these lamps may be better managed outside the hazardous waste system.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is

less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00030
COMMENTER Laidlaw, Inc.
SUBJECT EXCL1
COMMENT We strongly urge you to propose management of mercury-containing lamps under the Conditional Exclusion option. This option provides an environmentally safe and justifiable approach for disposal of these types of lamps. There are several compelling reasons that support this approach. First, we believe that a very important issue in reducing pollution is to reduce energy consumption. The contaminants present in mercury containing lamps are insignificant compared to emissions from power plants and other forms of energy consumption. The background section of the proposed rule clearly explains the importance of energy-efficient lighting programs such as the "Green Lights" program. We are concerned that management of these lamps as anything else but a conditionally exempt waste will have a detrimental impact on efforts to convert to energy efficient forms of lighting. The EPA should not underestimate the impact that rules have on the actions by the regulated community. Second, we see many similarities to the management of waste oil. Management as hazardous waste may cause more lamps to be managed illegally. As a result, there may be more environmental risk due to illegal disposal. Laidlaw Waste Systems policy is to not accept conditionally exempt small quantity generator (CESQG) waste. Wastes that are quantifiable and regulated as a hazardous waste are not accepted in our landfills. Many other landfill operators also avoid the stigma of knowingly accepting hazardous

> waste in a non-hazardous waste landfill. In other words, this really isn't a disposal option for CESQG. This operational reality leaves many generators with the option of using very expensive Subtitle C facilities or illegally disposing of wastes in C&D landfills that often don't meet Subtitle D standards, or finding other inappropriate options. Third, we think that disposal of lamps in a Subtitle D facility is inherently environmentally safe. The current Subtitle D requirements incorporate the same technologies as Subtitle C disposal facilities. This includes composite liner systems that use high density polyethylene liners as a primary barrier. All Subtitle D facilities will have groundwater monitoring systems in place within the next twenty-five months. The primary purpose of the groundwater monitoring system is to detect migration of contaminants that may endanger the groundwater resources.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of

hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00031
COMMENTER Potomac Electric Power Co.
SUBJECT EXCL1
COMMENT Pepco strongly supports the conditional exclusion for mercury-containing lamps (Option 1). Option 1 would exclude mercury-containing lamps from hazardous waste regulation, contingent on disposing of the lamps in a state approved municipal solid waste landfill ("MSWLF") or sending the bulbs to a state approved mercury reclamation facility. Either means of disposal would ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of Subtitle C regulation.

In support of Option 1, Pepco contends that the basis for the proposed exclusion is scientifically sound and grounded on EPA's

> leachate and air emission studies. These studies indicate that the management of mercury-containing lamps in MSWLFs does not pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small." (See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010.) Therefore, based on EPA's research and supplemented by USWAG and EPRI in their separate comments on this proposal, regulation of mercury-containing lamps under a hazardous waste regime is unnecessary.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage

trucks) will decline.

DCN FLEP-00031
COMMENTER Potomac Electric Power Co.
SUBJECT EXCL1
COMMENT Of equal concern when evaluating option 1 is that regulation of mercury-containing lamps under a hazardous waste umbrella impedes full participation in Green Lights and other energy-efficient relamping programs. The cost of managing lighting wastes as hazardous makes participation in relamping programs economically impractical, both for the electric utility industry and any large customer which chooses to participate in these programs. In 1994 alone, Pepco has spent upwards of $83,000 to manage, transport and dispose of mercury-containing lighting wastes as hazardous waste. The Agency, in fact, recognizes this shortcoming that "the additional costs associated with managing, transporting, and disposing lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies." (59 Fed. Reg. 38288, 38290 (July 27, 1994.)) EPA's assessment is correct and unfortunately, because of these "additional costs," electric utility companies may be forced to forego altogether Green Lights and similar DSM programs. Clearly, Option 1 would eliminate this cost impediment. Furthermore from an environmental perspective, keeping lighting wastes in the Subtitle C system does not make sense. The record speaks for itself -- overall reduction in air emissions, including mercury-containing emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs outweighs keeping lighting wastes under a hazardous waste regime. EPA acknowledges this fact in a recent letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels" (EPA letter dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro [former Deputy Assistant Administrator for Air and Radiation, now Director of

> the Office of Solid Waste] to Alabama Director of Environmental Services). Pepco strongly supports EPA's assessment and believes that failure to pursue the conditional exclusion would result in a continuing reluctance by electric utilities and their customers to participate fully in energy-efficient lighting programs.
>
> In conclusion, Pepco strongly urges the Agency to adopt Option 1 -- the conditional exemption option. It is clear that Option 2 would not promote the Agency's program in the manner that is most beneficial to the environment because it would severely frustrate participation in energy-efficient relamping programs by driving up the costs of compliance. In contrast, option 1 is environmentally sound, grounded on a compelling technical record and importantly, creates a powerful incentive for companies to move forward with the implementation of Green Lights and make the initial investment in energy-efficient light technologies.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not agree with the commenter that any regulatory option other than the conditional exclusion discourages participation in energy-efficient lighting programs. By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements and decreasing costs for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA studies have shown that participation in energy-efficient lighting programs such as Green

Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00032
COMMENTER Niagara Mohawk
SUBJECT EXCL1
COMMENT As you are aware, pursuant to the Green Lights program, companies that voluntarily sign up with the EPA and agree to change out inefficient lighting are recognized by the EPA as part of such effort. Nevertheless, under the current system, when such lighting replacement takes place, disposal costs for the removed lighting waste can be substantial. At a time when utilities are becoming increasingly competitive in attempting to minimize costs to their ratepayers, the incentives for participation in the Green Lights program are currently limited. As a result, in NMPC's opinion, the only viable alternative for regulating mercury lighting wastes is option 1: excluding mercury containing lamps from hazardous waste regulation contingent upon disposing of the lamps in a state approved

municipal solid waste landfill or sending the bulbs to a state approved mercury reclamation facility. Niagara Mohawk Power Corporation strongly supports the conditional exclusion for mercury- containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

3. Regulation of mercury-containing lamps under a hazardous waste regime is not only unnecessary, but equally important such regulation impedes NMPC's full participation in Green Lights and other energy-efficient relamping programs. 4. The cost of managing lighting wastes as hazardous makes participation in relamping programs economically impractical, both for the electric utility and any large customer which chooses to participate in these programs on their own. EPA itself acknowledges in the proposal that "[the additional costs associated with managing, transporting, and disposing of lighting waste as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient, light technologies." 59 Fed. Reg. 38288, 38290 (July 27, 1994). EPA's assessment is correct. Because of these costs, NMPC may simply shift its DSM dollars to other DSM efforts and forego Green Lights and similar DSM programs altogether. The conditional exclusion will remove the major cost impediment to participating in energy efficient relamping programs that NMPC and its customers would otherwise undertake. 5. Keeping lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record is clear that the overall reduction in emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs, any perceived benefits of retaining lighting wastes in the hazardous waste system.

7. EPA itself has stated in a recent letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling, regardless of the

regulatory status of lamp wastes, whether at the federal or state levels." EPA letter dated December 7, 1992, from Don Clay (former assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to Alabama Department of Environmental Services. NMPC agrees with this assessment and believes that this conclusion, coupled with the fact that spent lamps can be safely managed in qualified MSWLFs, clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other DSM programs are removed. 8. Failure to pursue the conditional exclusion will result in a continuing reluctance by electric utilities and their customers to participate in energy efficient relamping programs. As a result, EPA and the country will needlessly forfeit significant reductions in air emissions that are otherwise available through full participation in energy-efficient relamping programs.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not agree with the commenter that any regulatory option other than the conditional exclusion discourages participation in energy-efficient lighting programs. By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements and decreasing costs for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00032
COMMENTER Niagara Mohawk
SUBJECT EXCL1
COMMENT 2. The proposed exclusion is grounded on a compelling technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RIT Project No. 94U-5400-010.
RESPONSE
In today's final rule, the Agency is not finalizing the conditional exclusion option for the

management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Instead, today-s rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00033
COMMENTER Brown and Caldwell
SUBJECT EXCL1
COMMENT If the EPA rejects Client's current method of disposing of the light tubes, Client's option of preference under the proposed rules is Option One under which generators of mercury-containing light bulbs would be granted a conditional exclusion from hazardous waste controls. Nonetheless, there are some aspects of the exclusion that concern Client.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. The Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human

health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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 ful Subtitle C management requirements for generators, collectors, and transporters. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00035
COMMENTER United States Postal Service
SUBJECT EXCL1
COMMENT The Postal Service supports EPA's proposal to exclude mercury containing lamps from classification as hazardous waste. Mercury containing lamps should be excluded as a hazardous waste because the risk to the public is minimal if the lamp is properly disposed to a municipal landfill or recycled. The benefits of this deregulation far exceed any perceived risk of mercury contamination because many entities would be encouraged to replace existing high energy lighting with energy efficient lamps if the disposal costs are held to a minimum. The energy savings and reduced air pollution from power plants will outweigh any problem of mercury migration from landfills, if it in fact does occur. The replacement of large numbers of lamps could lead to a large quantity generator status which would discourage energy conservation programs since the cost of hazardous waste disposal and treatment would have to factored into the costs. This is especially true for exempt or small quantity generators who would be loathe to undertake a project

if it would subject them to full hazardous waste regulation. The Postal Service has had experience with shared utility savings and energy conservation measures which predate any federal mandates under the energy conservation laws. These projects were undertaken for the economic returns due to the cost savings associated with reduced energy usage from the replacement of inefficient ballasts and lamps with high efficiency products. The issue of the lamps being hazardous wastes arose on one occasion which tremendously complicated the deal and reduced the net benefit. Using the life cycle costs and the costs of hazardous waste disposal may make many relamping projects cost prohibitive and thereby will defeat the policies of the various energy conservation laws. The Postal Service will not conduct these relamping programs if the economic return is negative. The Energy Policy Act requires energy conservation measures using life cycle costs and if lamps are considered hazardous then the resultant increase in disposal and treatment costs will have to be factored into the evaluation criteria. The discussion of EPA's Green Lights program discusses reasons and concerns on impacts to energy conservation programs if lamps are considered as hazardous waste. These same concerns would be applicable under laws such as the Energy Policy Act. The Postal Service has been an active participant in energy conservation programs and the proposed exemption would foster the continued effort to reduce the amount of energy used in our facilities. The Postal Service supports EPA's proposal to exclude mercury containing lamps under Part 261.4.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

Studies have shown that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that 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).

The Agency anticipates that waste management costs under the universal waste approach will be lower than the 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. By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

Today's final rule does not affect the regulatory status of conditionally exempt small quantity

generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

DCN FLEP-00037
COMMENTER Central Iowa Power Cooperative
SUBJECT EXCL1
COMMENT We strongly support your proposal to exclude mercury-containing lamps from the definition of hazardous waste under RCRA. In Iowa, conditionally exempt small quantity generators cannot dispose of hazardous waste in sanitary landfills. All rural electric cooperatives in Iowa are CESQGs. We generate very small numbers of mercury-containing lamps, and we have no cost effective way to recycle or dispose of them. It does not appear that there is any significant environmental benefit to require generators of small numbers of lamps to treat them as hazardous waste. Electric utilities are attempting to comply with the requirements to increase energy efficiency programs. It does not make sense to encourage us to use mercury-containing lamps ("green lights program"), and then make disposal so difficult and expensive that it is not cost effective.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Ultimately, the hazardous waste lamps must be treated and disposed as hazardous waste or recycled.

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. An added benefit of the universal waste approach is that 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 final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00038
COMMENTER US West Business Resources, Inc.
SUBJECT EXCL1
COMMENT As such, U S WEST generates fluorescent lamps from approximately 4000 of its locations and is actively involved with in-house implementation of Green Lights programs for relamping. In the interest of encouraging proper waste reclamation by generators of all sizes, U S WEST strongly supports the proposed conditional exclusion for mercury-containing lamps. Most U S WEST locations are conditionally exempt small quantity generators (CESQGS) and could, therefore, send spent lamps to state-approved landfills with or without the conditional exclusion. Instead, it is the policy of US WEST to voluntarily recycle fluorescent lamps. It is the Company position that recycling is the environmentally preferred method for lamp management. To encourage recycling by lamp generators U S WEST suggests that only a minimum number of restrictions should be placed on generators. Because of the significant additional costs for recycling as compared with the proposal for municipal solid waste landfilling, regulatory disincentives to recycling should be kept to a minimum. The Company believes that the basic requirements described under the EPA's proposed conditional

exclusion approach combined with generators vigilance in evaluating and selecting reputable state-permitted/licensed/registered recyclers, will result in environmentally sound lamp management and increase recycling by generators who would not otherwise do so.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are recycled or treated in an environmentally protective manner at Subtitle C hazardous waste facilities. 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). Once the lamps are properly treated and no longer hazardous waste, the treated lamps may be disposed in a solid waste facility.

The Agency agrees with the commenter that hazardous waste lamp recycling is preferable to landfilling. 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. In addition, as the demand for lamp recycling grows, recycling would become more cost competitive with Subtitle C landfilling. The EPA believes that increased recycling capacity and continued improvements in technologies would push recycling fees lower.

DCN FLEP-00039
COMMENTER Spectrum Technologists
SUBJECT EXCL1
COMMENT Lack of Scientific Justification. EPA should not grant a blanket

exemption allowing the disposal of mercury containing lamps into landfills. This proposal is based on insufficient scientific evidence as explained below:

3. There's no data on mercury emissions from lamp breakage. The landfill exemption will perpetuate the current sloppy method of handling mercury lamps in dumpsters and compactors. It's inconceivable that EPA would proceed with the landfill option without checking out this problem thoroughly. Other problems with the landfilling proposal. It would render still born nascent attempts around the country to collect mercury containing materials. Further, most people don't know where their garbage goes. How can we properly distinguish between waste streams headed for an incinerator, where all the mercury is vaporized, and a landfill often located in the same region. If the EPA follows the lead of Minnesota and Florida, activated carbon injection and mercury capture will not be required of existing incinerators which, for many years to come, will comprise the vast majority of facilities. Instead they may opt for source reduction.

The problem of what to do with mercury containing lamps is very important, because its one of the few applications of mercury for which there's no ready substitute and where its continued use can be justified on the basis of energy savings and reduction in both mercury emissions from coal burning and other pollutants associated therewith. However, the EPA needs to give the subject proposal a lot more study, and in no-event should you give a blanket exemption for landfill disposal of mercury containing lamps.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate

that the significant potential for mercury emissions from spent lamps occurs during storage and transport.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards. An added benefit of the universal waste approach is that 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).

DCN FLEP-00040
COMMENTER Eli Lilly and Company
SUBJECT EXCL1
COMMENT IV. Conditional Exclusion: The exclusion is necessary for Green Lights projects with marginal economics to be implemented. The EPA cites in 59 FR 38289 that a typical lighting upgrade yields an internal rate of return of 20-30 percent...". Lilly agrees that return rates of this magnitude can be achieved, given circumstances where (1) lamp use approaches 24 hours/day, (2) fixtures are readily accessible, (3) the cost of labor is reasonable, and (4) the electric utility rebates are not overly conservative. The rates of return can and do drop rapidly as lighting upgrade projects are considered which involve more normal lighting use (such as administrative buildings), production areas with complex piping or other impediments to fixture access, jobs that due to (for example) fixture accessibility issues involve high labor costs, and areas served by utilities that limit their demand-side rebates to lower-than-standard for the industry. Lilly has observed a large number of lighting replacement projects that due to one or more of the above factors, have rates of return in the 12-15 percent range. These projects that promise only marginal returns are in competition for increasingly scarce capital within the company. It is these projects that Lilly believes the EPA should be looking to provide incentives for. The 20-30 percent return projects readily pay for themselves, and the Subtitle C disposal costs represent (typically) a less than 2 percent "bit" on the return. The marginal projects, however, could increase their returns by approximately 2-4 percent will therefore much more likely to be

implemented. Without the incentives of the Conditional Exclusion, and considering that the economic incentives of the Universal Waste System option are minimal to non-existent, these marginal projects are unlikely to be implemented. This results in continued high usage of dwindling natural resources and emissions of pollutants to the environment by coal fired electrical generation units.

RESPONSE

Today's final rule add hazardous lamps to the universal waste regulations under 40 CR Part 273. The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities. By removing some of the requirements of full Subtitle C management for lamps, the universal waste approach should minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00040
COMMENTER Eli Lilly and Company

SUBJECT EXCL1

COMMENT Lilly supports adoption of the Agency's "Option I" (Conditional Exclusion) as proposed in this notice. I. Conditional Exclusion: Disposal of mercury-containing lamps in RCRA Subtitle D landfills is protective of human health and the environment. Lilly believes that Option 1, the "Conditional Exclusion", approach is protective of human health and the environment. The EPA's studies of Subtitle D landfill leachate migration and gas emissions strongly suggest that mercury has a very low mobility in soil and a likewise-low concentration in gas. This supports the Agency's choice of the Conditional Exclusion as a viable and protective option for those generators who may require disposal of their mercury lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential

mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00042

COMMENTER Entergy Services, Inc.

SUBJECT EXCL1

COMMENT Entergy strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Exclusion from Subtitle C regulation will remove the regulatory barriers to greater participation in "Green Lights" and other demand side management ("DSM") programs.

Conditional Exemption from Subtitle C Regulation Entergy strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

CONCLUSION Entergy appreciates the opportunity to submit these comments. In closing, Entergy would like to reiterate its strong support for the exclusion of lighting wastes from Subtitle C regulation and believes that this action will encourage participation in energy-efficient lighting programs resulting in the benefits derived from such programs.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, the universal waste approach should minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp

collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. An added benefit of the universal waste approach is that 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).

DCN FLEP-00042
COMMENTER Entergy Services, Inc.
SUBJECT EXCL1
COMMENT The proposed exclusion is grounded on a compelling technical record, as supplemented by the Utility Solid Waste Activities Group (USWAG) and the Electric Power Research Institute (EPRI) in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in properly designed and permitted municipal solid waste landfills (MSWLF). EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small."[1] [Footnote 1: Management of Used Fluorescent Lamps: Preliminary Risk Assessment, (May 14, 1993) RTI Project No. 94U-5400-010.] Green Lights Participation Entergy believes that regulating mercury-containing lamps as a hazardous waste is not only unnecessary but would impede Entergy's participation in Green Lights and other energy-efficient relamping programs. The cost of managing lighting wastes as hazardous makes participation in relamping programs economically impractical, both for the electric utility and any large customer which chooses to participate in these programs under their own initiative. EPA acknowledges in the proposal that "the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient lighting technologies."[2] [Footnote 2: 59 Fed. Reg. 38288, 38290 (July 27, 1994).] EPA's assessment Is correct. Because of these

costs, Entergy and other utilities may consider shifting its resources to other DSM efforts and forego Green Lights and similar DSM programs altogether. The conditional exclusion will remove the major cost impediment to participating in energy efficient relamping programs that Entergy and its customers may otherwise undertake. Environmental Perspective Retaining lighting wastes in the Subtitle C regulatory framework does not appear justifiable from an environmental perspective. The conclusion appears clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any potential benefits of retaining lighting wastes in the hazardous waste system. EPA recently stated in a letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and compelling regardless of the regulatory status of lamp wastes, whether at the federal or state levels. [3][Footnote 3: EPA Memorandum dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to Alabama Department of Environmental Services.] Entergy agrees with this assessment and believes that this conclusion, coupled with the fact that spent lamps can be safely managed in qualified MSWLFs, clearly supports excluding lamps from Subtitle C regulation so that unnecessary barriers to full participation in Green Lights and other DSM programs are removed.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less

stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant,

the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00044
COMMENTER Solid Waste Association of North America
SUBJECT EXCL1
COMMENT Option 1, which conditionally excludes mercury-containing waste from regulation as a hazardous waste is presently not a viable option due to the lack of data on possible effects of such a disposal management strategy, and the impacts specifically related to breakage which could occur within solid waste management systems prior to disposal. Mercury is a volatile metal and can be released within the solid waste handling system from breakage. Mercury containing lamps can be broken at several stages in the disposal process including, at placement into waste receptacles, at introduction into transfer stations and materials processing facilities, as well as at final disposal at landfills or incinerators. At all stages, workers are potentially exposed and mercury is potentially released into the environment. Until these releases and their implications are studied by EPA and/or OSHA, designation of these lamps as a Subtitle D waste is premature. Although it might be reasonable to prohibit and control breakage under Subtitle C, it is an unrealistic expectation under Subtitle D. Therefore, regulations that minimize mercury emissions during storage and transportation must be presently implemented.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and

transport.

An added benefit of the universal waste approach is that 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).

DCN FLEP-00043
COMMENTER Ohio Edison Co.
SUBJECT EXCL1
COMMENT Also, after reviewing this proposal, we have prepared the following comments: 1. Ohio Edison Company strongly supports the conditional exclusion for mercury-containing lamps which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C classification.

2. The proposed exclusion from RCRA Subtitle C is based on a compelling technical record, as supplemented by USWAG and the Electric Power Research Institute (EPRI) in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills (MSWLF). The EPA's own data demonstrates that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment that mercury emissions from landfill gas are insignificant. See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-020. 3. Failure to pursue the conditional exclusion may result in a continuing reluctance by lamp owners to participate in energy efficient relamping programs.

RESPONSE
Today's final rule add hazardous lamps to the universal waste regulations under 40 CR Part 273. The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities. By removing some of the requirements of full Subtitle C management for lamps, the universal waste approach should minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach should help in assuring that the

substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

DCN FLEP-00045
COMMENTER Richard M. Jakucs
SUBJECT EXCL1
COMMENT In discussing the various options for disposal of mercury containing light bulbs and fluorescent bulbs, I want to offer the following comments. Two options I saw presented were; Option 1. That the EPA grant a conditional exclusion from hazardous waste controls if the bulbs are sent directly to municipal solid waste landfills (i.e., Subtitle D Landfills). Option 2. That the light bulbs be considered hazardous waste, but they be

reclassified and regulated as a "universal" hazardous waste. It seems that the major concern of the EPA is in the burning of these light bulbs, either by commercial incinerators or municipal incinerators. While it is important to realize that mercury tends to volatilize rapidly and go straight through any incinerator scrubber system directly into the air. It is also important to realize that mercury, even in small amounts, remains in the eco-system and in the food chain for extended periods of time causing harmful effects to humans and wildlife. Therefore, it is my assertion that these wastes should not be treated in municipal landfills, as the possibility of mercury entering into the food chain is only as good as the municipal landfill that it has gone to. Even though standards have been set for municipal waste landfills, the landscape is littered with landfills that our on the Superfund/NPL list.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00046
COMMENTER American Public Power Association

SUBJECT EXCL1

COMMENT Summary APPA strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management (DSM) programs.

APPA Comments APPA agrees that the current Resource Conservation and Recovery Act (RCRA) system is not working as it is applied to lighting wastes. Some type of regulatory reform is necessary to encourage greater participation in relamping programs and recycling opportunities. APPA joins other electric utilities in the belief that the best solution is an alternative management program -- outside of the hazardous waste system -- that encourages environmentally sound recycling or disposal. Subjecting lighting wastes to hazardous waste regulation has proven to be a major deterrent for utilities across the country from participating fully in environmentally beneficial relamping programs. APPA strongly supports the conditional exclusion for mercury-containing lamps. This type of exclusion will ensure that mercury-containing lamps are managed in an environmentally sound manner. It will also ensure that management of the lamps is free of undue constraints and burdens of RCRA Subtitle C regulation.

Evidence supporting the proposed exclusion of mercury-containing lamps from Subtitle C regulation is found in a compelling technical record. USWAG and Electric Power Research Institute (EPRI) submit, in their separate comments, data demonstrating that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's data show that mercury emissions are very small. Letters from EPA to state regulators confirm that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels." (EPA letter dated December 7, 1992, to Alabama Department of Environmental Services.) APPA applauds this assessment and agrees that spent lamps can be safely managed in qualified municipal solid waste landfills.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the barriers to Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00046
COMMENTER American Public Power Association
SUBJECT EXCL1
COMMENT While APPA supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste landfill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases municipal solid waste landfills are more protective of human health and environment than recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes. APPA appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Under the universal waste rule, hazardous waste lamps can be recycled or treated and disposed in a Subtitle C hazardous waste facility.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment disposal facility. 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. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emission standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00047
COMMENTER Indiana University

SUBJECT EXCL1

COMMENT From the literature you have provided, it appears the research data is inconclusive on the effects of disposing of fluorescent bulbs in municipal landfills. It appears fluorescent bulbs account for an extremely small share of metals entering the nations landfills. If this is true the cost of $25,000 per year for this University's disposal of mercury-containing bulbs as special wastes, seems unnecessary. These funds would be better utilized toward our educational mission. The law as it stands now seems to fly in the face of energy conservation programs being promoted. Also the real "heavy metal" problem in landfills seems to come from "household battery" disposal and yet, to the best of our knowledge, there is no legislation regulating the disposal of these batteries. We at Indiana University, support Alternative #1 which excludes mercury-containing lamps from hazardous waste prohibitions in municipal landfills.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

As to the commenter=s request for legislation regarding disposal of batteries, the AMercury-

Containing and Rechargeable Battery Management Act@ (Battery Act) was signed by the President on May 13, 1996. The law has two primary goals, the first of which is to limit the mercury content in consumer batteries. The second goal of the Act is to promote recycling and proper disposal of used rechargeable nickel cadmium batteries, sealed small lead acid batteries, and certain other types of rechargeable batteries now widely used in consumer products. The Agency is currently developing a rulemaking to codify the waste management provisions of the Battery Act.

DCN FLEP-00048
COMMENTER Sullivan & Ward, P.C.
SUBJECT EXCL1
COMMENT We strongly support your proposal to exclude mercury-containing lamps from the definition of hazardous waste under RCRA. In Iowa, conditionally exempt small quantity generators cannot dispose of hazardous waste in sanitary landfills. All rural electric cooperatives in Iowa are CESQGs. We generate very small numbers of mercury-containing lamps, and we have no cost-effective way to recycle or dispose of them. Recyclers have a minimum pickup charge (typically $50) in addition to the per bulb charge. Many small businesses are 200 miles or more from a recycling facility. For a business which may generate only one or a few lamps every few months, recycling is not a reasonable option. It is our understanding that when placed in a permitted municipal landfill, mercury-containing lamps do not pose any significant threat to the public health or environment, so long as the lamps are not incinerated. It does not appear that there is any significant environmental benefit to require generators of small numbers of lamps to treat them as hazardous waste. Furthermore, all utilities are attempting to comply with the requirements to increase energy efficiency programs. It does not make sense to encourage us to use mercury-containing lamps for energy efficiency, and then make disposal so difficult and expensive that it is not worth any savings on the energy efficiency side.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the

management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the barriers to Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Under the universal waste program, handlers of hazardous waste lamps may store their lamps up to one year without a permit in order to accumulate sufficient amounts of lamps to be properly recycled or disposed. Accumulation for longer than one year is allowed if necessary to accumulate sufficient amounts of lamps to facilitate proper recovery, treatment, or disposal.

In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). Under the federal program, CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

DCN FLEP-00049
COMMENTER Central Hudson Gas and Electric Corp.
SUBJECT EXCL1
COMMENT Re: Proposed Lighting Waste Rules Central Hudson strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of Resource Conservation and Recovery Act (RCRA) Subtitle C regulation. If mercury-containing lamps were to be regulated under a hazardous waste regime, such regulation would impede Central Hudson's participation in energy-efficient relamping programs. The increased cost of managing lighting

wastes as hazardous would make participation in relamping programs economically impractical, both for Central Hudson and any large customer that may wish to participate in these programs voluntarily. EPA itself acknowledges within the proposal that "the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies." 59 Federal Register 38288, 38290 (July 27, 1994). In addition, keeping lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record is clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system. EPA itself has stated in a recent letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear, and we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels." EPA letter dated December 7, 1992, from Mr. Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Mr. Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste to the Alabama Department of Environmental Services. Central Hudson strongly supports the ability of generators to engage in materials separation and recycling of spent lamps in an environmentally sound manner. Any regulation of such activities would simply drive up costs of compliance and serve to deter participation in Demand Side Management Programs.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling

potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00050
COMMENTER LRI Consulting and Technologies
SUBJECT EXCL1
COMMENT EPA's proposed alternative of excluding mercury lamps from regulation as hazardous waste does not appear to be an environmentally conscientious alternative for the management of this waste. The lamps, when crushed, typically fail TCLP for mercury, rendering them hazardous waste. In the event that this toxic waste is excluded from regulation as hazardous waste, generators would manage this waste in the most economic manner, without significant regard to the environment. This would result in the indiscriminate landfilling of this waste in municipal landfills. Municipal landfilling of this waste would inevitably result in the degradation of the environment over time. The toxic mercury will inevitably escape since a municipal landfill

will not control the migration of this material over time. The migration of this material from municipal landfills will result in the endangerment of public health and the degradation of' the environment. Although the deregulation of this toxic waste, in the short term, would appear to be a less costly management option, over time, due to the inevitable release of this toxic material from municipal landfills into the environment, the deregulation would result in significantly high costs. These costs would not only be associated with the clean-up/remediation of the environment, but the unquantifiable cost associated with the endangerment of public health. Deregulation of this material is a short term/temporary solution to the management of this toxic waste stream. In order to be environmentally conscientious, the solution to the management of this material needs to be evaluated on both a short term and a long term basis. The preservation of the environment and public health needs to be evaluated and weighed against the short term financial cost associated with the proper and responsible management of this toxic material. There are presently lamp recycling facilities in operation that responsibly recycle the lamps to recover the mercury (and other valuable components of the lamp). The mercury is then reused in other applications. This not only protects the environment from the release of this toxic material, but it also results in the recovery/reuse of a valuable material. As an environmental engineer and an environmentally conscientious individual, I oppose the deregulation of mercury containing lamp wastes.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment in part due to concerns over long-term impacts of mercury in landfills. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency agrees with the commenter that hazardous waste lamp recycling is preferable to landfilling. 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. In addition, as the demand for lamp recycling grows, recycling should become more cost competitive with Subtitle C landfilling. The EPA believes that increased recycling capacity and continued improvements in technologies would push recycling fees lower.

DCN FLEP-00051
COMMENTER Scientific Consulting Laboratories, Inc.
SUBJECT EXCL1
COMMENT The major concern our firm has with the proposal to allow mercury containing lamps to be disposed of in permitted municipal landfills under a conditional exclusion from Subtitle C standards regards mercury emissions.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and

transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00052
COMMENTER S. Dakota Dept. of Env. and Nat. Res.
SUBJECT EXCL1
COMMENT The South Dakota Department of Environment and Natural Resources is in support of your proposed regulations for Option 1, with some modification.

Landfills meeting Subtitle D requirements should in theory be protective of the environment when finally disposed.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set

of standards than the full Subtitle C management standards.

DCN FLEP-00053
COMMENTER Occidental Chemical Corporation
SUBJECT EXCL1
COMMENT With respect to the two proposed management options for mercury-containing lamps, OxyChem supports EPA's Option 1. In comparing the agency's two proposed management standards, Option 1 is less restrictive for generators of mercury-containing lamps, while still ensuring protection of human health and the environment. OxyChem supports Option 1 based on information provided by EPA in the proposed rule and OxyChem facilities that provided lamp management data.

Option 1 does provide mercury-containing lamp generators with more flexibility and less of an economic burden. OxyChem supports reclamation of mercury-containing lamps when AND where it is feasible. However, facilities that generate small quantities of lamps may be significantly impacted if Option 2 were adopted. OxyChem also agrees with the EPA on reducing the amount of mercury in mercury-containing lamps through technological advances.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e, those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

DCN FLEP-00056
COMMENTER International Paper Company
SUBJECT EXCL1
COMMENT EPA has done a thorough job of laying out the alternative approaches and the environmental fate of these lamps although we feel that the Agency has underestimated costs and understated the continuing nature of waste bulb generation. It is our view that EPA's analysis of environmental fate coupled with the current costs of lamp disposal are a persuasive argument for a conditional exclusion (option one) for waste lamps. Disposal of waste lamps as subtitle D (non-hazardous) wastes is fully protective of the environment and significantly less costly than the current hazardous waste management requirements.

When one considers the costs of the current waste lamp disposal requirements along with the fact that no harm to the environment from past practices has been demonstrated, it seems obvious that the current regulatory program is not necessary for these materials. We strongly urge the Agency to grant a conditional exemption (option one) to waste lamps as outline in the proposed rule.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds

hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities.

DCN FLEP-00059
COMMENTER Connecticut Dept. of Env. Protection
SUBJECT EXCL1
COMMENT 1) DEP believes that management option 1, the conditional exclusion approach which would allow landfill disposal, is inappropriate for several reasons.

d) Additionally, if the disposal of mercury containing lamps is allowed outside of the RCRA Subtitle C system (within Subtitle D system), it becomes very difficult to determine if the lamps are ultimately placed in landfills or incinerated.

RESPONSE
EPA agrees with the commenter and is not promulgating the conditional exclusion. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards) for handlers and transporters yet required lamps to ultimately be recycled or treated and disposed as hazardous waste.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00061
COMMENTER Chesapeake Public Schools
SUBJECT EXCL1
COMMENT I feel the proposed rule to modify and exclude landfilled mercury-containing lamps from hazardous waste is justified by the data provided.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste

lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00062
COMMENTER Phillips Petroleum Company
SUBJECT EXCL1
COMMENT Phillips supports EPA's first alternative management approach for mercury-containing lamps, that being a conditional exclusion from regulation as hazardous wastes. This would allow management of mercury-containing lamps as non-hazardous wastes provided they are managed under the conditions of the exclusion. Provisions of the exclusion include disposal of the lamps in a municipal solid waste landfill that is permitted by a State/Tribe within an EPA approved permitting program or transfer to a State permitted, licensed, or registered mercury reclamation facility.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or

broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00063
COMMENTER American Waste Management, Inc.
SUBJECT EXCL1
COMMENT The proposed exclusion from regulation of mercury lamp wastes would promote the ill-advised, indiscriminant landfilling of these wastes. This practice would contaminated very large amount of land and water which would almost certainly require remediation at some time in the future. Obviously, a large number of sites in the U.S. are already seriously contaminated and will eventually require attention. The inevitable escape of mercury from land disposal sites will endanger the public health and degrade the environment. Therefore, AWM opposes the deregulation of mercury lamp wastes.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00064

COMMENTER Southern Company Services, Inc.
SUBJECT EXCL1
COMMENT The Southern Company fully supports the Utility Solid Waste Activities Group (USWAG) and the Electric Power Research Institute (EPRI) and their position that lighting wastes should not be regulated as hazardous under RCRA's Subtitle C system. For this program to be of value, we feel EPA should issue an exclusion from the toxicity characteristic (TC) regulation for all mercury-containing lighting wastes including discarded fluorescent lamps, metal halide lamps, high pressure sodium lamps, and mercury vapor lamps. The Southern Company strongly supports the option of a conditional exclusion from hazardous waste regulation, which would exclude mercury-containing lamps from all Subtitle C regulation provided that the lamps are managed in a qualified municipal solid waste landfill ("MSWLF") or managed at a state approved mercury reclamation facility. EPA should be aware that (1) the Southern Company strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps, (2) that such an exclusion will remove the regulatory barriers to greater participation in Green Lights and other Demand Side Management (DSM) programs, and (3) the universal waste option is not the solution to this issue because it would continue to subject lighting wastes to the most onerous and expensive components of Subtitle C regulation - the land ban program and Subtitle C disposal costs. More specifically, The Southern Company offers the following comments on the recent lighting waste proposal:

RESPONSE

Today's final rule adds all hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency anticipates that waste management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between mercury lamp generators and collection points or disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for

these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00064
COMMENTER Southern Company Services, Inc.
SUBJECT EXCL1
COMMENT 1. The Southern Company strongly supports the conditional exclusion for mercury-containing lamps. A full exclusion will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

2. Landfilling the lighting wastes is an acceptable method of disposal. The proposed exclusion is grounded on a compelling technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's own data demonstrate that mercury does not leach from Municipal Solid Wastes Landfills (MSWLFs) at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010. 3. Spent lamps can be safely managed in qualified MSWLFs and unnecessary impediments to participation in Green Lights and other DSM programs are avoided. EPA itself has stated in a recent letter to state regulators that "there is a

clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels." EPA letter dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to the Alabama Department of Environmental Management. The Southern Company agrees with this assessment and believes that this conclusion, coupled with the that spent lamps can be safely managed in qualified MSWLFs, clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other DSM programs are removed. 4.The cost of managing lighting wastes as hazardous waste can make participation in relamping programs economically impractical, both for the electric utility industry and any large customer which chooses to participate in these programs on their own. EPA itself acknowledges in the proposal that "[the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies. " 59 Fed. Reg. 38288, 38290 (July 27, 1994). The conditional exclusion will remove the major cost impediment to participating in energy efficient relamping programs that The Southern Company and its customers would otherwise undertake. 5. Failure to pursue the conditional exclusion will result in a reluctance by electric utilities and their customers to participate in energy efficient relamping programs. Regulation of mercury-containing lamps under a hazardous waste regime is not only unnecessary, but equally important such regulation impedes our company's full participation in Green Lights and other energy-efficient relamping programs. As a result, EPA and the country will needlessly forfeit significant reductions in air emissions that are otherwise available through full participation in energy-efficient relamping program. 6. Regulating lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record suggests that the overall

> reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system.
>
> Understanding that other utility organizations have expressed similar concerns with the lighting waste issues and the implementation of the Green Lights program, we hope that EPA will respond quickly by issuing an exemption from hazardous waste regulation for these lighting wastes so as not to further discourage participation. The Southern Company is eager to support the EPA in its voluntary pollution prevention endeavors, however, preservation of these types of programs depends upon EPA's realization that environmental benefits from a full exclusion of these lighting wastes from Subtitle C regulation far outweighs the purported benefits of regulating the wastes as hazardous.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

EPA studies have shown that participation in energy-efficient lighting programs such as Green

Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00064
COMMENTER Southern Company Services, Inc.
SUBJECT EXCL1
COMMENT 8. Recycling of spent lamps is a suitable alternative in some cases, EPA must understand, however, recycling is not the solution for management of all spent lamps. First, recyclers cannot accommodate the huge volumes of lamps that would be generated by full participation in relamping programs. Second, all recycling facilities are not as environmentally protective as the management of spent lamps in qualified MSWLFs, especially landfills operating under EPA's new MSWLF standards (which are equipped with liners and leachate collection systems). Indeed, in many cases the management of spent lamps in a qualified MSWLF is more protective of human health and the environment than sending the lamps to a recycling facility where it unclear (1) how much of the mercury is actually being recovered and by what

means such recovery is conducted, and (2) how the treatment residuals (e.g., the glass and metal parts) are being reused.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment, and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to

expand the capacity.

DCN FLEP-00065
COMMENTER American Fisheries Society
SUBJECT EXCL1
COMMENT Second, the Society views the conditional exemption option for mercury-containing fluorescent lamps as inconsistent with other EPA actions which are simultaneously establishing maximum available control technologies for mercury across all media programs. To exempt a major source of mercury that could be recycled does not make sense.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00066
COMMENTER Delmarva Power and Light Company
SUBJECT EXCL1
COMMENT Delmarva Power and Light Company (Delmarva) strongly supports the conditional exclusion for mercury-containing lamps, which will relieve the regulated community from the burdensome

constraints of RCRA Subtitle C regulation, while, ensuring that lamps are managed in an environmentally sound manner.

Delmarva believes that this is a sound environmental policy, since the proposed exclusion is based on EPA's data, which demonstrates that mercury does not leach from municipal solid waste landfills (MSWLFs) at levels that pose a threat to human health or the environment and that landfill gas emissions are not significant. Regulation of mercury-containing lamps as hazardous waste is a disincentive for participation in EPA's "Green Lights" program. The reduction in air emissions due to participation in Green Lights and other relamping programs far exceeds any benefits derived from regulating lighting wastes as hazardous. The proposal for a conditional exclusion would be in direct agreement with EPA Administrator Carol M. Browner's "Common Sense Initiative," recently adopted to achieve the goal of a cleaner environment at less cost.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of

landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00066
COMMENTER Delmarva Power and Light Company
SUBJECT EXCL1
COMMENT Delmarva fully supports recycling efforts to reduce waste disposal in MSWLFs. However, lighting waste recycling capacity cannot accommodate the volume of waste that would be generated by increased participation in relamping programs such as those promoted by EPA's Green Lights program. Thus, EPA should allow management of spent lamps in qualified MSWLFs, especially those operating under EPA's new MSWLF standards.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273.

Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment and disposal of hazardous waste lamps. The Agency did not limit the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes. 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.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00067
COMMENTER Georgia Power Company
SUBJECT EXCL1
COMMENT Georgia Power Company strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

Georgia Power Company believes that landfilling the lighting wastes in a qualified municipal solid waste landfill (MSWLF) or managing the lights at a state approved mercury reclamation facility is an acceptable method of disposal. EPA's own data demonstrate that mercury does not leach from MSWLF's at levels that pose a threat to human health or the environment and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010.

The conditional exclusion will remove the major cost impediment to participating in energy efficient relamping programs that utility companies and its customers would otherwise undertake. Georgia Power Company believes that regulating lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record is clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system. Georgia Power Company supports the argument that each

generator should have the ability to engage in materials separation and consolidation (e.g., crushing) of spent lamps in an environmentally sound manner. Such activities are often necessary to facilitate storage and transportation and can be performed safely under appropriate conditions. Recycling of spent lamps is a suitable alternative in some cases. EPA must understand, however, recycling is not the solution for the management of all spent lamps. First, recyclers cannot accommodate the huge volumes of lamps that would be generated by full participation in relamping programs. Second, all recycling facilities are not as environmentally protective as the management of spent lamps in qualified MSWLF's, especially landfills operating under EPA's new MSWLF standards (equipped with liners and leachate collection systems). Indeed, in many cases the management of spent lamps in a qualified MSWLF is more protective of human health and environment than sending the lamps to a recycling facility where it is unclear (1) how much of the mercury is actually being recovered and by what means this recovery is conducted, and (2) how the treatment residuals (glass and metal parts) are being reused.

Georgia Power Company is eager to support the EPA in its voluntary pollution prevention programs, however, preservation of these type of programs depends upon EPA's realization that environmental benefits from a full exclusion of these lighting wastes from Subtitle C regulation far outweighs the purported benefits of regulating the wastes as hazardous.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of

mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Although the destination facilities are subject to these hazardous waste management requirements for treatment and storage activities, the Agency does not have the authority to regulate the specific process of mercury reclamation under the scope of this rulemaking. EPA believes that with adequate state oversight, mercury containing lamps can be safely recycled and the mercury reclaimed. In addition, the Agency believes that recycling facilities will guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

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 Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

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.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00069
COMMENTER Goodyear Tire and Rubber Company
SUBJECT EXCL1
COMMENT The Goodyear Tire Rubber Company offers the following comments in support of USEPA's proposal to exclude mercury-containing lamps from regulation as hazardous waste. Preliminary studies, as cited in the July 27, 1994 Federal Register notice indicate that mercury in municipal solid wastes is not readily released by leaching processes that typically occur in MSW landfills. Enhanced controls for MSW's promulgated in 1991, which include design, operations, and ground water monitoring, will provide sufficient protection to human health and the environment. There are currently a small number of facilities available for recycling of spent mercury-containing lamps. It is not possible to transport spent lamps economically to these distant facilities. However, if industry were allowed to collect these lamps without a time restriction, economical loads could be assembled from single or multiple locations. They could also be transported along with shipments of other nonhazardous

materials. Allowing the management of mercury-containing lamps outside the hazardous waste regime would give generators greater flexibility and allow industry to find economically viable management methods which would be protective of human health and the environment. Goodyear supports such flexibility in the management of all types of wastes.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

In the hazardous waste lamps final rule, EPA has determined that regulations applicable to accumulation of hazardous waste lamps should be consistent with the accumulation regulations applicable to all universal wastes (''273.15 and 273.35). In the universal waste final rule (60 FR 25526, May 11, 1995), the Agency determined that accumulation of universal wastes for more than one year can be allowed. Therefore, in today=s final rule, handlers of hazardous waste lamps may accumulate hazardous waste lamps for up to one year as proposed, and for more than one year if such accumulation is solely for the purpose of accumulating such quantities of universal waste as are necessary to facilitate proper recovery, treatment, or disposal. For any accumulation longer than one year, the handler must be able to prove that such accumulation is solely for accumulating quantities necessary to facilitate proper recovery, treatment, or disposal (it is assumed that any accumulation up to one year is for this purpose).

DCN FLEP-00070
COMMENTER Univ. of Texas Office of Env. Affairs
SUBJECT EXCL1
COMMENT EPA's preliminary analysis indicates that: 1) if mercury should leach out of a municipal solid waste landfill (MSWLF), it would not necessarily travel far enough to contaminate drinking water; and 2) mercury combines with other substances in the soil to remain inert. It, therefore, appears that mercury is less mobile than the current TCLP hazardous waste test indicates. As a result, UT supports the EPA's proposal that mercury-containing lamps should no longer be managed as hazardous wastes under Subtitle C of the RCRA program. UT supports the EPA's option #1 of excluding mercury-containing lamps from regulation as hazardous waste provided lamps are disposed of in a MSWLF that is permitted, licensed or registered by a state. EPA is to be applauded for undertaking a deregulatory action based on emerging new evidence that mercury-containing lamps can be safely managed outside the RCRA Subtitle C hazardous waste scheme. As you know, the RCRA management scheme is very expensive, burdensome, and should be reserved only for those hazardous materials that clearly require such a stringent level of control.

In addition to evidence of a reduced hazard from mercury in MSWLFs and meritorious cost savings, there is a third excellent reason for the deregulatory approach of option #1 -- to support the laudable social/environmental goal of energy conservation. Fluorescent bulbs are the most commonly used energy-efficient lights with approximately one billion in use throughout the U.S. At least one of the UT institutions, M.D. Anderson Cancer Center

in Houston, participates in EPA's voluntary Green Lights energy conservation program. As the attached information from M.D. Anderson indicates, they are planning a major renovation which will result in the planned disposal of 25,000 mercury-containing fluorescent bulbs annually beginning in 1995. The regulatory and financial costs of disposing of that quantity of lamps as hazardous waste instead of municipal solid waste will be very expensive and unnecessary in light of EPA's new preliminary data. While UT supports environmental rules that provide significant environmental and health benefits, it opposes regulations that are unduly burdensome and costly while offering no significant public protection. To continue to regulate mercury-containing lamps as hazardous waste in the face of emerging evidence that limited amounts of mercury can be safely managed in MSWLFs would be an egregious example of over management at excessive cost for little or no public benefit. In this regard, it is worth noting that standards for MSWLFs have been significantly upgraded effective October 1993 (under RCRA Subtitle D) so that MSWLFs are better designed, managed, and monitored than ever before. In conclusion, on behalf of The University of Texas System, we appreciate the opportunity to comment on EPA's proposed modifications. UT supports option #1 -- allowing mercury-containing lamps to be disposed of as non-hazardous wastes at municipal solid waste landfills that are properly permitted and licensed under Subtitle D rules promulgated by the EPA and enforced by the states. If we can provide any further information, please let us know.

Our institution has participated in the "Green Lights" energy conservation program by replacing existing lamps with energy efficient lighting -- usually fluorescent bulbs with small amounts of mercury. However, by October 1995, the relamping procedures will begin and continue into the foreseeable future. These procedures will generate an average of 25,000 lamps annually. Therefore, continuing to classify these materials as hazardous waste is a significant disincentive to the G.L. program. This would dramatically increase our disposal costs, documentation duties, and handling procedures. Regulatory agencies have mandated implementation of waste minimization and pollution prevention plans. Characterizing these materials as hazardous waste simply puts us on an uphill compliance battle

and interferes with achieving these mandates. The exclusion from regulation as hazardous waste of mercury lamps is the most viable and logical option, even though negative factors exist. This option will add a burden of increased labor costs due to repackaging of replaced lamps, adherence to documentation requirements, and transportation of materials to the permitted municipal solid waste (MSW) landfill. Materials would likely be stored until a sizeable shipment was realized for transport. This would put a burden of designating storage space for these materials. Volume reduction must be allowed through crushing or shredding of the materials.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term.

The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency appreciates the commenter=s acknowledgment of EPA=s energy-efficient lighting program. Replacing energy inefficient lighting systems under one of the energy-efficient lighting programs could require the use and eventual disposal of hazardous waste lamps. Before today=s rulemaking, hazardous waste lamps that exhibited a toxicity characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C regulations for generators and transporters of universal waste. In addition, small quantity handlers of universal waste (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not subject to the universal waste notification and record keeping requirements. A significant number of commenters indicated that savings from reduced energy usage more than cover the cost of managing lamps as part of the universal waste regulations. Other commenters indicated the costs for managing lamps may now increase.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent C only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

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 Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment

under RCRA (40 CFR 260.10).

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-00072
COMMENTER Georgia Hall
SUBJECT EXCL1
COMMENT 2. How can we cut the cost of producing electricity and at the same time allow businesses to destroy our environment by putting even 100 kg into the landfills. Many of the states have already set regulations that are more stringent than what EPA has now. 3. Since businesses will always take advantage of anything that seems to save them money, we look to EPA to protect us and our environment and not allow businesses to fill our landfills with lamps containing mercury and lead or any other hazardous waste.

5. Why would we have Federal clean air and clean water acts if we are going to allow mercury and lead to be disposed of without a manifest and could not provide information concerning who put the mercury and lead in the area. 6. A business can regulate the disposal of lamps by allowing only the 200 lbs per month to be replaced. But think what happens, 200 lbs time the amount of mercury per bulb times 12 (months) times the number of businesses in the area. How many children will be born mentally handicapped in the years that follow and the state and federal government will be required to educate and provide for. This will take business tax money.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted

into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards. Ultimately, the hazardous waste lamps must be recycled or treated and disposed as hazardous waste.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

EPA appreciates the commenter=s concern regarding mercury in the environment and its effects on human health. EPA believes that the management requirements finalized today for hazardous waste lamps provide adequate protection of human health and the environment.

DCN FLEP-00073
COMMENTER Honeywell, Inc.
SUBJECT EXCL1
COMMENT This is in response to the proposed rule regarding Mercury-Containing lamps as published in the Wednesday, July 27, 1994 Federal Register. It is felt that Option 1 as outlined by EPA is the preferred approach to managing mercury-containing lamps, excluding mercury containing lamps from regulation as a hazardous waste as long as the lamps are disposed in a proper landfill or licensed reclamation facility. It is felt that this approval would prove the most economic solution without creating any present or future environmental damage.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies

conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00076
COMMENTER The Southland Corporation
SUBJECT EXCL1
COMMENT The Southland Corporation strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportionate to the environmental benefit achieved. In fact, U.S. lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion than in unnecessary regulating a minor mercury source such as fluorescent 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. Our T8 lighting systems are installed by Amtech Lighting Services and Osram-Sylvania Lighting Services who are responsible for lamp installation and disposal. Both companies report a myriad of conflicting rules as to proper disposal in different regions of the U.S. EPA

should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefits of energy-efficient relamping by promulgating a conditional exclusion.

Position on Subtitle D Landfilling (or landfill owner/operators)
The Southland Corporation is entirely comfortable with a regulatory approach that allows landfilling of spent lamps in state-permitted municipal landfills that meet Subtitle D standards for new landfill units. EPA studies have clearly demonstrated that landfilling of mercury-containing lamps presents little risk to human health or the environment. Mercury has been shown not to leach or otherwise escape form municipal landfills, and indeed, the quantity of lamps assumed to be disposed in landfills each (250 million pounds) is insignificant in comparison to the 1 million tons of household hazardous waste and the 160 million tons of municipal waste landfilled each year.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that some management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments

document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Prior to today=s final action, spent lamps that failed the toxicity characteristic leaching procedure (TCLP) test were subject to full Subtitle C management requirements, unless the lamps were generated by a household or a conditionally-exempt small quantity generator (a generator of less than 100 kilograms of hazardous waste in a calendar month). EPA recognized the confusion and mismanagement patterns historically associated with maintaining spent mercury-containing fluorescent lamps within the Subtitle C system. The Agency is taking today=s final action of adding hazardous waste lamps to the scope of universal waste regulations in an effort to streamline the current regulations governing the management of hazardous waste lamps, increase lamp management efficiency, and ultimately to cause a potential reduction in aggregate mercury emissions. Under the universal waste system, conditionally-exempt small quantity generators (CESQGs) can choose to manage their waste lamps as hazardous waste in accordance with the CESQG regulations under 40 CFR 261.5 or as universal waste under Part 273 (40 CFR 273.8(a)(2)).

DCN FLEP-00077
COMMENTER Brown and Caldwell
SUBJECT EXCL1
COMMENT If the EPA rejects Client's current method of disposing of the light tubes, Client's option of preference under the proposed rules is Option One under which generators of mercury-containing light bulbs would be granted a conditional exclusion from hazardous waste controls. Nonetheless, there are some aspects of the exclusion that concern Client
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory

requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00078
COMMENTER Tennessee Valley Authority
SUBJECT EXCL1
COMMENT Most of TVA's lamp waste is being sent to a lamp recycler at considerable cost to TVA. Considering the high costs and questionable environmental benefits in regulating mercury containing lamps as hazardous waste, we recommend that EPA conditionally exempt mercury containing lamp waste from hazardous waste regulations. The following are our reasons for supporting this exemption, followed by several concerns we have with the options proposed by EPA.

Environmental Impacts - When all factors are considered, we believe that conditional exclusion of lamps from hazardous waste regulation and allowing disposal in permitted landfills is not likely to adversely impact the environment. Based on the published information on the environmental impact of mercury in landfills, landfilling may pose less risk to the environment than lamp recycling.

> Also by encouraging more energy efficient relamping, the conditional exclusion will reduce our energy production needs which can significantly reduce power plant stack emissions and other environmental impacts associated with power production. As pointed out in a paper published by scientists at Lawrence Berkeley Laboratory (Clear, R. and Berman S., "Environmental and Health Aspects of Lighting: Mercury," Journal of the Illuminating Engineering Society, Volume 23, Number 2, Summer 1994.), the environmental benefits resulting from reduced stack emissions more than offset the environmental impacts from landfilling lamp waste.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and

improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

DCN FLEP-00079
COMMENTER Voltarc Technologies, Inc.
SUBJECT EXCL1
COMMENT Voltarc's policy has been to dispose of in process and spent mercury-containing lamps in accordance with current Connecticut Department of Environmental Protection, OSHA and general safety policies. We believe it is extremely important for the Agency to consider and adopt the following comments. Various options under the proposed rule threaten Voltarc's ability to remain competitive and profitable. The rules also impact the national goals of limiting overall air emissions by converting to energy-efficient lighting. For the reasons discussed below, it is essential that spent bulbs be granted the conditional exclusion status and the EPA continue to allow the properly regulated incineration of such wastes. General Support for Conditional Exclusion Voltarc strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. Our company, like many others, has experienced significant difficulty in obtaining consistent advice from regulatory agencies regarding the proper procedures for disposing of lamps. The Conditional Exclusion is the preferable option; EPA studies have shown that mercury does not leach in significant amounts from landfills, making Subtitle C landfilling unnecessary. EPA can eliminate the current state of confusion, reduce building maintenance costs and gain the full benefit of energy efficient relamping by promptly promulgating a conditional exclusion.

Conclusion Although Voltarc is a speciality lamp manufacturer, we believe our concerns take into account the best interests of the efficient lighting industry as a whole. Clearly, the Nation's long-term environmental goals are best served by excluding mercury-containing lamps from hazardous waste regulations and allowing for their incineration. It would be most unfortunate if the proposed regulations, designed to limit mercury emissions, have the perverse effect of pricing energy efficient lighting right out of the market. This as we know ultimately have a terrible negative environmental impact.

> Voltarc urges the EPA to manage mercury containing lamps in a fiscally responsible way by treating them as a conditionally excluded waste and including incineration as a disposal option under the exclusion. This together with the adoption of the other suggestions discussed above are the best means to reduce overall air emissions and to promote Green Lights and other energy-saving, emission reducing efforts.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Hazardous waste lamps must be treated as a RCRA Subtitle C facility in compliance with the Land Disposal Restrictions (LDR) treatment standards, prior to disposal. For high mercury containing wastes, the treatment standard requires mercury recovery or incineration at a hazardous waste incinerator.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste

Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00080
COMMENTER City of Colorado Springs
SUBJECT EXCL1
COMMENT I am writing on behalf of the City of Colorado Springs to express the City's views with regard to the two alternative approaches for the management of mercury-containing lamps. The City heavily favors the outright exclusion of mercury-containing lamps from regulation as hazardous waste over the alternative Universal Waste Rule approach for three reasons.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00081
COMMENTER Family Dollar Stores, Inc.
SUBJECT EXCL1
COMMENT We are entirely comfortable with a regulatory approach that allows landfilling of spent lamps in state-permitted municipal landfills that meet Subtitle D standards - for new landfill units. EPA studies have clearly demonstrated that landfilling of (END OF SENTENCE)
RESPONSE
EPA is not promulgating the conditional exclusion. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), yet ultimately requires hazardous waste lamps to be recycled or treated and disposed as hazardous waste.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00082
COMMENTER Square D Company
SUBJECT EXCL1
COMMENT Square D supports the conditional exclusion option in the proposal and opposes listing mercury containing lamps as hazardous waste for the following reasons:
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon

commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency is clarifying that all waste lamps exhibiting a hazardous waste characteristic fit the definition of hazardous waste lamps. Spent lamps that do not exhibit any hazardous waste characteristic are not subject to Subtitle C regulation or universal waste management regulations. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00083
COMMENTER Unenco Services, Inc.
SUBJECT EXCL1
COMMENT Unenco Services strongly supports the conditional exclusion as the best means of ensuring the safe and cost effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards) but also allows the Agency to set specific management standards to

control potential emissions.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00084
COMMENTER Jeff Carmichael
SUBJECT EXCL1
COMMENT Comments Option 1: Conditional Exclusion I do not approve of the Subtitle D disposal option as written. I support recycling of mercury-containing lamps but do not support the disposal of the lamps in Subtitle D landfills in mass quantities. By recycling lamps the true intent of the Resource Conservation and Recovery Act is met. If the Conditional Exclusion option is promulgated, most lamp generators will choose the Subtitle D disposal option over recycling due to the cost savings. This would effectively cripple or eliminate the mercury-containing lamp reclamation industry.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards). In today-s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps.

Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment and disposal of hazardous waste lamps. The Agency did not limit

the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes. 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 FLEP-00085
COMMENTER Town of Sterling, CT
SUBJECT EXCL1
COMMENT The Town of Sterling, CT wishes to respond to the above indicated USEPA Docket Number by stating strong support for conditional exclusion of energy efficient fluorescent and high intensity discharge lamps containing mercury, enabling the lamps to be classified as solid waste as long as they are managed under specified best management practices.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00086
COMMENTER Northeast Utilities Service Co.
SUBJECT EXCL1
COMMENT NUSCO supports EPA's proposal to exempt mercury-containing lamps

from all Subtitle C regulation provided that the lamps are managed in a qualified municipal solid waste landfill (MSWLF) or a state approved mercury reclamation facility. Briefly, NUSCO supports this proposal because: 1)The proposal will promote energy efficient (and environmentally beneficial) relamping; 2)Deregulation is grounded on compelling scientific data which demonstrate that disposing of lamps in MSWLFs does not pose a health risk; 3)Regulation as hazardous waste is highly burdensome and expensive and would only result in minimal environmental benefits;

II. Deregulation is Grounded on Compelling Scientific Data The proposed exclusion is grounded on a compelling scientific record. EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment, and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment" (May 14, 1993), RTI Project No. 94U-5400-010.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice

presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00087
COMMENTER NECRRRA
SUBJECT EXCL1
COMMENT The NECRRRA resolution supports the proposed rule change to classify mercury containing lamps as solid waste as long as they are managed under specified best management practices.

NECRRRA is concerned about the responsibilities for disposal of mercury lamps by regional businesses, institutions, and towns, and believes that the conditional exclusion will allow for cost-effective use of the lamps and environmentally safe disposal.

THEREFORE, BE IT RESOLVED THAT NECRRRA strongly supports the conditional exclusion as the best means of insuring the safe and cost- effective disposal of mercury containing lamps, and urges USEPA to develop stronger regulations governing storage, transportation, crushing, and recycling of mercury containing lamps.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the

Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are recycled or treated in an environmentally protective manner at Subtitle C hazardous waste facilities. 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). Once the lamps are properly treated and no longer hazardous waste, the treated lamps may be disposed in a solid waste facility.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities.

DCN FLEP-00088
COMMENTER S.C. Johnson and Son, Inc.
SUBJECT EXCL1
COMMENT First, SC Johnson supports the first plan, which would exclude mercury-containing lamps from being regulated as hazardous waste. It is understood that certain other conditions must be met in order to qualify for this relaxation of the regulatory requirements. This position can be supported by the statistics and evidence that the EPA has cited.

In closing, SC Johnson agrees with the first plan which would exclude mercury-containing lamps from regulation under the hazardous waste regulation program. The proposed waste handling conditions of this plan are adequate to ensure protection of human health and the environment, and industry source reduction activities assure long term protection measures.

RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.
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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00089
COMMENTER Town of Killingly, CT
SUBJECT EXCL1
COMMENT The Town of Killingly wishes to respond to the above indicated USEPA docket number by stating strong support for conditional exclusion of energy efficient fluorescent and high intensity discharge lamps containing mercury, enabling the lamps to be classified as solid waste as long as they are managed under specified best management practices.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00090
COMMENTER The Boeing Company
SUBJECT EXCL1
COMMENT The Boeing Company has reviewed the two proposed alternative management approaches. In general, we support option 1, conditional exclusion for mercury-containing lamps from regulation as hazardous waste. This approach is supported by data collected from municipal solid waste landfills. New requirements for municipal solid waste landfills provide sufficient assurance that human health and the environment is protected. Specific comments on the proposed rule are enclosed for your review.

3. Finally, EPA's data indicates that although mercury from fluorescent lamps is one of many sources of mercury contamination in the municipal solid waste landfills, it accounts for only 3.8 % of mercury now going to these landfills. Without data to demonstrate that the lamps from the regulated community are a major source of mercury contamination, and with the new regulatory requirements for operators of Subtitle D landfills, we believe EPA should allow all mercury-containing lamps to be excluded from hazardous waste regulations. In addition, this policy would create equity so all generators will be subject to the same requirements. Absent findings contrary to 1, and 2 above, we believe excluding lamps from RCRA regulations to be timely and appropriate.

Conditional Exclusion Option We support the agency's proposal to exclude mercury-containing lamps from hazardous waste regulations. We share the agency's objective to protect public health and the environment. Our reasons for supporting this approach over the universal waste approach are:

RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the

publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00093
COMMENTER Institute of Scrap Recycling Industries,
SUBJECT EXCL1
COMMENT However, ISRI would like to express its support for the general concept of the use of conditional exclusions for recyclable materials from the Subtitle C definition of solid waste. Materials that are diverted from the solid waste stream for recycling should not be considered solid wastes and should be regulated in a manner consistent with the actual risks that a particular form of recycling poses to the environment. The

conditional exclusion supported by ISRI most closely resembles the first approach proposed by EPA in the present proposed rule. Under EPA's first approach, mercury lamps would be excluded from regulation as hazardous waste provided certain conditions are met. 59 Fed. Reg. at 38293. However, although such an exclusion is certainly beneficial, it does not go far enough in recognizing the distinction between materials sent for recycling and materials sent for disposal. EPA should specify that a material is not a solid waste if it is delivered into the recycling process and managed in accordance with specified management standards . [2] [Footnote 2: ISRI advocates a tier-based system in which management standards are imposed on recycling activities based on the level of risk imposed. Thus, recycling activities that EPA determines pose little or no adverse impact to human health and the environment as compared with their virgin counterparts would need to follow only minimal, if any, management standards, while activities that could potentially affect human health and the environment would have to comply with management standards corresponding to the risk imposed. ISRI envisions management standards ranging from good housekeeping and source control to more stringent controls depending upon the risks involved. For example, two years ago ISRI issued to its members an Environmental Operating Guidelines manual containing suggestions for environmentally sound operating practices. The Guidelines address a variety of controls to deal with potential environmental problems including both management practices and control technologies. ISRI would be happy to discuss these Guidelines with the Agency.] A conditional exclusion from the definition of solid waste is fully within EPA's jurisdiction as defined by RCRA. EPA is authorized under the statute to regulate "discarded materials." By developing a regulatory definition of discarded materials which distinguishes between those materials that are diverted from the solid waste stream for the purposes of recycling and those that remain for the purposes of disposal, EPA will assure that the necessary balance between environmental protection and removal of impediments to recycling is provided. Materials in the recycling process are valuable commodities, destined not for disposal but reuse, and because they have been diverted from the solid waste stream, it is incorrect to consider them to be solid waste. This distinction, while not adequately reflected in EPA regulation, is well founded in the realities of the marketplace.

Traditional recyclable materials compete in a volatile marketplace with their virgin counterparts which are removed from the environment through mining, timbering or chemical processing. If EPA wants to ensure that materials are recycled (indeed to expand the volumes recycled), then a recyclable versus waste distinction must be established within the RCRA regulations so as to remove a series of impediments that deter recycling in this country. Virgin materials exploitation does not carry with it the significant regulatory costs imposed by RCRA on the recycling of secondary materials. Under RCRA Subtitle D, the states and EPA must establish management plans for "solid waste." Because "any discarded material" is a "solid waste", EPA regulates recycling as a waste management process. Thus, under state plans, recyclers have been confused with those who operate landfills and incinerators. Recyclers can face requirements that their facilities - including buildings under roof - be lined with plastic, not because there is an environmental need for it but because landfills were required to be lined. Metals recyclers can be subject to safeguards for disease vectors because all solid waste management units are presumed to be handling garbage. Legislative attempts to control the interstate shipment of garbage have been drafted in ways that would stifle the movement of scrap paper to de-inking facilities for reuse. Otherwise admirable attempts to restrict the shipments of waste to the third world also hold out the threat of Balkanizing the worldwide market for secondary materials (the US international trade was benefitted by $5.1 billion in secondary materials exports in 1990). When virgin competitors are cheaper to use than secondary materials -- as a result of expensive artificial barriers imposed on recyclables --recycling of those secondary material stops. Even more important, the Subtitle C program determines which "solid wastes" are "hazardous wastes" through tests that presume the material in question will be buried in acid soil for many decades. Many metals separated from the solid waste stream for recycling could fail such a test. However, because they are being processed for reuse, not buried, they should not be so evaluated (and are not presently subject to Subtitle C requirements as a result of the "scrap metal exemption"). [3]
[Footnote 3: The scrap metal exemption recognizes that metals, when recycled, may not pose the same environmental risk as when disposed. Thus, scrap metal processors are not classified by EPA

as treatment, storage, or disposal facilities.] In addition, should a facility processing such recyclable materials be classified a Subtitle C hazardous waste treatment, storage or disposal facility, it would carry with it costs so significant as to render the recyclable commodity involved unmarketable because the competing virgin material would be far less expensive. Finally, recyclers are being identified as 'potentially responsible parties' at Superfund sites around the country because a material which they sold for recycling has been mishandled by the buyer, at his site. The seller of competing virgin material has no such liability because his product - identically mishandled - is not a 'solid waste'. Because markets for secondary materials are so difficult to encourage and maintain, unnecessary and artificial regulatory costs placed on recycling must be avoided. This does not amount to decontrol of recycling, rather it means a level of regulatory control consistent with the actual risks that a particular form of recycling poses to the environment. Blind application of disposal-based regulatory criteria will not benefit the environment and will actively discourage increased diversion and utilization of secondary materials, because virgin materials are exempt from such controls and costs.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), 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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Under the universal waste regulations, handlers of hazardous waste lamps will be able to store quantities of spent lamps for one year without having to obtain a hazardous waste permit. In addition, hazardous waste transporters and manifests are not required during the transport of spent lamps. These factors may result in increased collection of spent lamps and facilitate

recycling programs.

The Agency is not limiting today's final rule to recycled hazardous waste lamps for the same reasons that the Agency decided not to limit the universal waste rule to recycled waste. Not limiting the universal waste system to recycled waste makes the regulations much less complex and more user friendly, thus encouraging participation in universal waste collection programs. Increased collection under the universal waste regulations will result in increased environmentally protective management of universal wastes at Subtitle C hazardous waste facilities and recycling facilities. The Agency believes that the environmental benefits to be obtained from improved management of these wastes, whether it is recycling or treatment and disposal, outweigh the possible increases in recycling that might occur if the regulations were limited. However, 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.

The commenter's request for an Agency reinterpretation of "solid waste" and "discarded material" is outside the scope of this final rulemaking. Today's final rule does not change the definition of "solid waste" as defined under '261.2. Spent lamps, as defined by today's rule, are subject to this rulemaking if they exhibit a hazardous waste characteristic for mercury or any other hazardous constituent.

Superfund liability is not limited to handlers of solid waste. Any person mishandling a hazardous substance as defined in CERCLA '101(14) could be held liable under Superfund. Further information on Superfund liability and RCRA issues may be obtained by calling the RCRA/Superfund Hotline at (800) 424-9346.

DCN FLEP-00094
COMMENTER City of Springfield Office of Pub. Util.
SUBJECT EXCL1
COMMENT City Water, Light & Power strongly supports the conditional exemption from Subtitle C regulation for mercury-containing lamps. Such an exclusion would remove regulatory barriers to allow for greater participation in demand side management (DSM) programs. CWLP fully recognizes the benefits of demand side management programs, both from an economical and environmental standpoint. In fact, CWLP currently operates two lighting retrofit programs: "CITYLIGHTS" offers rebates for energy efficient lighting retrofits in commercial applications, and "HOMELIGHTS" provides rebates to residential customers who purchase compact fluorescent lamps. CWLP is concerned that any regulatory barriers will reduce participation in these programs and therefore reduce the system benefits that would otherwise result from these DSM efforts.

CWLP appreciates the opportunity for public comment, and again strongly urges the Agency to conditionally exclude from the hazardous waste regulation, mercury-containing lamps.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency commends the commenter's promotion of energy-efficient lighting programs. By removing some of the barriers to Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The Agency notes that today=s rule does not affect the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generate 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.

DCN FLEP-00095
COMMENTER Allegheny Power System

SUBJECT EXCL1

COMMENT APS strongly supports the conditional exclusion for mercury-containing lamps since such an exclusion will provide environmentally sound and safe management without the undue burdens of RCRA Subtitle C regulation. This conditional exclusion, as applied to the term mercury-containing lamps, should be inclusive, but not limited to, fluorescent lamps, mercury vapor lamps, high pressure sodium vapor lamps, and metal halide lamps. The proposed exclusion is based on a sound technical record, including EPA's own data, that asserts that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills.

The conditional exclusion proposal will ensure continued participation by APS in the Green Lights program. Regulation of mercury- containing lamps under a hazardous waste scenario will undoubtedly impede, if not economically prohibit, full participation in the Green Lights energy- efficient relamping program. Current cost projections, assuming the conditional exclusion, for APS to relamp only its own facilities ranges from 3 to 4 million dollars. EPA itself acknowledges in the proposal that "[the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies. [59 Fed. Reg. 38288, 38290 (July 27, 1994)] EPA's assessment is correct. Because of these substantial additional costs (for example: hazardous waste disposal of the lamps from the APS/West Penn Power main office building alone will cost approximately $4300). APS may have no choice but to invest their demand-side management dollars in other programs and forego Green Lights. Managing lighting wastes under Subtitle C will not only discourage participation in Green Lights in terms of costs, but it is also detrimental from an overall environmental perspective. The overall reduction in air emissions resulting from energy savings realized by full participation in Green Lights, far outweighs any perceived benefits of retaining lighting wastes under Subtitle C regulation. EPA itself acknowledges this concept as stated in a December 7, 1992 letter from Don Clay and Michael Shapiro to the Alabama Department of Environmental Services. This letter states that "there is a

> clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and we believe compelling, regardless of the regulatory status of lamp wastes, whether at the federal or state levels." APS agrees with this assessment and believes that this conclusion, coupled with the fact that spent lamps can be safely managed in qualified municipal solid waste landfills, clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other demand-side management programs are removed.

RESPONSE

The Agency does not agree with the commenter that any regulatory option other than the conditional exclusion discourages participation in energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the standards are less costly than full Subtitle C management standards. Before today=s rulemaking, hazardous waste lamps that exhibited a toxicity characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C regulations for generators and transporters of universal waste. In addition, small quantity handlers of universal waste (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not subject to the universal waste notification and record keeping requirements. 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal

when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

In today's rule the Agency is clarifying that all waste lamps exhibiting a hazardous characteristic for mercury or any other hazardous constituent fit the definition of hazardous waste lamps. The final definition of Alamp@ (40 CFR 260.10 and 40 CFR 273.9) specifies that a A*Lamp*, also referred to as Auniversal waste lamp@ is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.@

DCN FLEP-00095
COMMENTER Allegheny Power System
SUBJECT EXCL1
COMMENT While APS believes that the recycling of spent lamps is the preferred alternative in some cases, EPA must understand that recycling is not the solution for the management of all spent lamps. First, recyclers cannot accommodate the huge volumes of lamps that would be generated by full participation in relamping programs. Second, all recycling facilities are not as environmentally protective as the management of spent lamps in qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste landfill standards (which are equipped with liners and leachate collection systems.). Indeed, in may cases the management of spent lamps in a qualified municipal solid waste landfill is more protective of human health and the environment than sending the lamps to a recycling facility where it is unclear (1) how much of the mercury is actually being recovered and by what means such recovery is conducted, and (2) how the treatment

residuals (e.g.. the glass and metal parts) are being reused.
APS appreciates the opportunity to comment on these important regulations and hopes that EPA concurs with our comments and supports the conditional exclusion option over the universal waste option. APS believes that the conditional exclusion alternative is clearly the best management method for mercury-containing lamps because it provides the greatest net environmental benefit and encourages full participation in Green Lights.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment and storage facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process.

Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00096
COMMENTER Seward Co. Rural Power District
SUBJECT EXCL1
COMMENT We feel that a cost benefit analysis will make a strong case for the exclusion of these lamps from Subtitle C regulation. Further, we want to go on record as fully supporting the idea of encouraging greater participation in Green Lights while at the same time not saddling rural cooperatives and rural public power districts with additional operating costs which in the final analysis must be passed on to the rural ratepayers.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input, additional information collected and reviewed by the Agency since the publication of the proposed rule, and the economic assessment EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency commends the commenter's promotion of energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and

collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

The Agency notes that today=s rule does not affect the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generate 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.

DCN FLEP-00097
COMMENTER Alabama Municipal Electric Authority
SUBJECT EXCL1
COMMENT AMEA supports many Demand Side Management programs, such as load management, Tree Power, and Green Lights. Requiring the disposal of lamp wastes as hazardous waste, under Subtitle C regulations, may discourage participation in energy efficient lighting programs. This seems to be counterproductive. AMEA strongly urges full exclusion for mercury containing lamps from hazardous waste regulation and from all RCRA Subtitle C regulation, provided that these lamps are managed in a qualified municipal solid waste landfill or managed at a state-approved mercury reclamation facility.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency commends the commenter's promotion of energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. In addition, corporations that make the commitment to these programs profit by lowering electricity bills and improving lighting quality. Participation in energy-efficient lighting programs also reduces emissions of carbon dioxide, sulfur dioxide, and nitrogen oxides, in addition to metals such as mercury caused by power plants generating electricity.

DCN FLEP-00098
COMMENTER Indiana Retail Council, Inc.
SUBJECT EXCL1
COMMENT Many of our members have found that fluorescent bulbs are the most energy-efficient method for lighting the sales floor areas. We believe that if these spent lamps are regulated as a hazardous waste, our members will be subject to strict and costly requirements of the Resource Conservation and Recovery Act (RCRA). Requirements which will negate the cost saving and energy saving benefits of using fluorescent lighting systems. In order to continue the popularity of this energy-efficient lighting system, the IRC urges the EPA to act quickly to resolve the regulatory issues surrounding the disposal of fluorescent lamps which contain mercury. Further, we ask the EPA to adopt the regulatory proposal termed "conditional exclusion". The Retail Council supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leak in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, U.S. lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total

mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year.

The members of the Indiana Retail Council urge the EPA to approve the conditional exclusion rule as described in docket number F-94-FLEP-FFFFF. Swift action on this rule will allow retailers to continue to be wise and efficient users of energy and avoid costly and burdensome government regulation.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The

Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency notes that before today=s rulemaking, hazardous waste lamps that exhibited a toxicity characteristic had to be managed under full Subtitle C management standards. In today's rule, the Agency is clarifying that all waste lamps exhibiting a hazardous waste characteristic for mercury or any other hazardous constituent fit the definition of hazardous waste lamps. Spent lamps that do not exhibit any hazardous waste characteristic are not subject to Subtitle C regulation or universal waste management regulations.

DCN FLEP-00099
COMMENTER Southwestern Bell Telephone
SUBJECT EXCL1
COMMENT SWBT urges the EPA adopt Option 1 which would exclude spent MCLs from its HWMRs when shipped to state or EPA approved municipal solid waste landfills (MSWLs) or mercury recycling facilities until such time as the Agency can conclusively evaluate the fate and transport of mercury using the metal speciation model, MINTEQ, now under development. This recommendation is based on the discussion that appeared in the proposed rulemaking in which the Agency acknowledged that preliminary analysis indicates mercury does not appear to pose as significant a risk to drinking water sources as initially thought because it does not tend to migrate, but remains in the soil. Also, there appears to be a trend among states to prohibit CESQGs, such as SWBT, from landfilling any quantity of hazardous waste not specifically excluded from regulation in state approved MSWLs, thereby potentially complicating the future disposal of MCLs if they are classified as hazardous waste. Consequently, SWBT recommends that MCLs be excluded from the HWMRs until the Agency's study is completed so that any ensuing regulation achieves a reasonable balance between the costs incurred by business to comply with its legal requirements and the benefits to the environment that are derived from regulation. In conclusion, SWBT appreciates the opportunity to provide comments on this matter and commends the Agency's approach to streamline and reduce the regulatory requirements under its rules.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met. 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.

DCN FLEP-00100
COMMENTER Arizona Municipal Power Users' Assn.
SUBJECT EXCL1
COMMENT Summary: AMPUA strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management ("DSM") programs.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00100
COMMENTER Arizona Municipal Power Users' Assn.
SUBJECT EXCL1
COMMENT While AMPUA supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfill operating under EPA's new municipal solid waste land fill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases, municipal solid waste landfills are more protective of human health and environment that recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes. AMPUA appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment, and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00101
COMMENTER Montana-Dakota Utility Company
SUBJECT EXCL1
COMMENT 2. If light bulbs are not allowed to be disposed in ordinary landfills, the conditional exclusion requires the light bulbs to be disposed in approved permitted municipal solid waste (MSW) landfills which control the light bulb waste in an environmentally sound manner. These landfills are designed to

handle conditionally exempt small quantity generator waste and household hazardous waste. As discussed in comment one, the landfilling of light bulbs in ordinary landfills have a minimal effect to human health and the environment. It is evident that the conditional exclusion also is protective of human health and the environment by managing the light bulb waste in MSW landfills.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00102
COMMENTER Hopkinsville Electric System
SUBJECT EXCL1
COMMENT The Hopkinsville Electric System favors conditional exclusion from hazardous waste regulation for mercury-containing lamps and is opposed to the "universal waste option" as a solution for proper disposal of spent lighting wastes.

RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00103
COMMENTER Tahlequah Public Works Authority
SUBJECT EXCL1
COMMENT Tahlequah Public Works Authority is urging you to exclude mercury- containing lamps from Subtitle C of RCRA regulation. We believe the "Universal Waste option" is not the proper resolution of the lighting waste issue in our case, or in the best interest of our customers. Subtitle C disposal costs seem to grow every day as more regulation is implemented. Tahlequah Public Works Authority would be forced to reduce the amount of relamping on our system due to the added cost of disposal. Also participation in energy efficient lighting programs would greatly be affected by this regulation. Tahlequah Public Works Authority uses a municipal solid waste transfer facility where our lighting waste disposal will be managed in accordance with all RCRA regulations. We, at Tahlequah Public Works Authority, appreciate the opportunity provided during this public comment period to submit these comments in favor of the conditional

exclusion from hazardous waste regulations for mercury-containing lamps and in opposition to the "Universal Waste Option" as a solution for proper disposal of spent lighting waste.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00105
COMMENTER Waverly Light and Power
SUBJECT EXCL1

COMMENT WL&P supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management (DSM) programs. The "universal waste option" is not the proper resolution to the lighting waste issue because, under that option, lighting wastes are subject to the most onerous and expensive components of Subtitle C regulation, namely the land ban program and Subtitle C disposal costs.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to

all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00105
COMMENTER Waverly Light and Power
SUBJECT EXCL1
COMMENT While WL&P supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers, if they ever serve rural America, cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste land fill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases municipal solid waste landfills are more protective of human health and the environment than recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp

management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00106
COMMENTER Town of Wickenburg, AZ
SUBJECT EXCL1
COMMENT Summary: The Town of Wickenburg strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management ("DSM") programs.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00106
COMMENTER Town of Wickenburg, AZ
SUBJECT EXCL1
COMMENT While the Town of Wickenburg supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full-time participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfill operating under EPA's new municipal solid waste landfill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases, municipal solid waste landfills are more protective of human health and environment than recycling centers. Thus, the universal waste option is not adequate for mercury- containing lighting wastes. The Town of Wickenburg appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

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The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00108
COMMENTER Union Electric Company
SUBJECT EXCL1
COMMENT Union Electric strongly supports the conditional exclusion for mercury-containing lamps, which ensures that the lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory

requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00108
COMMENTER Union Electric Company
SUBJECT EXCL1
COMMENT The proposed exclusion is based on a compelling technical record that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in municipal solid waste landfills. EPA's own data shows that mercury does not leach from municipal solid waste landfills (MSWLFs) at levels that pose a threat to human health and the environment, and that mercury levels in landfill gas are "very small." See "Management of Used Fluorescent Lamps: Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010. The cost of managing spent lamps as hazardous could also make participation in relamping programs economically impractical and will impede participation in Green Lights and other energy-efficient relamping programs that are being promoted by the Administration under the Climate Challenge Program. We agree with EPA that "the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient

> light technologies." 59 Fed. Reg. 38288, 38290 (July 27, 1994). The conditional exclusion will remove this barrier to participating in energy efficient relamping programs. Keeping lighting wastes in the Subtitle C system is not required from an environmental perspective. EPA has stated in a recent letter (December 7, 1992) to Alabama state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account." We agree with this assessment and believe that this conclusion, coupled with the fact that spent lamps can be safely managed in qualified MSWLFs, supports excluding lamps from Subtitle C regulation. Failure to implement the conditional exclusion can result in a continuing reluctance by electric utilities and their customers to participate in energy efficient relamping programs.

RESPONSE

The Agency does not agree with the commenter that any regulatory option other than the conditional exclusion discourages participation in energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

Before today-s rulemaking, hazardous waste lamps that exhibited a toxicity characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C

regulations for generators and transporters of universal waste. In addition, small quantity handlers of universal waste (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not subject to the universal waste notification and record keeping requirements. 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00108
COMMENTER Union Electric Company
SUBJECT EXCL1
COMMENT While we agree that recycling spent lamps may be the preferred alternative in some cases, recycling is not the solution for the management of all spent lamps. Some recycling facilities may not be as environmentally protective as managing the spent lamps in qualified MSWLFs, especially those operating under EPA's new MSWLF standards. Although we recognize that most recyclers are protective of the environment, generators may evaluate their options and find that the most protective option is landfilling. In conclusion, we strongly support the conditional exclusion for lamps. The technical record does not support including them in the universal waste option and there are environmental and economic disincentives to managing them as a hazardous waste. This authority would allow other environmentally beneficial management options to be considered.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management

standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions due to the fact that it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00109
COMMENTER City of Edmond, OK
SUBJECT EXCL1
COMMENT The City of Edmond strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an

exclusion removes regulatory barriers to efficient lighting upgrades.

RESPONSE

The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00109

COMMENTER City of Edmond, OK

SUBJECT EXCL1

COMMENT While the City of Edmond supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs.. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste land fill standards. These landfills are equipped with liners and leachate collection systems. Clearly,

> in many cases municipal solid waste landfills are more protective of human health and environment that recycling centers. Thus, the universal waste option is not adequate for mercury- containing lighting wastes. The City of Edmond, Oklahoma appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection

standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00110
COMMENTER City of Wahoo, NE
SUBJECT EXCL1
COMMENT We do, however, have an active energy efficiency program which offers our customers an attractive package of incentives including rebates and no interest loans for a number of energy saving measures, including lighting. This program has been well received and is creating the desired demand side management results. The added problems and costs which would be incurred if it is required that lamp wastes be disposed of as hazardous waste under Subtitle C regulations, we feel would definitely discourage many of our customers from using our program. The City of Wahoo utilizes a qualified, State licensed landfill for our waste, and we appreciate this opportunity to express our opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
The Agency commends the commenter for participating and encouraging other companies to participate in energy-efficient programs. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. Before today-s rulemaking, hazardous waste lamps that exhibited a toxicity characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C regulations for generators and transporters of universal waste. In addition, small quantity handlers of universal waste (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not subject to the universal waste notification and record keeping requirements. A significant number of commenters indicated that savings from reduced energy usage more than cover the cost of managing lamps as part of the universal waste regulations. Other commenters indicated the costs for managing lamps may now increase.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of

seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00112
COMMENTER Wisconsin Electric Power Company
SUBJECT EXCL1
COMMENT Wisconsin Electric strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or

broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00112
COMMENTER Wisconsin Electric Power Company
SUBJECT EXCL1
COMMENT I believe the proposed exclusion is based on a sound technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury containing lamps do not warrant regulation as hazardous wastes when managed in qualified solid waste landfills or recycling facilities. EPA's own data demonstrate that mercury does not leach from municipal solid waste landfills at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small." See "Management of Used Fluorescent Lamps Preliminary Risk Assessment," (May 14, 1993) RTI Project No. 94U-5400-010.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00113

COMMENTER City of Safford, AZ
SUBJECT EXCL1
COMMENT SUMMARY The City of Safford strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management ("DSM") programs. The "universal waste option" is not the proper resolution to the lighting waste issue because, under that option, lighting wastes are subject to the most onerous and expensive components of Subtitle C, regulation, namely the land ban program and Subtitle C disposal costs.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes

cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00113
COMMENTER City of Safford, AZ
SUBJECT EXCL1
COMMENT While the City of Safford supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in. relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfill operating under EPA's new municipal solid waste land fill standards. these landfills are equipped with liners and leachate collection systems. Clearly, in many cases, municipal solid waste landfills are more protective of human health and environment that recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes. The City of Safford appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of

mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00114
COMMENTER Meijer, Inc.
SUBJECT EXCL1
COMMENT Meijer strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from Class II Sanitary Landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, U.S. lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of

lamps (.04 to .3 L tons) is small in comparison to the emissions of mercury from combustion sources, estimated to be 286 tons per year. 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. The Michigan Department of Natural Resources maintains fluorescent lamps are Hazardous Waste unless proven otherwise. This requires a separate TCLP test for each store location at a considerable expense. The TCLP test results may also vary significantly due to a non-uniform matrix and only a portion of the sample is utilized. EPA should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefits of energy-efficient relamping by promulgating a conditional exclusion.

Meijer supports environmentally sound and cost-effective recycling of mercury-containing lamps. However, we believe that controls on the recycling process itself and on the quality and use of the reclaimed products is necessary. Again, as generators of the waste stream, we remain responsible for its downstream management and would like some assurance that recycling and reuse practices are safe. We recommend that controls be imposed on air emissions of mercury during the recycling process and that the OSHA workplace standard for mercury be applied. We also, believe that the levels of mercury allowed in materials recovered from lamps be strictly limited to avoid unsafe exposures from downstream re-use processes involving heat, which would cause any mercury contained in the materials to be released. Our company operates in several states. If EPA fails to exercise leadership on the lamp disposal issue by delaying or failing to finalize a conditional exclusion, we face the prospect of spent lamps being regulated in a wide variety of different ways across the county, as states move to adopt their own regulatory schemes. Such variation makes it extremely difficult to design and implement company-wide policies and procedures with respect to lighting upgrades and lamp disposal or recycling. It also prolongs the tremendous uncertainty within the regulated community about the compliance options that are available. The end result is that the Agency will either fail to achieve or delay the achievement of the environmental goal of

reducing air emissions from electric power generation through implementation of broad scale energy-efficient lighting programs. We are comfortable with a regulatory approach that allows landfilling of spent lamps in state-permitted Class II Sanitary Landfills that meet Subtitle D standards for new landfill units. EPA studies have clearly demonstrated that landfilling of mercury-containing lamps presents little risk to human health or the environment. Mercury has been shown not to leach or otherwise escape from Class II Sanitary Landfills, and indeed, the quantity of lamps assumed to be disposed in landfills each year (250 million pounds) is insignificant in comparison to the 1 million tons of household hazardous waste and the 160 million tons of municipal waste landfilled each year. Air emissions due to breakage can be controlled through proper handling and packaging practices, and, as indicated earlier, the regulatory provisions should address crushing of lamps. We feel a 5 year sunset provision is appropriate to review the conditional exclusion.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The deposition of atmospheric mercury into surface waters, its presence in runoff from soil, or the recycling of mercury from sediment into the water column can result in the accumulation of the metal in many animal species, particularly aquatic organisms. The EPA has recently published a Mercury Study Report to Congress (December 1997) that examines many of the health effects resulting from mercury exposure. Examples of mercury-related risks include neurotoxicological problems and developmental effects in fetus and adults (e.g., AMad Hatters= disease), and accumulation of the metal in many animal species, particularly aquatic organisms. For example, fish with high levels of mercury in their tissues have exhibited increased mortality, reduced reproductive success, impaired growth, and behavioral abnormalities.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills.

(For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's final rulemaking (unless the lamps are household hazardous waste or the lamps are generated by a conditionally exempt small quantity generator per '261.5). Generators of spent lamps must determine the toxicity of the spent lamps either by testing the lamps or applying knowledge of the hazard characteristic of the waste. Generators are not required to test spent lamps; however, the generator must keep documentation of the hazardous waste determination.

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 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. More than 35 states already have either added spent lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Although the destination facilities are subject to these hazardous waste management requirements for treatment and storage activities, the Agency does not have the authority to regulate the specific process of mercury reclamation under the scope of this rulemaking. EPA believes that with adequate state oversight, mercury containing lamps can be safely recycled and the mercury reclaimed. In addition, the Agency believes that recycling facilities will guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp

management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. 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 applies the prohibition to handlers of hazardous waste lamps. The definition of treatment under RCRA includes Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

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 is not including a sunset provision with today=s final rule. The Agency believes that the data and information provided to the Agency and the Agency=s own studies and analyses that were conducted during the period of time since the hazardous waste lamps rulemaking was proposed provide adequate evidence of the behavior of mercury in the environment and the potential releases of mercury to the environment to support today=s final rule. The Agency notes, however, that should sufficient and compelling information related to the behavior of mercury become available in the future, the Agency can always re-evaluate the standards promulgated in today=s final rule.

DCN SCSP-00114
COMMENTER National Electric Manufacturers Assn.
SUBJECT EXCL1
COMMENT NEMA continues to encourage EPA to exempt lamps containing mercury from Subtitle C when managed in these well-designed and operated solid waste facilities, or in properly permitted recycling/reclamation facilities. There are two advantages to such an approach. First, Subtitle C capacity is saved for wastes that most need such stringent management. Second, there are many more quality Subtitle D facilities than Subtitle C facilities reducing transportation distances, costs, and extended storage

times.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Permits would not be required for storage at interim collection facilities. Such an approach could help in assuring that spent lamps are disposed or recycled at proper Subtitle C facilities. Sufficient disposal and recycling capacity exists for hazardous waste lamps. Generators, transporters, and collection facilities may store spent lamps for one year without a permit in order to facilitate proper disposal or recycling. Accumulation for longer than one year is allowed if solely for the purpose of facilitating proper recovery, treatment or disposal.

DCN FLEP-00115

COMMENTER American Textile Manufacturers Institute

SUBJECT EXCL1

COMMENT The American Textile Manufacturers Institute (ATMI) appreciates the opportunity to comment on the proposed modification to the hazardous waste management system rule and strongly encourages the U.S. Environmental Protection Agency (EPA) to fully exempt mercury- containing lamps from hazardous waste regulation. ATMI opposes adding mercury-containing lamps to the Agency's universal waste management system.

Given the fact that Subtitle D regulations are rapidly improving the design, operation and construction of municipal solid waste landfills (MSWLFs) and the mercury content of fluorescent light bulbs represents less than four percent of the total mercury loading in municipal solid waste, existing regulations are adequate to protect human health and the environment. In short, further restrictions on the disposal of fluorescent lamps would likely result in significant added cost and administrative burden with little environmental benefit.

In its July 27 Federal Register notice, EPA acknowledged that studies have been inconclusive in determining whether the amount of mercury contained in a fluorescent fight tube will cause contamination if properly handled. In fact, EPA identified studies that indicate that mercury is unlikely to leach from MSWLFs at levels above the drinking water maximum contaminant levels. The notice cited a study indicating that less than 0.01

> percent of the mercury in MSWLFs leaches from the landfill. Furthermore, additional analysis concluded that the metallic form of mercury in MSWLFs has a lower solubility in water, and that municipal solid waste has a significant capacity for retaining mercury in the landfill. Similarly, EPA estimates that total airborne mercury emissions from MSW in landfills to be 0.0001% of total annual loading or 0.8 kg (1.76 lb); of these values disposal of fluorescent fight bulbs represents 03 kg (0.07 lb.) per year. Since EPA has acknowledged that the behavior of mercury in a MSWLF is greatly unknown, ATMI encourages the Agency to conduct additional analysis and further develop a model under the toxicity characteristic to accurately predict the movement of mercury through the groundwater system or landfill.
>
> Instead, EPA should exempt mercury-containing lamps from hazardous waste regulations and encourage the development of additional spent lamp recycling centers across the United States In order to recycle their spent lamps, manufacturers currently must send their lamps to Ohio, Massachusetts, Pennsylvania, Minnesota, California or Florida.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may

result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency agrees with the commenter that hazardous waste lamp recycling should be encouraged. 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. In addition, as the demand for lamp recycling grows, recycling will become more cost competitive with Subtitle C landfilling. The EPA believes that increased recycling capacity and continued improvements in technologies will push recycling fees lower.

DCN FLEP-00115
COMMENTER American Textile Manufacturers Institute
SUBJECT EXCL1
COMMENT ATMI believes that if the high efficiency tubes are listed as a hazardous waste, manufacturers will no longer use high efficiency lamps containing mercury in their facilities. Instead, they will switch back to the low-efficiency lamps.
RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. Only hazardous waste lamps that exhibit a hazardous waste characteristic are subject to today's rule. Lamps that do not exhibit any hazardous waste characteristics are not hazardous waste, and therefore are not subject to RCRA Subtitle C. The Agency notes that before today=s rulemaking, hazardous waste lamps that exhibited a hazardous waste characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C regulations for generators and transporters of universal waste.

DCN FLEP-00116
COMMENTER Bath Iron Works Corporation
SUBJECT EXCL1
COMMENT We also feel strongly that an "exclusion" from regulation sends the wrong message to industry and the general population. Speaking as a generator of this waste type, we do not feel that the current MSW system is designed, operated, or enforced in such a manner as to sufficiently protect our interest or to ensure the safety of human health or the environment.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00117
COMMENTER Dayton Power and Light Company
SUBJECT EXCL1
COMMENT The following comments are submitted on behalf of the Dayton Power and Light Company (DP&L) in response to the proposed rule on Mercury-Containing Lamps, published July 27, 1994, 49 FR 38288. DP&L supports U.S. EPA's proposed first option for excluding mercury-containing lamps from Subtitle C regulation. U.S. EPA's proposed second option, Universal Waste approach, could seriously alter business and industry's approach to implementing efficient lighting choices. For this and the reasons discussed in the attached comments, DP&L strongly encourages U.S. EPA to adopt its first proposed option, the conditional exclusion.

Mercury-Containing Lamps Should Be Conditionally Excluded From RCRA Subtitle C The Dayton Power and Light Company ("DP&L") strongly supports the U.S. Environmental Protection Agency's ("USEPA") mercury-containing lamp management proposal to exclude these lamps from RCRA Subtitle C regulation. DP&L believes that lamp management can responsibly occur without the Subtitle C constraints in the proposed Universal Waste option. USEPA's lamp management proposal should provide sufficient controls needed for environmental protection. Managed lamp disposal in state-approved municipal solid waste landfills (MSWLFs) should not pose environmental harm. DP&L has serious concerns that USEPA's alternative Universal Waste option could impede industry participation in Green Lights and other energy-efficient lighting programs. While these demand-side management programs (DSM) have been primarily designed to reduce electricity demand, significant environmental benefits through emissions avoidance have resulted. New Rule Would Provide Ample Environmental Protection DP&L believes mercury-containing lamps can be properly managed under the proposed exclusion with negligible environmental impact. USEPA's data indicates that mercury does not leach from MSWLFs at levels which threaten human health and the environment.(footnote 1 - "Management of Used Fluorescent Lamps: Preliminary Risk Assessment", (May 14, 1993) RTI Project Number 94 U-5400-010) Based upon USEPA data, it has been demonstrated that mercury-containing lamps can be properly managed and responsibly disposed of in MSWLFs with no

significant impact to groundwater. The result of USEPA's proposed exclusion from Subtitle C would be prudent lamp management in state-permitted facilities and would result in negligible impact to human health and the environment. Conditional Exclusion Would Encourage DSM Participation By granting conditional RCRA Subtitle C exclusion for mercury-containing lamps, USEPA will encourage participation in Green Lights and other energy saving lighting programs. Conditional exclusion will allow utilities and industry to more quickly and economically phase out inefficient lamps without be economic disincentive of managing the lamps as hazardous waste. Participation in Green Lights and other DSM programs will decrease the demand for electric generation and thereby, reduce power plant emissions. The result of energy efficient lighting is a net environmental benefit, even when lamp disposal is factored in. Clearly, USEPA should recognize the obstacles which will be eliminated by granting such conditional exclusion. Further, many DP&L customers' decisions to implement "one-time" or group relamping projects would be affected by the additional disposal costs. In turn, the participation rate in DP&L's lighting rebate program will be impacted. Many of these customers use total resource costing (TRC) to calculate the program's value. Therefore, the management of lamps as hazardous waste under the alternatively proposed Universal Waste option could create cost burdens sufficiently high for TRC to become less attractive, or fail altogether.

Conclusion The Dayton Power and Light Company appreciates the opportunity to comment on USEPA's proposed mercury-containing lamp management rules. DP&L strongly encourages the Agency to adopt its first proposal to conditionally exclude mercury-containing lamps from stringent Subtitle C regulation. Managing lamps in this manner will not negatively impact either the environment or participation in energy-saving DSM programs. The value in DSM program participation is energy conservation, with significant environmental benefits that warrant the proposed rule exclusions.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste

rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp

transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00118
COMMENTER Wheeling Power Company
SUBJECT EXCL1
COMMENT We support the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation; given that such lamps include, but are not limited to, fluorescent lamps, mercury vapor lamps, high-pressure sodium vapor lamps and metal halide lamps. Our support of the proposed exclusion is based on a compelling technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. Regulation of mercury-containing lamps as a hazardous waste would impede our continued participation in the Green Lights Program. Energy savings from such relamping programs should not be discouraged by USEPA through unnecessary regulations. Additionally, overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs would far outweigh any perceived benefits of retaining lighting wastes in the hazardous waste system.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term

studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

In today's rule the Agency is clarifying that all waste lamps exhibiting any hazardous waste characteristic fit the definition of hazardous waste lamps. The final definition of Alamp@ (40 CFR 260.10 and 40 CFR 273.9) specifies that a A*Lamp*, also referred to as Auniversal waste lamp@ is defined as the bulb or tube portion of an electric lighting device. A lamp is specifically designed to produce radiant energy, most often in the ultraviolet, visible, and infra-red regions of the electromagnetic spectrum. Examples of common universal waste electric lamps include, but are not limited to, fluorescent, high intensity discharge, neon, mercury vapor, high pressure sodium, and metal halide lamps.@

DCN FLEP-00118
COMMENTER Wheeling Power Company
SUBJECT EXCL1
COMMENT However, we recognize that recycling is not the solution for the management of all spent lamps. First, recyclers cannot accommodate the huge volumes of lamps that would be generated by full participation in relamping programs. Second, all recycling facilities are not as environmentally protective as qualified MSWLFs, especially landfills operating under USEPA's new MSWLF standards (which are equipped with liners and leachate

collection systems). Indeed, in many cases the management of spent lamps in a qualified MSWLF is more protective of human health and the environment than sending the lamps to a recycling facility where it is unclear (1) how much of the mercury is actually being recovered and by what means such recovery is conducted, and (2) how the treatment residuals (e.g., the glass and metal parts) are being reused.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00119
COMMENTER Nebraska Municipal Power Pool
SUBJECT EXCL1
COMMENT NMPP Energy believes that mercury-containing lamps should be excluded from regulations governing hazardous waste. Such an exclusion would remove current regulatory barriers to greater participation in Green Lights and other demand side management programs. NMPP Energy does however support environmentally sound recycling or disposal of mercury- containing lamps. Our concern is that small communities cannot relamp if the disposal requirement for dealing with mercury-containing lamps is too onerous.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient

lighting programs are realized through increased participation.

Today=s rule does not affect the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generate 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.

DCN FLEP-00120
COMMENTER Twin Valleys Public Power District
SUBJECT EXCL1
COMMENT Twin Valleys Public Power District strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management (DSM) programs. The "universal waste option" is not the proper resolution to the lighting waste issue because, under that option, lighting wastes are subject to the most onerous and expensive components of Subtitle C regulation, namely the land ban program and Subtitle C disposal costs.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient

lighting programs are realized through increased participation.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00120
COMMENTER Twin Valleys Public Power District
SUBJECT EXCL1
COMMENT While Twin Valleys supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. As an example, newspaper recycling has been in existence for many, many years and hasn't developed into a viable business. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste land fill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases municipal solid waste landfills are more protective of human health and environment than recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes. Twin Valleys appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management

standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00121
COMMENTER Arizona Electric Power Cooperative, Inc.
SUBJECT EXCL1
COMMENT Summary: AEPCO strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an

exclusion removes regulatory barriers to greater participation in Green Lights and other demand-side management programs.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00121

COMMENTER Arizona Electric Power Cooperative, Inc.

SUBJECT EXCL1

COMMENT While AEPCO supports recycling spent lamps in most cases (and indeed does recycle most internally-generated spent lamps and lamps generated under our demand-side management program), recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Recycling facilities are not as mandated to be as environmentally protective as qualified municipal solid waste landfills (MSWLF), especially landfills operating under EPA's MSWLF standards. These MSWLFs are equipped with liners and leachate collection systems. Clearly, in many cases, municipal

solid waste landfills are more protective of human health and environment than recycling centers. Thus, the universal waste option is not adequate for mercury-containing lighting wastes. AEPCO appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste" option as a solution for proper disposal of spent lighting wastes.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection

standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00122
COMMENTER American Electric Power Service Corp.
SUBJECT EXCL1
COMMENT The Companies strongly support the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00123
COMMENTER W.R. Grace and Company
SUBJECT EXCL1
COMMENT We strongly support the "Conditional Exclusion" option as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. Our company has had significant difficulty obtaining consistent advice from regulatory agencies on 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. EPA should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefits of energy-efficient relamping by promulgating a "Conditional Exclusion."
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential

mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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 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. More than 35 states already have either added spent lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00124
COMMENTER Commonwealth Edison Company
SUBJECT EXCL1
COMMENT The success of the new DSM program depends, at least in part, on the regulatory status (and associated costs) of discarded lamps. Many of our customers are currently unaware of the potential problems associated with used lamp disposal. ComEd believes that the Company has an obligation to inform customers who wish to participate in the DSM program of the EPA's concerns regarding lighting waste disposal issues, since significant volumes of lighting waste may be generated by our customers. [1] [Footnote 1: Because of cost and liability issues ComEd is not in a position to take possession of our customers' lighting waste for disposal. ComEd has prepared, as part of the DSM package, information for our customers on the current regulatory environment regarding the presence of constituents in lighting fixtures such as lead, mercury, and PCB'S. We are telling our customers to look to the EPA for guidance, and are providing them with a copy of the EPA document entitled "Lighting Waste Disposal" developed under the auspices of the Agency's Green Lights Program.] Our concern is that our customers, especially large office building owners, will be discouraged from participating in ComEd's relamping initiative once they realize the regulatory burden they may assume. We have found that decisions by our larger customers regarding energy conservation measures requiring an initial outlay of capital are generally made by considering the "pay- back period". Most companies consider a reasonable pay-back period to be two to three years.

> Therefore, if a company can expect to recover its initial capital costs within two to three years, it will likely opt for the energy conservation opportunity. Large disposal and administrative costs will increase the pay-back period, possibly to a point beyond the pay- back period threshold for some of our customers. Others, particularly those who have never generated hazardous waste, may be unsure of the costs associated with regulatory compliance, and may opt out of the program because of increased legal fees or administrative costs. Small businesses may also have a psychological aversion to dealing with unfamiliar regulations and apparently unbounded liability. ComEd strongly supports the Agency's proposed conditional exclusion for mercury- containing lamps, which will ensure that used lamps are managed in an environmentally sound manner without undue constraints and burdens of RCRA Subtitle C regulation, which our customers would otherwise incur.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease

in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

Today's rule does not affect the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generate 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.

DCN FLEP-00125
COMMENTER J.R. Simplot Company
SUBJECT EXCL1
COMMENT The following comments are offered by the J. R. Simplot Company in support of the EPA proposed rule to reduce the compliance cost of disposing of mercury-containing lamps as proposed in the July 27, 1994 Federal Register. The J. R. Simplot Company supports Option 1 which would exempt mercury-containing lamps from the hazardous waste management system if the lamps are disposed in permitted municipal landfills or permitted mercury reclamation facilities. We support Option 1 for the following reasons: 1)According to EPA data, the primary environmental human exposure pathway for mercury is through the consumption of contaminated fish. Disposal as required by Option 1 has minimal potential for mercury entering surface waters to impact fish and subsequently humans because the lamps must be sent to an approved municipal landfill or an approved reclamation facility. 2)The TCLP analytical procedure which is used to determine if a material is hazardous waste greatly overestimates the potential environmental impact of mercury placed in a landfill. The data indicates that a relatively high percentage of fluorescent and high intensity discharge lamps exhibit the characteristic of toxicity according to the TCLP analytical procedure. Actual leachate from municipal landfills shows the opposite result. Of 109 leachate samples analyzed for mercury, only six were above the drinking water standards and none were above the Toxic Characteristic limit for mercury. EPA data indicates that less than 0.01 percent of the mercury in MSW landfills leaches from the landfill. 3)Disposal in an approved municipal landfill assures that a minimal amount of leachate will enter the environment. Furthermore, if the leachate does enter the environment, data shows that no Toxic Characteristic for mercury would be expected. Therefore there is no reasonable risk to the environment of putting mercury-containing lamps in an approved

municipal landfill. 4)If mercury in approved municipal landfills is an environmental concern then EPA should regulate the largest source of mercury entering the landfill. According to EPA estimates, 88% of mercury in municipal solid waste comes from household batteries; only 3.8% comes from mercury containing lamps.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards) but allows the Agency to set specific management standards to control potential emissions, especially during storage and transport.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

As to the commenter=s concern regarding disposal of batteries, the AMercury-Containing and Rechargeable Battery Management Act@ (Battery Act) was signed by the President on May 13, 1996. The law has two primary goals, the first of which is to limit the mercury content in consumer batteries. The second goal of the Act is to promote recycling and proper disposal of used rechargeable nickel cadmium batteries, sealed small lead acid batteries, and certain other types of rechargeable batteries now widely used in consumer products. The Agency is currently developing a rulemaking that will promulgate the necessary modifications to the universal waste rule (40 CFR Part 273) to codify the legislative requirements governing the collection, storage, and transport requirements of Section 104 of the Battery Act.

DCN FLEP-00125

COMMENTER J.R. Simplot Company
SUBJECT EXCL1
COMMENT In conclusion, the J. R. Simplot Company strongly urges EPA to adopt Option 1 which would exclude mercury-containing lamps from being regulated as hazardous waste and require mercury containing wastes to be sent to either a permitted municipal landfill or permitted mercury reclamation facility. The change in environmental risk for mercury is insignificant compared to the present regulation. Because the present regulation discourages energy conservation programs, which have tremendous environmental benefit, there would be a net environmental benefit if Option 1 were adopted. In addition, a annual cost savings of $93 million is estimated if Option 1 is adopted.
RESPONSE
EPA agrees that the options should be evaluated based on, among other things, their costs and benefits. The Agency believes that one measure of an option's benefits is the extent to which it would adequately control against mercury emissions during management and disposal of spent lamps. The final economic analysis compares each option's compliance costs against its effectiveness at reducing mercury emissions from lamp management and disposal. Results from the assessment indicate that annual mercury emissions from lamps may decline by as much as 2.8 kilograms per year under the universal waste final action. Under the conditional exclusion option, mercury emissions were found to increase anywhere from eight to nearly eleven kilograms per year. Compliance costs under the final action range from an aggregate annual savings of $1.5 million to an aggregate annual increase of $1.8 million, depending on current compliance patterns. The conditional exclusion option was found to result in aggregate annual cost savings ranging from $1.8 to $6.1 million.

In addition, EPA emphasizes its belief that minimum technical requirements under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The deposition of atmospheric mercury into surface waters, its presence in runoff from soil, or the recycling of mercury from sediment into the water column can result in the accumulation of the metal in many animal species, particularly aquatic organisms. The EPA has recently published a Mercury Study Report to Congress (December 1997) that examines many of the health effects resulting from mercury exposure. Examples of mercury-related risks include neurotoxicological problems and developmental effects in fetus and adults (e.g., AMad Hatters= disease), and accumulation of the metal in many animal species, particularly aquatic organisms. For example, fish with high levels of mercury in their tissues have exhibited increased mortality, reduced reproductive success, impaired growth, and behavioral abnormalities.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste 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 Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00127
COMMENTER Nebraska Public Power District
SUBJECT EXCL1
COMMENT NPPD strongly supports the exclusion of mercury containing lamps from regulation as hazardous waste. Including mercury containing lamps in the Universal Waste management system would discourage participation in the Green Lights and demand-side management programs with minimal benefit to the environment. Relamping programs result in environmental benefits that are much greater than any potential benefits of keeping lighting wastes within the jurisdiction of Subtitle C regulation, provided that the wastes are managed in qualified recycling facilities or in qualified Subtitle D landfills.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00128
COMMENTER Suburban Lighting, Inc.
SUBJECT EXCL1
COMMENT We at Suburban Lighting strongly support a conditional exclusion

for insuring safe and cost effective disposal of all mercury containing lamps. While I feel it is imperative that these lamps are not incinerated, the facts indicate that very little mercury leaches into soil and ground water from municipal solid waste landfills. I feel the conditional exclusion from Subtitle C will result in more lamps being handled responsibly and that fewer hazardous waste lamps will enter unacceptable waste streams. Being located in Minnesota we have gained much experience with recycling of mercury containing lamps. I am pleased to report that our largest customers have not only elected to recycle lamps in Minnesota and other states where it is required but have elected to recycle everywhere they do business. With this in mind, I encourage you to make it as easy as possible for businesses to cope with the mercury containing lamp disposal issues. Paperwork and transportation requirements need to be kept to a minimum and education of end users needs to be stressed to insure maximum results. When businesses are made aware of the potential problems and possible future costs, they will invariably choose a responsible option such as recycling.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency agrees with the commenter that hazardous waste lamp recycling is preferable to landfilling. 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. In addition, as the demand for lamp recycling grows, recycling would become more cost competitive with Subtitle C landfilling. The EPA believes that increased recycling capacity and continued improvements in technologies would push recycling fees lower.

The Agency has decided to retain the current tracking requirements in Subpart D of Part 273 for hazardous waste lamps. Under the universal waste system, hazardous waste manifests need not accompany off-site shipments of universal waste. Small quantity handlers (those facilities that accumulate 5,000 kilograms or less of total universal waste at one time) are not required to keep records of shipments of universal waste lamps. Large quantity handlers (those who handle more than 5,000 kilograms of total universal waste at one time) must track waste lamp shipments by maintaining records documenting shipments received by and sent from the facility. The record may take the form of a log, invoice, manifest, bill of lading, or other shipping document. The Agency believes that standard business records that are normally kept by businesses will fulfill this requirement. The Agency believes that these requirements provide consistency with the current universal waste rule.

DCN FLEP-00128
COMMENTER Suburban Lighting, Inc.
SUBJECT EXCL1
COMMENT In summary, I strongly support a conditional exclusion for mercury containing lamps. I believe education is much more effective than regulation. I believe recycling should be the preferred disposal method but record keeping, transportation requirements and hazardous waste status of users should encourage recycling and energy efficient lighting upgrades rather than deter them. Landfilling in approved municipal waste landfills should be allowed where incineration is unlikely and recycling options are not available and/or not viable at this time. Please do not lose sight of the goal of keeping as much mercury as possible from re-entering the environment. Make it easy and businesses will be responsible make it hard and some will look for an easy way out.

I am particularly concerned with the impact these lamps could have on the generator status of businesses. The possibility that businesses whose only potentially hazardous waste is mercury containing lamps to be considered large quantity hazardous waste

> generators in a league with the largest polluters of our environment is a grave injustice. Many of these businesses have undertaken large scale lighting upgrades to prevent pollution. To label them as "large quantity hazardous waste generators" will have a negative impact on other businesses contemplating energy efficient lighting upgrades.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for mercury-containing lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Hazardous waste that is universal waste that is managed under Part 273 is not included in the quantities of hazardous waste counted to determine hazardous waste generator status ('261.5(c)(6)). Notification is only required of large quantity handlers (those who accumulate 5,000 kilograms or more at any one time).

DCN FLEP-00129
COMMENTER Automated Energy Controls
SUBJECT EXCL1
COMMENT AEC supports the conditional exclusion as the best way to insure safe disposal of mercury containing lamps. There is not enough mercury leached in landfills to make Subtitle C necessary. Lamps made in the USA do not contain a significant amount of mercury (only .2%) and amounts to only 3.8% in the total amount of mercury in municipal solid waste. The largest amounts of mercury emission comes from combustion-sources, approximately 286 tons per year. I would think that the EPA would be better serving the industry by looking into the emissions from combustion rather than regulating a minor mercury source, such as fluorescent lamps. Our company has had difficulty in getting correct advice on the proper disposal of lamps. We get conflicting reports as to how to handle the situation. Also, the landfill companies have differing regulations, depending on who you call. One landfill will take no lamps at all and another one will take a few of them. I believe that the EPA should act quickly to eliminate all the confusion so that the country could gain full benefits of efficient relamping.

AEC believes that if the EPA does not exercise leadership on the lamp disposal issue our company will have to face many different ways of disposing of our spent lamps. This will make it very difficult to impose company regulations. The confusion is causing a large number of generators to continue disposing of mercury- containing lamps in an unregulated waste stream. We are anxious to have a uniform national approach in place, then we can tell our customers just how to handle their fluorescent and HID lamps. Again we agree with the CONDITIONAL EXCLUSION as a safe way of disposing of mercury contained lamps.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste

rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

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 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. More than 35 states already have

either added spent lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste amps to the federal universal waste program. It should also be noted that individual landfills can have their own waste acceptance policies that are more prohibitive than the federal regulations.

DCN FLEP-00130
COMMENTER U.S. Department of Energy
SUBJECT EXCL1
COMMENT The evidence provided by EPA in this section of the preamble strongly suggests that air pathways are far more significant than the groundwater pathway in releasing mercury to the environment. This evidence supports a conditional exclusion for mercury-containing lamps from the hazardous waste system and possibly taking steps to encourage the recycling of mercury from mercury-containing lamps.

In a follow-up letter to EPA dated June 1, 1993, DOE encouraged EPA to pursue its evaluation of a conditional exclusion as a possible alternative to management of fluorescent light tubes. DOE stated that the Department would support such an exclusion if EPA determines it to be protective of human health and the environment. Based on the evidence presented in the preamble to the July 27, 1994, proposed rule on the environmental release and fate of mercury in groundwater, and EPA's desire to promote the Green Lights program to decrease the amount of mercury and other pollutants emitted to the atmosphere from coal burning, DOE reiterates its conditional support of an exclusion for mercury-containing lamps. However, as stated above, DOE recommends that if the exclusion is implemented, this should not preclude EPA from including lamps in the "universal waste" option. There is no need for the two options to be mutually exclusive, and a generator who does not have access to state permitted disposal or recycling facilities may want to introduce lamps as hazardous waste into the universal waste.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00130
COMMENTER U.S. Department of Energy
SUBJECT EXCL1
COMMENT DOE does have some concerns regarding the conditions for an exclusion. Specifically, the conditional exclusion does not address the problem of the disposition of mercury-containing lamps that are also contaminated with radioactive materials. These lamps cannot be disposed in a municipal solid waste landfill or recycled at a mercury reclamation facility. Therefore DOE requests that the proposed condition be amended to include disposal of contaminated mercury-containing lamps at radioactive waste disposal facilities subject to Atomic Energy Act requirements. If mercury-containing lamps can be excluded from regulation as hazardous waste by disposal in a controlled landfill, there is no longer any reason to categorize and treat these lamps as mixed waste. The difficulties associated with managing any mixed waste stream are evident in radioactively contaminated lamps. There are the concerns of meeting LDR treatment standards, and the concerns regarding worker exposure in treatment and compliance testing.

DOE recommends that mercury-containing lamps disposed in DOE operated LLW disposal units be eligible for a conditional exclusion. If EPA elects not to allow such exclusions, EPA should explain this decision based on a thorough, objective

analysis of environmental consequences compared to disposal in State/Tribe permitted solid waste landfills with an EPA-approved MSW permitting program.

RESPONSE

The commenter's request to exclude mixed radioactive waste is beyond the scope of this rulemaking. The hazardous waste components of mixed waste must meet the applicable standards under Subtitle C. The radioactive components in mixtures of solid and/or hazardous wastes and radioactive wastes also must be managed in compliance with the Atomic Energy Act.

DCN FLEP-00131

COMMENTER Sacramento Municipal Utility District

SUBJECT EXCL1

COMMENT SMUD strongly supports the conditional exclusion from Subtitle C regulation for mercury- containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management (DSM) programs. The "universal waste option" is not the proper resolution to the lighting waste issue because, under that option, lighting wastes are subject to the most onerous and expensive components in Subtitle C regulation, namely the land disposal restriction program and Subtitle disposal costs.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In

addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00131
COMMENTER Sacramento Municipal Utility District
SUBJECT EXCL1
COMMENT While SMUD supports recycling spent lamps in most cases, recycling is not the solution for the management of all spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfills operating under EPA's new municipal solid waste landfill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases municipal solid waste landfills are more protective of human health and the environment than recycling centers. Thus, universal waste option is not adequate for mercury-containing lighting wastes. SMUD appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper management of spent of lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management

standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment, and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00132
COMMENTER Trico Electric Cooperative, Inc.
SUBJECT EXCL1
COMMENT SUMMARY: Trico strongly supports the conditional exclusion from Subtitle C regulation for mercury- containing lamps. Such an

exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management ("DSM") programs. The "universal waste option" is not the proper resolution to the lighting waste issue because, under that option, lighting wastes are subject to the most onerous and expensive components of Subtitle C regulation, namely the land ban program and Subtitle C disposal costs.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The purpose of the land disposal restriction (LDR) program is to prohibit the land disposal of hazardous wastes that have not been adequately treated to reduce the threat to human health and the environment. Hazardous waste lamps should be subject to the LDR program since they may still may present a threat to human health and the environment at the time of disposal. Under the universal waste regulations, universal waste handlers and transporters must manage universal waste in compliance with the substantive requirements of the LDR program (e.g. universal wastes cannot be land disposed without meeting treatment standards, dilution prohibition, etc) but not the administrative requirements (e.g. notification). Destination facilities remain subject to all of the LDR requirements, including both the substantive and the administrative requirements for universal waste.

DCN FLEP-00132
COMMENTER Trico Electric Cooperative, Inc.
SUBJECT EXCL1
COMMENT While Trico supports recycling spent lamps in most cases, recycling is not the solution for the management of spent lamps. Recyclers cannot accommodate the huge volume of lamps that would be generated by full participation in relamping programs. Furthermore, all recycling facilities are not managed in the same way. Some recycling facilities are not as environmentally protective as qualified municipal solid waste landfills, especially landfill operating under EPA's new municipal solid waste land fill standards. These landfills are equipped with liners and leachate collection systems. Clearly, in many cases, municipal solid waste landfills are more protective of human health and environment than recycling centers. thus, the universal waste option is not adequate for mercury-containing lighting wastes. Trico appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury- containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly, studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards

than full Subtitle C management standards.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment/disposal facility. Under the universal waste rule, destination facilities (i.e., recycling facilities, treatment and disposal facilities) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage and disposal facilities. Residuals from recovery operations must be managed in accordance with all applicable solid and hazardous waste management requirements. If residuals exhibit a characteristic of hazardous waste, they must be managed as hazardous waste. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process. Recycling facilities remain subject to all applicable OSHA workplace protection standards and Clean Air Act emissions standards.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00133
COMMENTER Robroy Industries
SUBJECT EXCL1
COMMENT ROBROY INDUSTRIES strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, U.S. lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 cons per year. Clearly, EPA resources are better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as fluorescent lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

DCN FLEP-00134
COMMENTER Aetna Life and Casualty Company

SUBJECT EXCL1

COMMENT Aetna is concerned, though, about the possible discouraging effect regulation under the Resource Conservation and Recovery Act ("RCRA") Subtitle C would have. As mentioned in the preamble to the proposed rule, substantial environmental gains can be made by the conversion of incandescent lighting to fluorescent. Aetna believes these gains should weigh heavily in any meaningful discussion on lighting management. As such, Aetna believes that managing mercury-containing lamps under a conditional exclusion is the better of the two options presented. In support, Aetna would like to offer the following comments.

Toxicity Characteristic(s) USEPA has requested comment on whether mercury-containing lamps typically exhibit other TC characteristics (Section IV.B.2). Although Aetna cannot offer analytical data, Aetna believes that to proffer one particular management method while also allowing the possibility of full compliance under RCRA Subtitle C -- through the TC -- to also apply would be counterproductive. One of the advantages to the conditional exclusion option is that the waste's associated hazards are recognized thus allowing a generator the ability to expend energies towards proper management. Retaining the TC requirement means a generator may have to implement plans to comply with RCRA Subtitle C generator standards, e.g., personnel training, inspections, written contingency plan implementation, etc, sometimes due solely to fluorescent light generation. Any advantage the exclusion had would be lost. If enacted, Aetna believes that the exclusion should apply completely to mercury-containing lamps without the possibility of further RCRA regulation.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less

stringent than full Subtitle C management standards).

Because the proposed conditional exclusion was not finalized by EPA, the commenter's concerns regarding TC determination under the conditional exclusion do not need to be addressed. It should be noted that generators have the option of managing all spent lamps, whether hazardous or not, under the universal waste program if they so choose.

DCN FLEP-00135
COMMENTER Town of Okeene, OK
SUBJECT EXCL1
COMMENT Thomas L. Outhier City Administrator Town of Okeene, assents to all of the comments made by the Utility Solid Waste Activities Group (USWAG), and fervently supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps.

The Town of Okeene appreciates the opportunity provided during this public comment period to submit our sentiment in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.

RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00136
COMMENTER Wisconsin Dept. of Natural Resources
SUBJECT EXCL1
COMMENT (Even if the USEPA would, unfortunately, proceed with an option to landfill waste mercury-containing lamps, then BMPs must be developed to minimize the quantity of mercury that generators and landfills will emit, such as the BMPs that allow friable asbestos to go to landfills.)

The Department does not encourage the management of mercury-containing lighting wastes in a manner that would allow disposal, as in the proposed exemption. Society has invested the energy to refine mercury and then place refined mercury into a product (lamps). It is foolish for society to waste this investment and dispose of a lamp when it is exhausted. This investment in refining should be further developed, rather than allowed to be destroyed through landfilling. USEPA's proposals do not consider the full environmental costs of mining and producing mercury, nor does it appear to fully consider the environmental costs of mercury disposal. The WDNR does not believe that it is appropriate for the USEPA to consider landfilling of these wastes, when one of the main purposes of the Resource Conservation and Recovery Act is to encourage recycling. In Wisconsin, we have heard anecdotal stories of landfills refusing to accept mercury- containing lighting wastes. Now that landfills are aware that this is an environmental issue, many landfills are choosing to not manage these types of wastes, as a way to reduce their potential liabilities. Since we understand that some landfills do not want to accept mercury- containing lighting wastes, the USEPA will contribute to the confusion by saying that disposed lamps can be landfilled. There's a difference between what can be legally landfilled and what the landfills are willing to receive, and this difference is frequently confusing for the public and difficult for them to understand. From this perspective, it is

much less confusing for the USEPA to simply encourage recycling, rather than landfilling or recycling.

We believe that an approach that would allow the disposal of mercury-containing lighting wastes into landfills is inconsistent with the USEPA's "virtual elimination" project, which seeks to virtually eliminate additional mercury and PCB emissions to the Great Lakes. Several other offices of the USEPA are trying to reduce the amount of mercury emitted to the environment: the Office of Water; the Office of Air and Radiation; and, the Great Lakes National Program Office. What is most striking about this proposal is that one group within the same USEPA that is trying to reduce mercury emissions to the environment is considering allowing mercury to be placed into landfills. Once mercury enters the environment, it is nearly impossible to recover. Environmental mercury continues to recycle in ecosystems, presenting continuing and growing toxicological concerns. The approach that would allow the disposal of mercury into landfills would do nothing to address this problem, and likely would only exacerbate it. As a Great Lake state, Wisconsin is working very hard in our solid and hazardous waste, air, wastewater and water resources programs to reduce mercury emissions to the environment and better protect the Great Lakes. However, we need the assistance of all of the states, in addition to our international partners, such as the International Joint Commission, to protect these gems. Volatile mercury emissions respect no boundaries. Therefore, even if the Great Lakes states and provinces drastically reduce their mercury loadings, if other states or provinces provide less control of mercury, then the mercury problems in the Great Lakes could continue to grow. We currently have a "non-point source" problem with mercury, since it emanates from so many different and diffuse sources. By taking steps to recycle mercury-containing lighting wastes, we will have taken an important step to make this into a "point source" problem, one that can be more readily managed through engineering controls. But, we also want to frame this as a pollution prevention issue. Recycling goes a great deal further at controlling this environmental mercury source than does disposal.

We urge the USEPA to drop its consideration of the landfilling option for mercury-containing lamp disposal, and solely focus on

the recycling options.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps. The Agency did not limit the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes, but 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 FLEP-00137

COMMENTER Planned Lighting, Inc.

SUBJECT EXCL1

COMMENT We at Planned Lighting wish to lend our support to the conditional exclusion measure, as one that best insures the safe disposal of mercury containing lamps, as well as the most cost efficient method. Studies initiated by the EPA have shown that the amount of mercury that leaches from municipal landfills is not of a significant quantity, which makes Subtitle C

landfilling unnecessary. Additionally, in regards to the area of air emissions, Subtitle C offers inadequate protection compared to that offered by Subtitle D. This causes the expense of disposal to far outweigh the environmental benefits of such a measure. The lamps in the United States account for less than .2% of the total mercury in the environment and only 3.8% of the total mercury found in municipal solid waste. The quantity of mercury emission from combustion sources, estimated at 286 tons per year, cannot be compared to the minuscule .04 to .31 tons of mercury potentially released from landfilling of lamps.

I would reiterate that we at Planned Lighting, Inc. strongly support the conditional exclusion as the best means of insuring the safe and economical disposal of mercury containing fluorescent and HID lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN SCSP-00137

COMMENTER Utility Solid Waste Activities Group

SUBJECT EXCL1

COMMENT I write on behalf of the Utility Solid Waste Activities Group ("USWAG") [1] to reiterate USWAG's strong support for EPA's development of an exclusion from the toxicity characteristic ("TC") regulation for lighting wastes. USWAG urges the Agency to

issue the exclusion as soon as possible as an interim final rule. The reasons for excluding mercury-containing lighting wastes from the TC are self-evident. Aside from EPA's data indicating that these materials do not warrant hazardous waste regulation in the first place, the exclusion is critical to preserving EPA's Green Lights Program ("Green Lights") and other utility subsidized demand side management ("DSM") programs.

Thus, as discussed below, there are compelling reasons to exclude mercury-containing lighting wastes [3] [Footnote 3: By mercury-containing lighting wastes, USWAG means discarded fluorescent lamps, metal halide lamps, high pressure sodium lamps and mercury vapor lamps. It is imperative for all these mercury-containing lamps to be included within the exclusion to preserve the environmental benefits of Green Lights and other utility DSM programs.] from the TC regulation and equally compelling reasons to issue the exclusion as an interim final rule.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term.

The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN SCSP-00137
COMMENTER Utility Solid Waste Activities Group
SUBJECT EXCL1
COMMENT The net result is that the regulated community -- including companies participating in Green Lights and other DSM programs -- are unnecessarily being subjected to a costly regulatory program for materials that do not warrant hazardous waste regulation in the first place. This problem alone is a compelling reason for excluding mercury-containing lighting wastes from the TC. II. Lighting Wastes Should Be Excluded from The TC To Preserve Green Lights and Other DSM Programs In addition to the fact that mercury-containing lighting wastes do not warrant Subtitle C regulation, such regulation is unjustified because it is having severe repercussions on Green Lights and other environmentally beneficial DSM programs. Many electric utilities are simply unwilling to engage in a voluntary pollution prevention program that results in subjecting a company to the full gamut of RCRA's Subtitle C program including, as discussed below, the potential land ban storage prohibition. When confronted with similar circumstances in the past, EPA has not hesitated to exclude a particular substance from the TC to preserve a more environmentally beneficial program. A. Ample Precedent Exists for Excluding Mercury-Containing Lighting Wastes from the TC. The Agency has ample precedent for promulgating a lighting waste exclusion. For example, EPA acted immediately to exclude produced groundwater from free phase hydrocarbon recovery operations from

the TC because of the Agency's legitimate concern that subjecting these materials to Subtitle C regulation would disrupt, if not permanently shut down, environmentally beneficial remediation activities. 56 Fed. Reg. 13406 (April 2, 1991) (codified at 40 C.F.R. 261.4(b)(11)). Because the adverse environmental consequences of ceasing the remediation activities were significantly more severe than the potential consequences of exempting the groundwater from the TC, EPA appropriately determined that it was fully appropriate and in the "public interest" to exempt the produced groundwater from the TC. 55 Fed. Reg. 40834, 40836 (Oct. 5, 1990). In addition, because the remediation activities would most likely cease immediately if the groundwater was subjected to the TC, EPA invoked the "good cause " exception to the Administrative Procedure Act ("APA") and issued the exclusion as an interim final rule, with an opportunity for comment during the pendency of the interim rule. Id. EPA took similar immediate action in the case of chlorofluorocarbon ("CFC") refrigerants. In this case, EPA recognized that the costs of subjecting CFC recycling operations to hazardous waste regulation would be prohibitively expensive which, in turn, would cause many CFC recyclers to curtail operations and return to past practices of venting used CFCs to the environment. 56 Fed. Reg. 5910, 5912 (Feb. 13, 1991) (codified at 40 C.F.R. 261.4(b)(12). Again, because the adverse environmental consequences of venting CFCs to the atmosphere, which contributes to the degradation of the stratospheric ozone layer, were significantly more severe than the potential consequences of exempting CFCs from the TC, EPA determined that it was in the "public interest" to exempt these materials form hazardous waste regulation. Moreover, because of "the potential seriousness of the risks posed by CFC refrigerant venting," EPA once again invoked the "good cause exemption" to the APA and issued the exclusion as an interim final rule, with an opportunity for comment during the pendency of the interim rule. Id. At 5913. EPA also has promulgated a TC exclusion for petroleum-contaminated media from underground storage tanks ("USTs") because subjecting these materials to hazardous waste regulation would greatly delay cleanups and "severely discourage the self-monitoring and voluntary reporting essential to the implementation of the UST program." 55 Fed. Reg. 11798, 11836 (March 29, 1990) (codified at 40 C.F.R. 261.4(b)(10); see also 58 Fed. Reg. 8504 (Feb. 12, 1993) (proposal to make the UST

exclusion permanent). Similarly, EPA recently proposed to exempt petroleum-contaminated media and debris from non-USTs from the TC because hazardous waste regulation would "significantly increase the cost of cleanup of these releases, substantially delay cleanup, and in some cases (by delaying cleanup) negatively impact human health and the environment." 57 Fed. Reg. 61542, 61543 (Dec. 24, 1992). B. Excluding Lighting Wastes from the TC Would Result in a Net Environmental Gain. In each of the above cases, EPA promulgated a TC exclusion because it determined that Subtitle C regulation of a particular waste would undermine another more environmentally beneficial program or project. The same rationale applies with equal force here. [6] [Footnote 6: USWAG has recently submitted data to EPA indicating that mercury containing lighting wastes may exhibit the TC for mercury. See Attachment B. EPA has independent data showing similar results. See "Analytical Results of Mercury in Fluorescent Lamps," EPA Contract No. 68-WO-0027, SAIC Project No. 01-0825-03-0615-001 (May 15, 1992).] [See hard copy of Comment SCSP-00137 for Attachments]. As EPA correctly suspects, and as USWAG's data confirms, subjecting lighting wastes to hazardous waste regulation is environmentally counterproductive because it threatens to undermine Green Lights and other utility DSM programs. Indeed, some companies that are supporters of Green Lights have nonetheless refrained from participating in the program because of concerns associated with RCRA's costly and inflexible Subtitle C regime. See letter dated October 14, 1992 from Duke Power Company to Robert Kwartin, Branch Chief, Green Lights Branch (Attachment C). [See hard copy of Comment SCSP-00137 for Attachments]. [7] [Footnote 7: See also "USWAG Position on Lighting Wastes," December 1992, explaining that the cost of regulating lighting wastes as hazardous would tip the economic balance of Green Lights and other utility DSM programs causing some electric utilities to drop out of these programs altogether. Attachment D.] Even for those companies that choose to remain in the program, regulating lighting wastes as hazardous will cause significant losses in potential emission reductions otherwise achievable under Green Lights. For example, one gas-fired electric utility estimates that it would have approximately 35% An added benefit of the universal waste approach is that fewer sites that would qualify for Green Lights if lighting wastes were regulated as hazardous wastes. See Pacific Gas & Electric ("PG&E ") "Green Lights Programs

Disposal Cost Breakdown" (Attachment E). [8] [Footnote 8: EPA's Green Lights Program has established a "Cost Effectiveness Analysis" that is used to determine whether it is economically feasible for a particular facility to participate in Green Lights (Attachment F). Based on this "Cost Effectiveness" equation, if mercury-containing lighting wastes are regulated as hazardous wastes, a significant percentage of facilities will not even qualify to participate in Green Lights (e.g., 35% in the case of PG&E).] [See hard copy of Comment SCSP-00137 for Attachments.]

Compounding these losses is the fact that they are occurring without any net gain in environmental protection. As noted above, EPA's own data indicate that mercury-containing lighting wastes do not warrant hazardous waste regulation. Thus, not only is the current TC technically flawed, but it is causing the public to forfeit millions of tons of SO2, NOx and CO2 emissions savings annually. This result is nonsensical and environmentally counterproductive.

RESPONSE

The Agency appreciates the commenter's support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats

over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00137
COMMENTER Planned Lighting, Inc.
SUBJECT EXCL1
COMMENT With conflicting advice coming from the various regulatory agencies of the government, it has been difficult for us to come up with any clear interpretation of the requirements for the proper procedure for disposal of lamps. This does little to insure that we are in compliance. It is imperative that the EPA acts quickly to eliminate such confusion, effectively reducing building maintenance costs and gaining all the benefits of promoting energy efficient relamping by endorsing the conditional exclusion:
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

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 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. More than 35 states already have either added spent lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00138
COMMENTER Indiana Michigan Power Company
SUBJECT EXCL1
COMMENT Indiana Michigan Power Company (I&M) submits the following comments for USEPA consideration as the agency develops rules for managing mercury-containing]lamps. I&M strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. This exclusion will remove the regulatory barriers to greater participation in Green Lights and other Demand Side management programs.

USEPA has stated in a recent letter to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear, regardless of the regulatory status of lamp wastes, whether at the federal or state levels."USEPA letter dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to Alabama Department of Environmental Services. I&M agrees with this assessment and believes that this conclusion clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other DSM programs are removed. Spent lamps including incandescent bulls can be safely managed in qualified MSWLFS.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach

for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00139
COMMENTER City of South Sioux City, NE
SUBJECT EXCL1
COMMENT On behalf of the City of South Sioux City, Nebraska, I wish to express our support of excluding mercury containing lamps from the hazardous waste regulation list. This would greatly discourage participation in energy conservation and efficiency programs. These are important tools in our demand side management efforts.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management

of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00140
COMMENTER Texas Utilities Services, Inc.
SUBJECT EXCL1
COMMENT Texas Utilities supports the exclusion of mercury-containing lamp wastes, as well as all lamp wastes, from regulation as hazardous waste. EPA estimates mercury from all mercury-containing lamps going to municipal landfills totals 20 metric tons. By contrast, household batteries are responsible for 88% of the total mercury in municipal solid waste. Mercury-containing lamps are just 3.5% of the total 565 metric tons of mercury from all sources of municipal solid waste. Texas Utilities does not believe they represent a hazard.

The exclusion would remove the disincentives for business and industry to expand participation in the EPA's Green Lights Program. The combination of primary costs, paperwork, and the administrative burden involved with handling the lamps as hazardous waste has been a disincentive for participation in the program.

Texas Utilities believes EPA's own data shows that mercury-containing lamps pose no threat to human health and the environment and that the proposed exclusion should be enacted.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The

Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

DCN FLEP-00142
COMMENTER The Fertilizer Institute
SUBJECT EXCL1
COMMENT EPA, proposed two alternative options for the management of mercury-containing lamps. Under Option 1, EPA would conditionally exclude mercury-containing lamps from regulation as RCRA hazardous waste, provided: (i) the mercury-containing lamps are sent to either a municipal solid waste (MSW) landfill

permitted by a state with an EPA-approved program or a licensed mercury reclamation facility; and (ii) the generators of mercury-containing keep records of the lamp shipments. Under Option 2, mercury-containing lamps would be subject to streamlined hazardous waste management requirements known as the "Universal Waste Management System." For the reasons set forth below, TFI members support Option 1. A. Option I Would Harmonize EPA's Hazardous Waste Management Standards for Mercury-Containing Lamps with the Agency's Objective of Encouraging the Use of Energy-Efficient Lighting Under the current RCRA regulations, spent mercury-containing lamps (such as fluorescent bulbs) that exhibit the Toxicity Characteristic must be managed as hazardous waste unless they are a household waste or are generated by exempt small quantity generators. 59 Fed. Reg. 38,289. As EPA notes in its proposal, the requirement to manage mercury-containing lamps as RCRA hazardous waste is at cross purposes with EPA's "Green Lights" program. 59 Fed. Reg. 38,289. The purpose of the Green light program is to encourage industry to invest in energy-efficient lighting, which consumes less electricity and, thereby, reduces the amount of pollution associated with supplying such electricity (e.g., air pollution from coal burning power plants). Participants in the Green Lights program agree to upgrade their domestic facilities wherever profitable and wherever lighting quality is improved or maintained. Converting from incandescent to fluorescent lighting or from less-efficient fluorescent to more-efficient fluorescent lighting are currently be best upgrade strategies available to Green Lights participants. Since fluorescent bulbs contain mercury, Green Lights participants contemplating the merits of relamping must consider the substantial cost of disposing of used fluorescent bulbs in licensed hazardous waste disposal facilities. These high disposal costs function as an economic barrier to installation of energy-efficient lighting and, thus, EPA's Green Lights program.

E. Conclusion For the reasons stated above, TFI strongly supports EPA's proposal to conditionally exclude mercury-containing lamps from Subtitle C regulation. Such an exclusion would reduce one of the regulatory barriers to greater participation in the Green Lights and other programs whose objective is encouraging the widespread use of efficient lighting technologies.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00144
COMMENTER National Rural Electric Cooperative Assn
SUBJECT EXCL1
COMMENT The proposal is of particular interest to rural electric cooperatives because of their hesitancy to participate in EPA's "Green Lights" program if light bulbs are classified as hazardous. NRECA strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

Failure to pursue the conditional exclusion will result in a continuing reluctance by electric utilities and their customers to participate in energy efficient relamping programs. As a result, EPA and the country will needlessly forfeit significant reductions in air emissions that are otherwise available through full participation in energy-efficient relamping programs.

The proposed exclusion is grounded on a compelling technical record, as supplemented by the Utility Solid Waste Activities Group (USWAG) and the Electric Power Research Institute (EPRI) in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills (MSWLFs). EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are "very small". See "Management of Used Fluorescent Lamps: Preliminary Risk

Assessment," (May 14,1993) RTI Project No. 94U-5400-010.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00145

COMMENTER ASTSWMO

SUBJECT EXCL1

COMMENT Based on this convincing background and rationale, the Board fully endorses the Task Force's conclusions. We consider their conclusions to be far superior to the alternative suggestion that these lamps be allowed a conditional exclusion which would permit MSW landfilling of this problematic waste stream. Such an exclusion would significantly undermine the emerging recycling efforts for these lamps, undercut existing sound environmental policy and precedent, and most disturbingly, set in motion further uncontrolled releases of mercury into the environment with the approval of the nations paramount environmental agency.

Promotion of USEPA's waste management hierarchy ASTSWMO is also concerned that USEPA is backing away from their waste management hierarchy with regard to the conditional exclusion proposal for fluorescent lamp management. The Pollution Prevention Act of 1990 established a hierarchy of priorities for hazardous waste management which places recycling as a priority over disposal whenever possible. Recycling of waste fluorescent lamps has become readily available in those States which have already implemented a MCI program which facilitates their collection and reclamation. Experience in those States indicate that a national capacity for recycling of fluorescent lamps could be available within twelve (12) months of promulgating a national UWR regulating waste lamp recycling, and may be available for a majority of the nation even sooner. The MSW option does not provide the necessary cost signals for manufacturers to reduce the amount of mercury in these lamps, nor develop a product stewardship system. Precedence of exempting a waste which fails the TCLP due to mercury contamination We are also very concerned about the impact of exempting a waste which fails the Toxicity Characteristic Leaching Procedure (TCLP) for mercury when protective alternatives are not specified in the rule. It would also set a precedent for exclusion of other sources of mercury-laden wastes which are currently regulated as hazardous wastes. ASTSWMO believes that it is very likely that USEPA would be opening a "Pandora's Box" which could cause a continual flow of petitions for exemption/exclusion from regulation of other wastes which are currently hazardous for their mercury concentrations. We believe that the conditional exclusion without a satisfactory protective alternative would be likely to raise questions regarding the scientific validity of the TCLP and the entire Toxicity Characteristic. Additionally, ASTSWMO is concerned that a conditional exclusion for a waste which is hazardous due to its mercury content would be inconsistent with the current State and federal focus on reducing the release of bioaccumulative chemicals of concern (BCCs). There have been numerous State and federal work groups established recently which are focusing efforts toward eliminating mercury and other BCCs from the environment. These include: -USEPA's Great Lakes National Program's Virtual Elimination Project -Great Lakes Mercury Task Force -USEPA's Mercury Work Group -Southern States' Mercury in Fish Task Force -The Northeast States, including Delaware, Maryland, Pennsylvania, New Jersey,

New York and Connecticut are currently forming a work group. The following States are also known to have formed (or are currently forming) individual work groups focusing on mercury reduction/elimination: Florida, New Jersey, Michigan, Wisconsin, and Minnesota.

ASTSWMO does not believe the claim by proponents of the conditional exclusion alternative that any RCRA oversight of waste fluorescent lamp management will stifle participation in USEPA's Green Lights Program.

Additionally, the conditional exclusion proposed by USEPA would only allow landfilling of waste fluorescent lamps or recycling of the waste lamps. The current MSW management scheme across the nation includes several other waste management options to landfilling, including incineration and composting. Any conditional exclusion which allowed only landfilling for waste fluorescent lamps at designated MSW landfills would require special tracking of waste lamp shipments to ensure that the exclusion provisions were being met. The costs of this special tracking system for waste fluorescent lamps being shipped to specified MSW landfills would no doubt come close to, if not meet, the costs of managing waste fluorescent lamps under a UWR management scenario. Proponents of the conditional exclusion also voice the opinion that the stigma of RCRA and the liabilities of management of lamps under RCRA are major disincentives to the Green Lights Program. However, those same proponents fail to point out that those same liabilities exist (and, in the opinion of the Association, are potentially increased) if environmental harm occurs through management of fluorescent lamps in MSW landfills. Additionally, the very same proponents of a conditional exclusion fail to point out the fact that they have been backing development of a UWR approach for management of spent mercury thermostats.

For the reasons listed above, ASTSWMO strongly believes that USEPA must not promulgate a conditional exclusion for waste fluorescent lamps which would allow the lamps to be disposed of in MSW landfills.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to

actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Next on the hierarchy is recycling of waste. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent mercury-containing 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 FLEP-00146
COMMENTER Sierra Club/North Star Chapter
SUBJECT EXCL1
COMMENT The Chapter feels very strongly that mercury containing lamps should not be granted a conditional exclusion from hazardous waste regulation, but rather should be regulated under the Universal Waste proposal, the second option described in the Agency's proposal. The clear result of conditional exclusion would be to encourage disposal of mercury containing lamps in municipal waste landfills, rather than encouraging the development of recycling facilities to recover and reuse the mercury in the lamps. This result would violate the EPA's waste

hierarchy, which ranks recycling higher than disposal, and would subject the environment and human health to unnecessary negative impacts.

CONDITIONAL EXCLUSION VIOLATES THE WASTE HIERARCHY AND SETS A BAD PRECEDENT FOR FUTURE WASTE DECISIONS

Lamp recycling has become readily available in states, such as Minnesota, which have implemented special programs for their collection and management. The economics of these facilities, at the present time, are such that they will have difficulty competing with solid waste landfilling as an alternative. Conditional Exclusion will both release more mercury into the environment and reduce the viability of the recycling industry. Conditional exclusion of lamps also may set a dangerous precedent for the exclusion of other wastes that are regulated as a hazardous waste.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste

product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Next on the hierarchy is recycling of waste. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent mercury-containing 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 FLEP-00147
COMMENTER Earthwell International Tech., Inc.
SUBJECT EXCL1
COMMENT Earthwell strongly urges the EPA to exclude fluorescent lamps from Subtitle C. We firmly believe our nations energy and environmental goals would be best served from this exclusion and will remove any disincentives to participating in the Green Light program.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00148
COMMENTER Total Lighting Maintenance and Electric
SUBJECT EXCL1
COMMENT FOR THESE REASONS TOTAL LIGHTING MAINTENANCE FEELS THE CONDITIONAL EXCLUSION IS THE BEST WAY TO INSURE THE SAFE AND MOST COST EFFECTIVE DISPOSAL OF MERCURY CONTAINING LAMPS. WHEN LOOKING AT THE OVERALL PICTURE THE AMOUNT OF MERCURY CONTAINED Hg LAMPS IS MINUSCULE COMPARED TO THE MERCURY EMISSIONS FROM COMBUSTION. THE QUANTITY OF MERCURY FROM LANDFILLING LAMPS IS DWARFED BY THE EMISSION MERCURY FROM COMBUSTION SOURCES ESTIMATED TO BE 286 TONS PER YEAR. EPA ENERGIES WOULD BE BETTER SPENT ADDRESSING MERCURY EMISSIONS FROM COMBUSTION THAN REGULATING A MINOR

MERCURY FOUND IN FLUORESCENT LAMPS. THERE ISN'T ANY CONSISTENT POLICY ON DISPOSAL. THE EPA AGENCIES AT FEDERAL, STATE, AND COUNTY LEVELS ALL SEEM TO DIFFER ON HOW TO

HANDLE THE PROBLEM. THIS OF COURSE IS A FRUSTRATION TO THE CONTRACTOR. IT MAKES IT THAT MUCH HARDER TO GO INTO A PROJECT WITH A GOOD COMPETITIVE BID. AT THE PRESENT TIME THE STATE OF NEW JERSEY REQUIRES A CERTIFICATE OF INCORPORATION, A 38 PAGE BUSINESS CONCERN DISCLOSURE STATEMENT, A FINGERPRINT CARD FOR THE FBI, A NEW JERSEY STATE POLICE BUREAU IDENTIFICATION, AND

LASTLY A 15 PAGE PERSONAL HISTORY DISCLOSURE FORM! YOU BEGIN TO SEE WHY THE EPA SHOULD ACT QUICKLY TO ELIMINATE SOME OF THIS CONFUSION. IT CAN ONLY HELP TO GAIN THE FULL BENEFITS OF ENERGY EFFICIENT RELAMPING BY SUPPORTING CONDITIONAL EXCLUSION.

NATIONAL APPROACH AND EPA ACTION TOTAL LIGHTING MAINTENANCE WORKS IN FOUR STATES. IF THE EPA DOESN'T SET A NATIONAL STANDARD ON THE LAMP DISPOSAL ISSUE BY FINALIZING CONDITIONAL EXCLUSION, MY COMPANY CONTINUES TO FACE THE PROBLEM OF LAMPS BEING REGULATED IN A WIDE VARIETY OF WAYS, DEPENDING ON THE STATE AND/OR COUNTY WE'RE, WORKING IN. I CAN'T BEGIN TO TELL YOU HOW STRONGLY I SUPPORT THE CONDITIONAL EXCLUSION. EVERY RADIO TALK-SHOW, BUSINESS JOURNAL, WSJ, AND WEEKLY NEW MAGAZINE IS TOUTING THE GREAT AMERICAN ENTREPRENEURIAL SPIRIT. WELL, LET US CONDUCT BUSINESS IN A UNIFORM AND CONCISE MANNER AND INSTITUTE THE CONDITIONAL EXCLUSION.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term

studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

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 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. More than 35 states already have either added spent lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00149
COMMENTER Weyerhaeuser Company
SUBJECT EXCL1
COMMENT Weyerhaeuser strongly supports Option One, concerning the conditional exclusion of Mercury-Containing Lamps, as the best

means of ensuring the safe and cost-effective management of Mercury-Containing Lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00150

COMMENTER Anchorage Municipal Light and Power

SUBJECT EXCL1

COMMENT Anchorage Municipal Light & Power strongly supports the proposed conditional exclusion of used mercury-containing lamps from regulation as hazardous waste.

The conditional exclusion would allow more waste generators attain and/or hold Conditionally Exempt Small Quantity Generator (CESQG) status, an important regulatory status in a state which has many CESQG Waste Management Programs, but where the closest RCRA-permitted TSD is over 2,000 miles away.

With regard to condition 1 of the exclusion, the Municipality of Anchorage owns and operates an MSW landfill through its Solid Waste Services Department. This facility would provide acceptable disposal for many Alaskan generators. However, the recycling of spent lamps in Alaska will have serious economic and transportation obstacles to overcome, and in the end may not be as protective of health and the environment as direct landfilling in an MSW facility.

AML&P appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the Universal Waste

Management System option as a solution for proper disposal of spent lighting wastes.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps. The Agency did not limit the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes. Under the universal waste system, generators of spent lamps may accumulate universal waste for one year without obtaining a storage permit in order to encourage and ensure that the universal waste is disposed or recycled in an environmentally protective manner that is economically feasible. Accumulation for more than one year is allowed if it is solely to facilitate proper recovery, treatment or disposal.

DCN FLEP-00151
COMMENTER Association of American Railroads
SUBJECT EXCL1
COMMENT The railroads believe that the first alternative, under which mercury-containing lamps would receive a conditional exclusion from regulation as hazardous waste, is the best approach.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of mercury-containing lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00153
COMMENTER Vermont Dept. of Environ. Conservation
SUBJECT EXCL1
COMMENT 1.The VDEC considers unacceptable any proposal such as management option 1, that promotes disposal of unveiled mercury-containing lamps in solid waste landfills. Several reasons for this are: a. Through its own studies, as noted in this notice of proposed rulemaking, EPA has found that substantial quantities of lamps are broken en route to solid waste disposal facilities and EPA has acknowledged that the agency is uncertain about how much mercury is released from

these broken lamps.

d. Adoption of even a conditional exemption that allows some types of solid waste landfill disposal for untreated, characteristic hazardous wastes (in this case, mercury-containing lamps) creates a dangerous precedent. It would appear that, in the future, EPA would have to be prepared to apply the same logic to exemptions for other hazardous wastes exhibiting comparable or lower risk factors.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the significant potential for mercury emissions from spent lamps occurs during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. 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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and/or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00154

COMMENTER LighTec, Inc.

SUBJECT EXCL1

COMMENT It has recently come to our attention that the US EPA is considering certain rule changes concerning the disposal of certain mercury containing lamps. As you can imagine, LighTec, Inc. is strongly opposed to any changes which may increase our cost of doing business or, equally important, our customer's cost of doing business. Any further regulation could mean a

dramatic reduction in our customer's willingness to increase the efficiency of their facilities through high efficiency lighting retro-fits. LighTec, Inc. strongly supports the conditional exclusion to RCRA Subtitle C, concerning the identification of hazardous waste, as the best means of insuring the safe and cost effective disposal of mercury containing lamps. Simply stated, the cost on small businesses of the mandatory disposal of mercury lamps by means of Subtitle C landfills is greater than any environmental impact of this action. EPA studies have consistently shown this to be true. In fact, environmentally speaking, the greater negative impact would most certainly come from businesses not upgrading to high efficient lighting systems; increasing the demand on, and emissions from, the burning of fossil fuels for electricity generation. Clearly, it is more appropriate for the EPA to dedicate their resources to addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as fluorescent lamps. The issue of fluorescent and HID lamp disposal is of critical importance to LighTec, Inc. and all firms in the lighting management industry. We have a unique perspective on this issue as handling of these lamps is a vital and integral part of our day-to-day operations. We urge your support of the conditional exclusion to RCRA Subtitle C.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill

leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency notes that before today=s rulemaking, hazardous waste lamps that exhibited a hazardous waste characteristic had to be managed under full Subtitle C management standards. Under the universal waste regulations, storage, transportation, and record keeping requirements are less stringent than the Subtitle C regulations for generators and transporters of universal waste. In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

DCN FLEP-00155
COMMENTER Amtech Lighting Services
SUBJECT EXCL1
COMMENT We purchase over $5 million of fluorescent, HID, and incandescent lamps and ballasts annually. Amtech Lighting Services strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. It is my understanding that US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 - .31 tons) is dwarfed by the emission of mercury from combustion sources estimated to be 286 tons per year. We feel that EPA resources would be better utilized addressing mercury emissions from combustion rather than in unnecessarily regulating a minor mercury source such as fluorescent lamps. Amtech Lighting Services supports environmentally sound and cost effective recycling of mercury-containing lamps. However, we now operate in 48 different states, and our company faces the prospect of spent lamps being regulated in a wide variety of different ways across the country as states moved to adopt their own regulatory schemes. Such variations make it extremely difficult to design and implement company-wide procedures with respect to lighting upgrades and lamp disposal or recycling. Further, it is

extremely difficult to advise our clients and customers as to their approach on handling this problem. The current confusion that now exists is causing a high percentage of generators to continue disposing of mercury-containing lamps in an unregulated waste stream. Once a uniform national approach is in place, our company will be able to move quickly to educate our customers on the proper handling of their fluorescent and HID lamps. Again, to restate, Amtech Lighting Services strongly supports conditional exclusion as it pertains to mercury-containing lamps. a division of ABM Industries Incorporated - elevator energy lighting and mechanical services - an ABM company

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release. The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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 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 EXCL1
COMMENT For the past four years NEMA has taken the position that the RCRA Subtitle C hazardous waste system is an inappropriate regulatory regime for the management of spent lamps. NEMA strongly believes that a set of minimum management standards tailored to the limited risks presented by spent lamps best serves the nation's environmental and energy goals. Therefore, NEMA recommends that EPA promulgate a set of tailored Best Management Practices (BMPs) which, when followed, would exclude lamps from the Subtitle C regulations. Such a framework would allow lamps to be safely recycled or safely disposed in landfills that meet the Subtitle D standards for new landfill units.

The extra cost and the inconvenience associated with the hazardous waste designation is having the effect of reducing the rate and efficiency of lighting upgrade projects and further delaying the realization of their significant energy and environmental benefits. The environment is not well served by the hazardous waste designation since it is slowing the rate of reduction in mercury and other emissions from electric power plants.

The solution to these problems is to remove spent lamps from the jurisdiction of Subtitle C by promulgating BMPs and a conditional exclusion. A conditional exclusion, incorporating BMPs for both Subtitle D Landfilling and Subtitle D recycling of spent lamps and including a sunset provision to allow a re-evaluation of the landfilling exclusion, protects against uncontrolled breakage and releases of mercury vapor into the

atmosphere, encourages quality recycling and quality Subtitle D landfilling, and encourages maximal pollution prevention through energy conservation. The BMPs would be more protective than current practice where non-compliance is standard operating procedure. The BMPs would also be more protective than a fully-implemented Subtitle C in that the risks associated with residuals management would be addressed.

The NEMA position, as summarized below and further explained in the remainder of this document, is based on the significant environmental and energy benefits and the minimal risks associated with mercury-containing lamps. Mercury-containing lamps, most notably the energy-efficient fluorescent varieties, are in fact the most environmentally sound source of lighting available today. Mercury-containing lamps require less energy to operate than incandescent and other forms of lighting, thereby reducing the nation's dependence on non-renewable fossil fuels for electricity production and at the same time reducing harmful emissions from the combustion of those fuels to produce electricity. EPA's Green Lights Program has estimated that full implementation of lighting upgrade programs could reduce aggregate national electricity demand for lighting by 50 percent annual carbon dioxide emissions by 232 million tons, and annual sulfur dioxide and nitrogen dioxide emissions by 1.7 million and 0.9 million tons respectively. Estimates of the reduction in mercury emissions that can be achieved by lighting upgrades range from 9.7 to 14.3 tons per year [1], (Footnote 1: See USEPA, Green Lights Program: The First Year, Office of Air and Radiation, Washington, DC, 1992; USEPA, "Green Lights Upgrade Manual", February 1993; and NEMA, "Reduction in Mercury Air Releases from Using Fluorescent Lamps", November 1994 (Enclosure 1)) which will have direct environmental benefits in terms of both air and surface water quality. In fact, if incandescent lamps were used in place of fluorescent lamps to achieve the same light level, mercury emissions from electric power generation for the purpose of lighting would experience a threefold to fourfold increase.[2] (Footnote 2: This estimate is based on the fact that fluorescent lamps use three to four times less energy to produce the same light level as incandescent sources.) Needless to say, energy efficient lighting provides additional benefits to U.S. businesses and households by reducing their electricity costs. The risks associated with

management of spent lamps are also low. Many studies, particularly EPA's report entitled 'Management of Used Fluorescent Lamps: Preliminary Risk Assessment (Truesdale, Beaulieu, and Pierson Research Triangle Institute, October 1992, Revised May 14, 1993), show that mercury does not escape in significant amounts from municipal landfills either in leachate or in landfill gas. EPA has also acknowledged that the Toxicity Characteristic may over-predict the mobility of mercury in groundwater.[3] (Footnote 3: 359 FR 38289.) Other studies have shown that mercury emissions from broken lamps are low [4] (Footnote 4: Clear and Berman, Lawrence Berkley Laboratory "Environmental and Health Aspects of Lighting: Mercury" Journal Illuminating Engineering Society, Summer, 1994.) and that emissions from stationary and mobile crushing operations and from recycling operations can be successfully controlled to similarly low levels. [5] [Footnote 5: Battye, McGeough, Overcash, EC/ R Incorporated, "Evaluation of Mercury Emissions from Fluorescent lamp Crushing, Report prepared for Control Technology Center, USEPA, Research Triangle Park; NC, February 1994. This report demonstrates that crushing technology exists which controls mercury emissions to acceptable levels and that emission control capability is independent of the size of the crushing unit and whether the unit is mobile or stationary. However, not all crushers are protective of human health and the environment, so crushing units should be carefully evaluated before and during use.] The 1990 revisions to the Toxicity Characteristic, however, greatly expanded the number of waste streams subject to the stringent and costly hazardous waste provisions of RCRA, capturing mercury-containing lamps in spite of the low risks cited above. Mercury-containing lamps became fully regulated when spent and generated by a regulated generator [6], (Footnote 6: Some small businesses and all households are exempt.) even though the average mercury content of four foot fluorescent lamps manufactured by the end of 1994 will be only 23 mg,[7,8] (Footnote 7: "Round-robin TCLP testing of lamps showed significant variation in results obtained, leading to the conclusion that the TCLP itself, even if it were an accurate predictor of the behavior of mercury in the landfill environment, is not adequately reproducible in the laboratory to be reliably used for establishing regulatory jurisdiction.) (Footnote 8: NEMA, "The Management of Spent Electric Lamps Containing Mercury, September 1994 (Enclosure 2).

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Under the universal waste system, spent lamps must be properly stored and packaged to prevent uncontrolled and unintentional breakage during storage and transport, therefore preventing releases of mercury into the environment. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant,

the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent C only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

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 Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

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.

Finally, the Agency believes that the TCLP and the dilution/attenuation factor used for the toxicity characteristic regulation reasonably evaluate the potential of mercury to leach from lamps and to migrate to the environment. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous waste constituent are subject to today's rulemaking. Lamps, including incandescent lamps, that do not exhibit any hazardous waste characteristic are not subject to Subtitle C regulation.

DCN FLEP-00157
COMMENTER American Trucking Association, Inc.
SUBJECT EXCL1
COMMENT The American Trucking Associations supports EPA's intent to exclude mercury-containing lamps from the hazardous waste regulations.

CONCLUSIONS AND RECOMMENDATIONS ATA and the trucking industry are committed to preserving our natural resources while

minimizing unnecessary and impractical regulation that produce no measurable benefit to human health and the environment. We support the goal of this regulation: to exclude mercury-containing lamps from the hazardous waste regulations.

Issue 1. Does available technical data support the exclusion of mercury-containing lamps from regulations as a hazardous waste (59 FR 38290)? Discussion. In determining whether or not mercury-containing lamps should be regulated under the hazardous waste regulations, EPA has evaluated technical information addressing the environmental fate and transport in the ground water and air pathways for mercury. The majority of information considered pertains to mercury management in municipal landfills. In assessing the movement of mercury in groundwater, EPA has analyzed leachate samples from municipal landfills. Preliminary leachate data indicate that mercury is less mobile than previously believed and in fact, may not leach from municipal solid waste landfills at levels above drinking water levels. EPA also notes several studies which suggest that minimal amounts of mercury are discarded in municipal landfills each year. ATA supports the conclusion that mercury in municipal solid waste is not being readily released by the leaching process that can occur in a landfill. ATA is more concerned with EPA's assessment of mercury's movement through the atmosphere. Although the preamble questions the impact of mercury on air quality, very little scientific data is presented as support for this concern. EPA concedes that it is unclear how mercury moves through the atmosphere and what conditions enhance or retard it. EPA also acknowledges that there is insufficient data to determine whether mercury from lamps will endanger human health and the environment by the release of mercury to the air. Finally, assumptions have been made on the amount of mercury released from broken lamps, even though few studies have measured the amount of mercury released over time. ATA's primary concern is the apparent lack of scientific data demonstrating that there are excessive mercury emissions and discharges. Recommendation. ATA supports EPA's proposal to exclude mercury-containing lamps from regulation as a hazardous waste based, in part, upon technical data which has shown that levels of mercury are insignificant and well below TCLP allowable levels. EPA should guard against making assumptions with little to no scientific data upon which to rely.

As such, EPA should: Exclude mercury-containing lamps from regulation as a hazardous waste based, in part, upon technical data which has shown that levels of mercury are insignificant and well below TCLP allowable levels. EPA should note that little scientific data exists which supports the management of mercury-containing lamps under the hazardous waste regulations. Establish a conditional exclusion for mercury-containing lamps from the hazardous waste regulations provided that the lamps are disposed of in appropriately permitted municipal landfills. Not add mercury-containing lamps to the Universal Waste Rulemaking.

RESPONSE

In today's rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

Studies have shown that hazardous waste lamps consistently fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Lamps, including incandescent lamps, that do not exhibit any hazardous waste characteristics are not subject to Subtitle C regulation.

DCN FLEP-00159
COMMENTER Motorola, Inc.
SUBJECT EXCL1
COMMENT Motorola strongly supports the Conditional Exclusion set forth in Option 1 as the best means of ensuring the environmentally sound and cost effective disposal and recycling of mercury containing lamps. By excluding used fluorescent bulbs from the definition of hazardous waste, Option 1 is much more preferable than regulation under the Universal Waste Management System set forth in Option 2.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00160
COMMENTER Central and South West Services, Inc.
SUBJECT EXCL1
COMMENT CSW believes that the proposed rule on the management of mercury containing lamps is a critical step in the right direction for the RCRA program. As an initial point, CSW strongly supports the conditional exemption option; indeed, we believe this approach is mandated by the technical record and fully

authorized under the statute. More generally, however, implicit in both the conditional exclusion and the universal waste options is the recognition that the regulation of mercury-containing lamps under Subtitle C is not only unnecessary, but environmentally counterproductive because it inhibits full participation in energy-efficient relamping programs, such as Green Lights. As EPA correctly recognizes, "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account." The important environmental benefits available under these programs, however, will continue to be needlessly forfeited until EPA acts to remove mercury-containing lamps from the traditional Subtitle C program. Therefore, it is critical that EPA remain vigilant in pursuing promulgation of a final lamp management rule and not let this important initiative slip from the Agency's agenda. In terms of the proposals themselves, the conditional exclusion option is fully justified by the record evidence demonstrating that the management of mercury-containing lamps in qualified municipal solid waste landfills ("MSWLFs") does not present a risk to human health and the environment. Therefore, the Agency is fully within its statutory authority in determining that such materials do not warrant hazardous waste regulation. Further, there is little question that this option will yield the greatest environmental benefit in terms of reduced mercury loadings to the environment -- as opposed to the universal waste option -- because it will result in the greatest participation in Green Lights and other energy-efficient relamping programs. Therefore, unless there is a technical or legal bar to pursuing this alternative -- which there is not -- common sense and sound environmental policy dictate that EPA promptly pursue this option. In the detailed comments that follow, CSW strongly endorses the conditional exclusion option and highlights the technical, legal and policy reasons for adopting this management scheme. Briefly, our major comments and recommendations are as follows: The record evidence demonstrates convincingly that, when managed in MSWLFs, mercury-containing lamps do not pose a threat to human health and the environment. Because the management of mercury-containing lamps in qualified MSWLFs does not pose a threat to human health and the environment, the continued regulation of the materials under the hazardous waste program would fly in the face of the record evidence and would be

arbitrary and capricious. EPA has established the legal precedent for determining not to regulate a particular waste under Subtitle C, based on the finding that, if the waste is managed in a particular manner, it does not pose a risk to human health and the environment. This is the legal rationale underlying the proposed conditional exclusion for mercury-containing lamps and the Agency is fully empowered under RCRA to pursue this option. Keeping mercury-containing lamps under the web of hazardous waste regulation is not only unwarranted, it will result in the continued forfeiture of emissions savings due to the understandable reluctance of the regulated community to participate in Green Lights and similar -efficient relamping programs. This result is nonsensical and environmentally counterproductive. The conditional exclusion option will result in the greatest reduction in mercury loadings to the environment because it will ensure maximum participation in Green Lights and other energy-efficient relamping programs. EPA correctly recognizes "that there is a clear net environmental benefit from energy-efficient lighting, even when lamp disposal is taken into account" Recycling of mercury-containing lamps is a laudable management option, but disposal in qualified MSWLFs must remain a viable option for lamps.

I. THE CONDITIONAL EXCLUSION OPTION IS FULLY SUPPORTED BY THE RECORD CSW wholeheartedly supports EPA's proposed conditional exclusion for the management of mercury-containing lamps, which would exempt such materials from hazardous waste regulation provided that they are managed in municipal solid waste landfills ("MSWLFs") that have been permitted by a State/Tribe with an EPA-approved MSW permitting program or sent to a State permitted, licensed or registered mercury reclamation facility. 59 Fed. Reg. at 38302. Such an approach is fully authorized under the statute and is fully supported by the technical record. Indeed, in light of the overwhelming record evidence that the management of such materials in qualified MSWLFs does not pose a threat to human health and the environment, the continued regulation of mercury-containing lamps under the Subtitle C program would fly in the face of the record evidence and would be arbitrary and capricious. A. The Rulemaking Record Demonstrates Conclusively That Mercury-Containing Lamps Do Not Warrant Hazardous Waste Regulation The data in the rulemaking

record and the additional data provided by the Electric Power Research Institute ("EPRI") through the Utility Solid Waste Activity Group demonstrate conclusively that mercury-containing lighting wastes can be safely managed in MSWLFs or at qualified recycling facilities without posing a threat to human health and the environment. In light of this compelling record evidence, EPA is fully justified in moving forward and adopting the conditional exclusion for mercury-containing lamps. In fact, absent the submission of additional data that persuasively refutes the existing record evidence regarding leachate and air emission data from the management of mercury-containing lamps in MS FS, CSW believes that it would be difficult for EPA to justify not going forward with the contemplated exclusion for mercury-containing lamps.

B. Subjecting Mercury-Containing Lamps That Are Managed in MSWLFs to Subtitle C Regulation Would Be Inconsistent with the Record and Arbitrary and Capricious The above groundwater and air emission data demonstrate convincingly that the management of mercury-containing bulbs in MSWLFs -- as they have been for years without resulting in any "significant human exposure" -- will not result in any adverse impact on human health or the environment. First, the disposal of mercury-containing lamps in qualified MSWLFs will not result in the contamination of groundwater at levels exceeding the MCL for mercury; indeed, the majority of data did not detect any measurable level of contamination due to the management of bulbs in MSWLFS. The Agency itself recognizes this point. 59 Fed. Reg. at 38293 ("The available data on landfill leachate suggests that mercury-containing lamps may not pose a threat to groundwater when placed in a state-controlled municipal landfill due to the low levels of mercury found in landfill leachate"). This point is significant because the TC regulatory levels -- and thus the determination of whether a waste is hazardous -- are predicated upon the assumption that the contaminants of concern (in this case, mercury) will reach drinking water receptors at concentrations above the relevant MCLs. See 55 Fed. Reg. 11798 (March 29, 1990); 59 Fed. Reg. at 38288. The record evidence makes clear, however, that this assumption is completely unfounded in the case of managing mercury-containing lamps in MSWLFS. Therefore there is no technical or legal basis for regulating mercury-containing lamps under Subtitle C of RCRA

because of groundwater concerns. In short, because mercury-containing lamps do not pose a threat to human health and the environment when managed in MSWLFs, the continued regulation of these materials under the hazardous waste program would fly in the face of the record evidence and would be arbitrary and capricious.

III. EXCLUDING MERCURY-CONTAINING LAMPS FROM HAZARDOUS WASTE REGULATION WILL RESULT IN THE GREATEST REDUCTION IN MERCURY LOADINGS TO THE ENVIRONMENT In addition to the technical record and legal precedent that justify implementation of the conditional exclusion option, there is little question that, from a policy perspective, this option will yield a greater reduction in mercury loading to the environment am the universal waste option because it will result in maximum participation in Green Lights and other energy-efficient relamping programs.

A. Exempting Mercury-Containing Lamps From Hazardous Waste Subtitle C Regulation Is Critical To the Success of Green Lights and Other Energy-Efficient Lighting As one of the key stakeholders in the implementation of energy-efficient revamping programs, CSW strongly agrees with EPA's position that "[requiring the disposal of lamp wastes as hazardous wastes, under full Subtitle C regulations, may discourage participation in energy efficient lighting programs." 59 Fed. Reg. at 38289. Indeed, over the course of the last two years a growing number of individual electric utilities have either put off indefinitely their decision to join Green Lights or have greatly scaled back their participation in Green Lights precisely because of the economic burdens and operating problems of managing the replaced bulbs under RCRA's Subtitle C regime the Agency itself concedes, "[t]he additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies." Id. at 38290.

1. Letter from Wisconsin Power & Light Co. to EPA (March 24, 1993). "Wisconsin Power & Light Company (WP&-L) continues to be a supporter and member of the EPA's Green Lights program. Unfortunately, I am writing to advise you of a major problem our

utility as well as others are having in implementing the Green Lights program -- that problem is lighting waste disposal. As I am sure you are aware, a large percentage of lighting waste is being characterized as hazardous waste under RCRA. Because of this, the costs and liability of removing and disposing of old lights exceeds the electrical savings from such a program. Not only is this causing a dilemma for the utility industry, but it is also putting our customer conservation programs at risk. This matter has been discussed by our senior management and our decision is to not move forward with implementation of the Green Lights program within our company until the USEPA addresses the disposal issue and provides some guidance and relief regarding this disposal dilemma." 2. Letter from Wisconsin Public Service Corporation to EPA (March 25, 1993) "This week Wisconsin Public Service Corporation (WPSC) received word from another of our large customers who is normally very conservation minded. This customer informed us that they were not upgrading their large office complex with energy efficient lamps because of the recent Wisconsin Department of Natural Resources (WDNR) policy, which makes all lighting wastes subject to the hazardous waste rules. The WDNR has stated that their policy will be updated if the EPA grants an exemption for the lighting wastes. The costs of managing lighting wastes, as well as the additional paper work required to manage these wastes as hazardous wastes, is causing companies to forfeit important lighting upgrades that would result in overall air emission savings.... Our conservation programs, and the EPA's Green lights program, will not achieve their full potential unless EPA excludes lighting wastes which are generated by participating in these voluntary energy savings programs." 3. Letter from Virginia Power to EPA (September 7, 1993). "[Regulatory] relief is important because it should significantly enhance the success of Green Lights and other lighting efficiency improvement programs. Having to treat the waste generated by lighting efficiency upgrades as hazardous is an unnecessary burden and disincentive to implementing lighting efficiency improvements. As a result, many businesses and organizations are very reluctant to participate." 4. Letter from The Los Angeles Department of Water and Power to EPA (April 23, 1993) "Regulating lighting waste as hazardous may make voluntary demand-side management (DSM) programs, such as Green Lights, economically impractical. LADWP applauds EPA for its commitment to energy efficiency and the environment as it relates to the

Green Lights Program. However, regulating lighting wastes as hazardous may discourage new participation and curtail the progress of voluntary participants already in place." 5. Letter from Florida Power & Light (April 6, 1993) "The regulation of lighting wastes under the hazardous waste program greatly complicates participation by an electric utility and its customers in any of the lighting efficiency programs which might be approved by a state utility regulatory body. Although such programs may be a-key element of a utility's demand-side management activities, the possibility that the lighting waste created during replacement to more energy-efficient types would have to [be] handled as hazardous waste makes the implementation of these programs problematic. This is because the cost of managing this lighting waste as hazardous waste makes these programs economically impractical, both for the electric utility and any large customer which chooses to participate in them on its own.... The exclusion under consideration will remove a major impediment to any of the lighting efficiency programs which a utility or its customers might undertake. FPL urges its quick adoption in order to avoid serious disruption to these programs' progress." 6. Letter from Union Electric to EPA (October 27, 1994). "The cost of managing spent lamps as hazardous could also make participation in relamping programs economically impractical and will impede participation in Green Lights and other energy-efficient relamping programs that are being promoted by the Administration under the Climate Challenge Program.... The conditional exclusion will remove this barrier to participating in energy efficient relamping programs." 7.Letter from Commonwealth Edison to EPA (November 1994). "Our concern is that our customers, especially large office building owners, will be discouraged from participating in ComEd's relamping initiative once they realize the regulatory burden they may assume.... [Those who have never generated hazardous waste may be unsure of the costs associated with regulatory compliance, and may opt out of the program because of increased legal fees or administrative costs. Small businesses may also have a psychological aversion to dealing with unfamiliar regulations and apparently unbounded liability." 8. Letter from Delmarva Power to EPA (April 5, 1993.). "The 'Green Lights Program' is an excellent program that is helping to save energy and producing great environmental benefits through emission reductions. However, subjecting mercury-containing lighting

wastes to hazardous waste regulations could make this and other high efficiency lighting programs economically impractical." 9.Letter from American Electric Power to Office of Management and Budget (April 15, 1994). "[Proposed upgrades are not justified because they fail the feasibility test as a direct result of the incrementally higher cost of treating the lighting wage as a hazardous material. If this is true for other companies, the goals of the Green Lights program in achieving cost-effective upgrades wherever possible will be thwarted." 10. Comments submitted by Allegheny Power System to EPA (October 10, 1994). "Because of these substantial additional costs [associated with managing, transporting, and disposing of lighting wastes as hazardous wastes]. APS may have no choice but to invest their demand-side management dollars in other programs and forego Green Lights." The above excerpts make clear that s objecting mer --containing bulbs to hazardous waste regulation has significantly retarded the implementation of energy-efficient relamping programs across the country and has unnecessarily resulted in the forfeiture of potentially significant pollution prevention benefits. Moreover, even for those companies that have chosen to participate in Green Lights, subjecting the bulbs to Subtitle C controls has resulted in significant losses in potential emissions reductions otherwise achievable from their fall participation in the Green Lights program. For example, Pacific Gas & Electric ("PG&E"), a gas-fired electric utility, estimates that 35 percent of its sites are eligible for participation in the Green Lights program due to the costs of managing bulbs from such sites under the hazardous waste regime. See PG&E "Green Lights Programs Disposal cost Breakdown". (Fn. 5 - EPA's Green Lights program has established a "Cost Effectiveness Analysis" that is used to determine whether it is economically feasible for a particular facility to participate in Green Lights. Based on this "Cost Effectiveness" equation, if mercury-containing lighting wastes are regulated as hazardous wastes, a significant percentage of facilities will not even qualify to participate in Green Lights (e.g., 35 percent in the case of PG&E)). The forfeiture of pollution prevention benefits from this isolated example are significant. The public is foregoing annual emissions savings from this single company of approximately 0.5 tons Of S02, five tons of NO, and 140 tons of CO2. The amount of forfeitures in emissions savings from coal-fired electric utilities are even

more dramatic. One coal-fired electric utility estimates that a comparable 35 percent reduction in units qualifying for Green Lights would results in forfeiting annual emissions savings of 8.7 tons of S02, 3.7 tons of NOx and l,013 tons of CO2. Obviously, these losses in emission reductions are even more significant when the cumulative emissions savings forfeited by the entire electric utility industry are taken into account. Compounding these monetary and environmental losses is the fact that they are occurring without any net gain in environmental protection. As discussed above, EPA's own data, as supplemented by recent data generated by EPRI, make clear that mercury-containing lighting wastes do not warrant hazardous waste regulation. Thus, keeping mercury-containing lamps under the web of hazardous waste regulation is not only unwarranted, it has resulted in the forfeiture of millions of tons of emissions savings annually due to the understandable reluctance of many electric utilities and their customers to voluntarily participate in Green Lights and similar energy-efficient relamping programs. This result is nonsensical and environmentally counterproductive. (Fn. 6 - In fact, one utility points out an additional "undesirable side effect" of stringent lighting waste regulation. "If lighting waste regulation is made onerous and costly, a market may develop for reusable (unbroken), though inefficient, mercury light bulbs, in which relampers either sell or give away usable bulbs to other end users. We have already been asked by some of our customers if they can give away their used bulbs rather than dispose of them as hazardous waste. New businesses and industries are often low in starting capital, and they may choose to use inefficient, but 'free' bulbs to save initial costs. If this scenario develops, the environmental purpose of replacing mercury lamps is defeated, unless an outright ban of mercury lamp use is instituted." Letter from Commonwealth Edison to EPA (November 1994)). B. Maximum Participation in Green Lights and Similar Programs -- Which Will Occur Under the Conditional Exclusion Option -- Will Result in Reduced Mercury Loadings to the Environment From a policy perspective, the conditional exclusion will undoubtedly result in the greatest reduction in mercury loadings to the environment. Therefore, unless there is a technical or legal bar to pursuing this option -- which there is not -- common sense and sound environmental policy dictate that EPA pursue this alternative. The record demonstrates that

one of the largest manmade sources of mercury loadings into the environment is from fossil fuel combustion. (Fn. 7 - See EPA Office of Air Quality Planning and Standards, National Emission Inventory of Mercury Compounds: Interim Final Report at ES-6 (Dec. 1993), Docket No. FLEP-S0026 (the "EPA Emissions Report")). The record also demonstrates, however, that full participation in Green Lights and other DSM programs offer one of the most effective measures available for reducing these emissions because-"energy efficient lighting consumes less electricity, reducing the generation of pollution from power plants." 59 Fed. Reg. at 38289. EPA estimates that full implementation of the Green Lights program will result in a reduction of mercury emissions from fossil fuel combustion by 9.7 Mg -- almost 8 percent -- by the year 2000. Id. EPA also points out that, if energy-efficient lighting were used wherever it is profitable, the nation's demand for electricity could be cut by more than 10 percent. Id. at 38289. This would result "in reductions of estimated annual carbon dioxide emissions of 202 million metric tons (4 percent of the national total, reductions of annual sulfur dioxide emissions of 1.3 million metric tons (7 percent of the national total), and reductions of annual nitrogen oxide emissions of 600,000 metric tons (4 percent of the national total)." Id. Thus, a conditional exclusion that fosters greater participation in Green Lights and other DSM programs would have a significant impact on reducing the emissions from fossil fuel combustion. EPA recognizes this point as well; indeed, this is the primary impetus behind the conditional exclusion option: [t]herefore, if by reducing the initial costs of participation in the Green Lights program, generators participate in the Green Lights Program, an energy savings will occur. These additional energy savings will decrease the amount of mercury and other pollutants emitted into the atmosphere from coal-burning. 59 Fed. Reg. at 38290. Moreover, as was aptly put in an earlier letter from the former Directors of EPA's Office of Solid Waste and Office of Air and Radiation, "[w]e believe that there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe, compelling. . . ." Letter to Leigh Pegues, Director, Alabama Department of

> Environmental Services, from Don Clay and Michael Shapiro, U.S. EPA at 2 (Dec. 7, 1992) (emphasis added). In short, the policy considerations for pursuing the conditional exclusion are compelling. The conditional exclusion option will spur fuller participation in Green Lights and other energy- efficient relamping programs which, in turn, will result in significant reductions in mercury and other contaminants emissions into the environment. The record evidence also makes clear that the larger volume of mercury-containing lamps that will be removed from service as a result of greater participation in these energy-efficient relamping programs can be soundly managed in qualified municipal solid waste landfills or qualified recycling facilities. Moreover, implementation of the conditional exclusion will result in greater reduction in mercury loadings to the environment without compromising EPA's mandate under RCRA to protect human health and the environment. Pursuit of any other option -- including the universal waste option -- will result in needlessly forfeiting the significant environmental benefits that can be gained through the conditional exclusion alternative. There is no legitimate reason for such a result.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

EPA studies have shown that participation in energy-efficient lighting programs such as Green Lights reduces mercury (as well as other pollutant) air emissions from the burning of fossil fuels for electricity generation in an amount that offsets the small amount of releases from the disposal of hazardous waste lamps in landfills. The amount of air emissions produced from the generation of electricity will continue to decrease with less demand for electricity due to energy-efficiency savings. The universal waste rule will encourage participation in energy-efficient lighting programs because the 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 rule should encourage additional participation in energy-efficient lighting programs and increase recycling of lamps.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00161
COMMENTER American Forest and Paper Association
SUBJECT EXCL1
COMMENT AF&PA and its member companies believe that the conditional management of lamps in Subtitle D Municipal Solid Waste Landfills is the most appropriate way to protect human health and the environment and facilitate the conversion to energy-efficient lighting.

AF&PA strongly supports EPA's proposal to exclude spent lamps from the definition of "hazardous waste" (hereinafter, the "conditional exclusion"). See Proposed 40 C.F.R. ' 261.4(b)(16), 59 Fed. Reg. 38288, 38302 (July 17, 1994). The conditional exclusion, if adopted by the States, will benefit both the environment and businesses that generate spent lamps. It will protect the environment by requiring generators to dispose of spent lamps at RCRA Subtitle D landfills (hereinafter, "municipal landfills"), (Footnote 1 - The conditional exclusion allows generators to recycle spent lamps at permitted mercury reclamation facilities instead of disposing of them in municipal landfills. However, AF&PA assumes that all generators covered by the conditional exclusion will opt to landfill spent lamps because reclamation costs are significantly higher. See 59 Fed. Reg. At 38298, col. 3. AF&PA will therefore evaluate the environmental and economic benefits of the conditional exclusion based solely on the landfilling scenario.) which available data show can safely handle mercury from spent lamps. It will jointly benefit the environment and the business community by simplifying and lowering the cost of managing spent lamps, thereby creating incentives for businesses to convert to newer, more efficient lighting systems. Conversion to more efficient lighting systems will reduce electricity consumption and emissions from power plants, including airborne mercury emissions. II. Support for Conditional Exclusion A. Disposal of spent lamps in municipal landfills is environmentally safe. To qualify for the conditional exclusion, generators must dispose of spent lamps at municipal landfills that have received permits from States or Indian Tribes pursuant to EPA's RCRA Subtitle D landfill program. 59 Fed. Reg. At 38302. Disposal in permitted municipal landfills effectively protects human health and the environment from exposure to mercury contained in spent lamps.

C. Lower waste management costs under the conditional exclusion will encourage investment in more efficient lighting systems, thereby benefitting the environment. To the extent that the conditional exclusion reduces management costs for spent lamps, it makes investment in energy efficient lighting systems more attractive and provides incentives for expanded participation in the Agency's Green Lights program. AF&PA members will certainly

be more likely to install new, more efficient lighting systems if the cost of disposing of spent lamps is low. Switching to more efficient lighting systems lowers electricity consumption, which in turn reduces emissions from power plants that burn fossil fuel, including emissions of carbon dioxide, sulfur dioxide, nitrogen oxide, and mercury. See 59 Fed. Reg. At 38289.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00162

COMMENTER Delaware Department of Natural Resources

SUBJECT EXCL1

COMMENT The Delaware HWMB believes a complete exclusion of mercury containing lamps from RCRA Subtitle C would not result in the

safest and utmost protection of human health and the environment.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00163

COMMENTER Massachusetts Dept. of Environ. Prot.

SUBJECT EXCL1

COMMENT A. Comments on Conditional Exclusion (Option 1): This option is less attractive to the MA DEP primarily because it runs counter to the Department's waste management hierarchy which is to first reduce; second, to recycle; third, to incinerate in a waste to energy facility; and last, to landfill. This hierarchy serves as a framework for setting policies in the MA DEP's Bureau of Waste Prevention that will achieve the long term goal of reducing the amount of waste disposed in Massachusetts.

RESPONSE

Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps.

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Next on the hierarchy is recycling. Today's final rule will greatly 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 FLEP-00164
COMMENTER E.I. Du Pont De Nemours and Co., Inc.
SUBJECT EXCL1
COMMENT Of the two proposed alternatives, DuPont strongly supports the conditional exclusion with tailored contingent management provisions as the best means of ensuring safe and cost-effective recycling and disposal of mercury-containing lamps. Data from the EPA studies included in the preamble indicate that mercury does not leach in significant amounts from municipal landfills, thus presenting little or no impact on human health and the environment.

DuPont's comments are briefly summarized as follows: The conditional exclusion is the best means of ensuring safe and cost-effective disposal of mercury-containing lamps.

DuPont strongly encourages the EPA to finalize the conditional exclusion proposed today as an uncompromising, more

cost-effective alternative to achieving its waste management program objectives.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

DCN FLEP-00165

COMMENTER Ohio Chamber of Commerce

SUBJECT EXCL1

COMMENT SUPPORT FOR CONDITIONAL EXCLUSION The Ohio Chamber strongly supports the conditional exclusion as the best means of ensuring the safe and cost effective disposal of lamps containing mercury.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today=s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste

lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00166
COMMENTER American Electric Power Service Corp.
SUBJECT EXCL1
COMMENT AEP supports the proposed exclusion from RCRA regulations for mercury-containing lighting waste and strongly favors Option 1 which exempts mercury-containing lamps from the Part 261 definition of hazardous waste.

I. AN EXCLUSION FROM SUBTITLE C REGULATIONS FOR LIGHTING WASTE IS UNQUESTIONABLY APPROPRIATE. AEP strongly supports the issuance of a blanket exclusion from RCRA regulations for mercury-containing lighting wastes as well as other types of spent lamps. EPA's proposed Option 1, with minor modifications, would accomplish this. Regulation of lighting wastes as anything other than solid waste, or in programs above and beyond those which have been developed for managing solid waste, is neither warranted nor justified. The risks to human health and the environment from management of lighting waste at municipal solid waste(MSW) facilities have been studied and found to be negligible. We therefore urge EPA to adopt a full exclusion so that it may dedicate its time, money and resources to more environmentally threatening issues. Only this approach will ensure that any of the waste management related disincentives to participating in EPA's Green Lights program have been removed. With regard to the structure of the exclusion, we provide the following discussion.

VIII. AEP SUPPORTS EPA' RULEMAKING RECORD AND THE CONCLUSIONS DRAWN FROM THE DATA PRESENTED. THE DATA CLEARLY DEMONSTRATE THAT REGULATION OF LIGHTING WASTE AS HAZARDOUS WASTE IS NOT WARRANTED AND THEREFORE THE CONDITIONAL EXCLUSION ADEQUATELY PROTECTS HUMAN HEALTH AND THE ENVIRONMENT. EPA requests comments on whether the technical data presented in the rulemaking record are accurate. EPA acknowledges that its own data indicate that mercury-containing lamps contribute negligible amounts of mercury to the municipal solid waste stream. This includes the comprehensive risk assessment report prepared on behalf of EPA by the Research Triangle Institute (RTI). EPA also acknowledges that the toxicity characteristic (TC) test mischaracterizes lighting wastes and overstates the risk from mercury-containing lamps. Further, EPA notes that the existing TC limit for mercury may be too conservative based on information about its fate in the environment and that it may need to be revised. Aside from the RTI report, EPA has been presented with Electric Power Research institute data, Edison Electric Institute reports and industry data which similarly concludes that the risks to human health and the environment from managing lighting waste as MSW are minimal. Given that it has been shown that lighting waste) does not pose a threat to human health and the environment when managed as a Subtitle D material, 2) does not meet the definition of a Subtitle C material, and 3) is best managed outside of the Subtitle C system, it is clear that continued regulation of lighting waste as a Subtitle C material is senseless.

American Electric Power strongly supports an unencumbered exclusion from RCRA hazardous waste regulations for mercury-containing lighting waste (Option 1). Such an exclusion is unquestionably appropriate and is clearly supported by the record of evidence and will increase the support and benefits of the Green Lights Program.

As a Green Lights Utility Ally, AEP believes this exclusion will, encourage much greater industry participation in efficient lighting programs by removing additional costs associated with managing lighting waste as hazardous waste. The added cost to our internal Green Lights Program alone is estimated to be in excess of $1 million. We urge EPA to broaden the Option I

exclusion to include all types of lamps.

The Universal Waste Rule would still necessitate the development of a separate collection program (i.e., segregation, collection, storage, record keeping, manifesting, land ban, etc.) for facilities generating lighting waste, regardless of facility size. It is this special handling which presents the cost and practical implementation issues acting as disincentives to joining and aggressively supporting U.S. EPA's Green Lights Program. These issues have already discouraged full participation in the Green Lights Program. AEP has a total of over 12 million square feet of space in 2200 buildings and, with respect to our own Green Lights Program, these factors have hindered its ability to reach its full potential. Since the issue has been unsettled for quite some time, we have had no choice but to include costs associated with managing lighting waste as hazardous waste (estimated at over $1 million) when conducting economic analyses to determine a facility's eligibility for a Green Lights upgrade. This has reduced the number of facilities which qualified for Green Lights upgrades. Consequentially, this has constrained our efforts to maximize emission reductions from power plants through the use of energy efficient lighting at our facilities. EPA themselves acknowledges that there is a clear net benefit [of overall reduced amounts of mercury in the environment], even when lamp disposal is taken into account. Mercury [in the environment] is reduced through lower power plant emissions when inefficient lighting is replaced with efficient lighting..." We agree with this conclusion. Additional hesitancy by EPA to adopt a full exclusion will result in the continued forfeiture of significant additional emission reductions which could have otherwise been realized with full participation in the Green Lights Program.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that

mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach could minimize concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The TCLP has been upheld as a means of identifying metal-containing solid wastes as hazardous. When the Agency promulgated the TCLP method for testing whether wastes exhibit the toxicity characteristic, the applicability of the TCLP test to mineral processing wastes was challenged in Edison Electric Institute v. EPA, 2 F.3d 438, 444-45 (D.C. Cir. 1993) (AEdison@). The Court ruled in Edison that applying the TCLP test to mineral processing wastes is appropriate if the evidence available to EPA shows that disposing of such wastes in municipal solid waste landfills (MSWLF) is a "plausible" mismanagement scenario (not necessarily a typical or common scenario), 2 F.3d at 446. Moreover, the Court found that it is sufficient if there is Aevidence or explanation on the record to justify a conclusion that mineral wastes ever come into contact with any form of acidic leaching medium.@ Id. at 447.

Therefore, the critical question in making waste identification determinations under RCRA is ascertaining a plausible mismanagement scenario for the waste, if unregulated, and finding a predictive model that can reasonably evaluate whether the waste is capable of posing substantial present or potential harm to human health and the environment under those conditions. The

question is whether it is plausible that spent hazardous waste lamps may be disposed of in environments reflected by the conditions mimicked by the TCLP. Comments submitted to the Agency, including information provided by several states, reveal that co-disposal of spent lamps with municipal solid waste (the mismanagement scenario anticipated by the TCLP) is widely practiced and even predominant.

Information collected by the Agency, as well as information submitted by commenters in response to the proposed rule, supports the conclusion that spent lamps plausibly may be disposed of with municipal solid wastes. Application of the TCLP is therefore supported by evidence of current disposal practices. Therefore, it is the Agency-s conclusion that, in the case of spent lamps, the conditions set forth in Edison are met, and using the TCLP to determine whether such lamps are hazardous waste is supported both by legal precedent and fact.

Studies have shown that spent lamps consistently exhibit the hazardous waste toxicity characteristic for mercury and sometimes for lead. Spent lamps that exhibit only hazardous waste characteristic are subject to today's rulemaking. Studies on the fate and transport of metals in groundwater are still ongoing. Until the Agency develops more conclusive analytical results, the toxicity characteristic regulatory levels for metals will remain the same.

DCN FLEP-00168
COMMENTER Merck and Company, Inc.
SUBJECT EXCL1
COMMENT Merck commends the Agency for looking at better ways to manage mercury-containing lamps. We encourage the adoption of the conditional exclusion as a positive incentive to proper management and recycling.

The conditional exclusion will encourage recycling, promote waste minimization, and support EPA's Green Lights program. Furthermore, as EPA has mentioned, increased energy efficiency ultimately will result in lower power demand and less mercury being emitted to the atmosphere from power generation. This can be seen by the use of demand-side management (DSM) programs instituted by Energy Service Companies (ESCOs). DSM can include the installation of energy-efficient lighting. While these programs have been instituted to reduce power demand and emission of less greenhouse gases, they have the added benefit of reducing mercury emissions from coal-fired power plants.

RESPONSE
The Agency appreciates the commenter's support of energy-efficient lighting programs such as Green Lights. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management

for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00169
COMMENTER Advanced Environmental Recycling Corp.
SUBJECT EXCL1
COMMENT ESTABLISHING A NEW PRECEDENT: By allowing mercury-containing lamps into Subtitle D, non-hazardous landfills, the USEPA is clearly setting a new precedent, which opens the door for potential challenges from other special interest groups for specific materials to be exempt from RCRA regulation. This precedent is potentially bringing the environmental movement back to the 1970s era, when the focus of disposal was more financially driven rather than a balance between the economic and environmental issues. In addition, the USEPA should conduct a detailed investigation of the legality of the exclusion concept based on RCRA requirements.
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00170
COMMENTER National Assn. of Energy Services Comp.
SUBJECT EXCL1
COMMENT Adoption of the conditional exclusion might allow the EPA the opportunity to treat lamps as a special waste with tailored

management provisions. However, again, careful attention should be paid not only to disposal, but also to the development of regulations to govern the movement of the lamps from the point of generation through ultimate disposition, preferably with incentives in to encourage recycling.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Today's final rule will greatly 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 FLEP-00171
COMMENTER Monsanto Company
SUBJECT EXCL1
COMMENT II. THE AGENCY SHOULD IMPLEMENT THE ALTERNATIVE TO PROVIDE A CONDITIONAL EXCLUSION FROM SUBTITLE C FOR HG-LAMPS DISPOSED OF IN QUALIFYING MSW LANDFILLS.
A. Of the Options Available to the Agency, the Conditional Exclusion Option Offers the Most

Environmental Benefit and the most Cost Savings. The Agency has proposed that the management of Hg-lamps would be improved if such wastes were excluded from Subtitle C. The proposal carries this condition:

B. Programs for Energy Conservation are Inhibited by the Present Regulatory Approach to Hg- lamps. Initiatives such as the EPA's Green Lights Program are directed at the replacement of lamps with energy-efficient lamps. To be successful, these programs must lead to the implementation of major even massive relamping, with the result that large quantities of hazardous wastes are generated. There are significant disincentives to such program implementation. Sites which are normally small quantity generators will often become large quantity generators, perhaps for the first time. This introduces complexity and liability that most will try to avoid. Further, the cost of disposal of lamps is clearly more than the cost of the lamp itself and will significantly offset any energy cost savings that will accrue through relamping. EPA estimates that Green Lights could reduce mercury emissions from electric utilities by 9.7 Mg by the year 2000. This is several orders of magnitude more than any increases in releases to air and/or water that might result from an increase in Hg-lamp disposal in MSW landfills. Monsanto Company is a participant in the Green Lights program. Our experience clearly supports the Agency's finding that the proposed rulemaking will encourage participation in the program. As we will discuss below, however, the encouragement will only occur and the environmental benefits will only accrue if the Agency chooses the alternative of providing a conditional exclusion for Hg-lamps disposed of in MSW landfills or Subtitle C landfills.

The Agency should select and implement this option. It is clear that it offers the most benefit.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA studies have determined that the majority of hazardous waste lamps fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Spent lamps that are managed as universal waste under Part 273 are not included in a facility's determination of hazardous waste generator status (' 261.5(c)(6)). Therefore, if a facility manages hazardous waste lamps under the universal waste system and does not generate any other hazardous waste, the facility will not be subject to other parts of the Subtitle C regulations such as the hazardous waste generator regulations in Part 262. In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under ' 261.5 are met.

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

DCN FLEP-00172
COMMENTER Natural Gas Pipeline Company of America
SUBJECT EXCL1
COMMENT RECOMMENDED OPTION

> Option 1 should be selected for management of mercury containing lamps and bulbs. Selection of Option 1 provides industry the most incentive to implement energy efficient programs such as the Green Lights Program. Therefore, this option promotes emission reductions of other atmospheric pollutants and yet does not increase environmental or public risk from ground water contamination to a degree that justifies greater control.

In summary, the disposal or reclamation of mercury containing bulbs in permitted MSW landfills or licensed/permitted recycling facilities presents a minimal risk to the environment and should be established as the appropriate management option. Natural appreciates the opportunity to comment on these proposed disposal options.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach should help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00173
COMMENTER Advanced Environmental Technology Corp.
SUBJECT EXCL1
COMMENT By allowing mercury-containing lamps into Subtitle D,

non-hazardous landfills, the USEPA is clearly setting a new precedent, which opens the door for potential challenges from other special interest groups for specific materials to be exempt from RCRA regulation. This precedent is potentially bringing the environmental movement back to the 1970s era, when the focus of disposal was more financially driven rather than a balance between the economic and environmental issues. In addition, the USEPA should conduct a detailed investigation of the legality of the exclusion concept based on RCRA requirements.

RESPONSE

The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00174

COMMENTER Illuminating Engineering Soc. of N. Am.

SUBJECT EXCL1

COMMENT Of the two options presented in the proposed rule (59 FR 38288), IESNA supports the conditional exclusion.

RESPONSE

The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today-s final rule ensures protection of the environment while allowing flexibility in the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP- 00175
COMMENTER AT&T
SUBJECT EXCL1
COMMENT The Proposal offers two possible programs for the management of used mercury- containing lamps: conditional exclusion from regulation as hazardous waste and the addition of mercury lamps to the Universal Waste Rule (UWR)[1][Footnote 1 February 11, 1993, Hazardous Waste Management System; Modifications of the Hazardous Waste Recycling Regulatory Program; Proposed Rule (58 Federal Register 8102)]. The AT&T Company strongly supports the conditional exclusion (CE) as the best means of ensuring the safe and cost-effective means of managing mercury-containing lamps. Under this approach, generators are obligated to send lamps to a licensed, permitted or registered mercury reclamation facility or to a municipal solid waste (Subtitle D) landfill that is permitted by a State/Tribe under an EPA approved Municipal Solid Waste (MSW) program. The generator must also maintain records and obtain certifications indicating that lamps were sent by a specific carrier to a specific MSW landfill or recycler on a certain day. AT&T does not find these operating conditions to be overly cumbersome or burdensome.

In conclusion, AT&T applauds the Agency's effort to solicit comments on the Proposal and strongly recommends the conditional exclusion as the most reasonable, environmentally and cost effective means of managing end-of-life mercury-containing lamps. We look forward to further opportunities to work with the Agency in expeditiously finalizing the Proposal.

RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling

potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN SCSP-00175
COMMENTER Hazardous Waste Treatment Council
SUBJECT EXCL1
COMMENT An exemption that simply allows fluorescent lamps exhibiting the TC for mercury to be disposed of in municipal landfills or burned in municipal waste combustors would defeat -- and likely outweigh -- any benefits of the Green Lights program, by taking energy-inefficient lights out of service but allowing the release of huge quantities of mercury into the environment.

EPA has indicated that it is "considering whether to specifically exempt properly managed fluorescent lamps from the federal hazardous waste regulations." Letter from Don Clay and Michael Shapiro of EPA to Mr. Leigh Pegues of the Alabama Department of Environmental Services (Dec. 7, 1992) (emphasis added) (attached as Exhibit E). [See hard copy of Comment SCSP-00175 for Attachments.] Of course, the key to any exemption for fluorescent lamps is that they be "properly managed."
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The

universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00176
COMMENTER Coalition of Lamp Recyclers
SUBJECT EXCL1
COMMENT The Coalition of Recyclers strongly believe that exclusion of mercury-containing lamps from regulation as hazardous waste is inappropriate. Municipal solid waste (MSW) landfills are not designed or operated to accept hazardous waste, nor are they designed or operated to capture mercury emissions. Alternatively, lamp recycling facilities are designed and operated to capture mercury emissions and the mercury-containing phosphor. Intact lamps and shipped to recyclers for material separation and mercury capture. Excluding lamps from appropriate hazardous materials management would allow for breakage during any segment of the waste management process, resulting in the likelihood of multi-media contamination.
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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. An added

benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00177
COMMENTER GE
SUBJECT EXCL1
COMMENT Timely completion of these projects will be extremely beneficial in properly addressing the Subtitle D alternative.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe it would fully protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards) yet still allows for the Agency to set specific management standards to control potential emissions.

DCN FLEP-00178
COMMENTER General Electric Company
SUBJECT EXCL1
COMMENT GE fully supports the leadership role which the U.S. EPA is taking on this issue. A consistent federal rule which regulates mercury containing lamps as non-hazardous waste will minimize inconsistency between the states and will promote an environmentally protective national policy. Therefore, GE respectfully requests that the U.S. EPA regulate mercury containing lamps as a non-hazardous waste. Finally, nonhazardous treatment of mercury containing lamps avoids a potential barrier to the use of these energy efficient products by keeping the disposal costs low.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach

will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. However, more than 35 states already have either added hazardous waste lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00178
COMMENTER General Electric Company
SUBJECT EXCL1
COMMENT GE strongly supports a conditional exclusion for lamps from full hazardous waste regulation. GE reached this conclusion for three reasons. First, the environmental risks associated with the disposal of mercury containing lamps in quality landfills are negligible.

The rapid management of spent lamps near the point of generation reduces the energy consumption and related emissions from transportation. It also minimizes mercury air releases from uncontrolled product breakage as storage and transportation time is greatly minimized. Yet Universal Waste and Subtitle C encourage both long term storage and long distance transportation.

B.Providing an Exclusion from Subtitle C for Mercury Containing Lamps is Consistent with Previous Agency Actions. EPA on several occasions in the past has recognized that certain wastes--even when they exhibit a hazardous waste characteristic--are ill-suited for the Subtitle C system. For these wastes, the benefits of encouraging safe disposal through a non-hazardous Subtitle D approach outweighs any additional environmental protection from full Subtitle C regulation. A prime example of

> such an exclusion is soils from underground storage tank (UST) remediation. EPA provided an exclusion for such soils (40 CFR part 261.4(b)(10)) because the costs associated with management under Subtitle C would discourage remediation at UST sites. The Agency also provided an exclusion for reinjected groundwater from free phase hydrocarbon recovery operations because Subtitle C regulation, in combination with Safe Drinking Water Act regulation of underground injection wells, would have halted these environmentally preferable operations (40 CFR part 261.4(b)(11)). EPA also excluded asbestos waste using different reasoning. For asbestos, like mercury, the primary risk scenario is air releases--a scenario Subtitle C was not designed to address. Hence, the precedent and the logic behind exempting certain materials from Subtitle C when such designation would discourage desirable behavior (such as cleaning up UST contamination or upgrading to energy efficient lighting), or when Subtitle C management approaches are not a good fit, has been clearly established.

RESPONSE

The Agency believes that the management option finalized today encourages proper management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that adding hazardous waste lamps to the universal waste regulations will not discourage participation in energy-efficient lighting programs. In fact, By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and

clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00180
COMMENTER Food Marketing Institute
SUBJECT EXCL1
COMMENT The Food Marketing Institute, on behalf of our nation's grocery retailers and wholesalers, welcomes the opportunity to submit these comments on EPA's Proposed Rule on the disposal management of mercury-containing lamps. We believe EPA is correct in its suggestion that spent mercury lamps may not need to be treated strictly as hazardous waste, and that a more flexible approach will serve to encourage the adoption of more energy-efficient lighting systems, as is being promoted by the EPA's Green Lights program. Indeed, FMI has joined as an Endorser of the Green Lights program. FMI urges the EPA to adopt as a rule its proposal creating a conditional exclusion from hazardous waste regulation for mercury-containing lamps.

Regulatory flexibility is an important factor that will help encourage efficient and safe relamping and upgrading programs. For example, in New Jersey, a supermarket operator and other businesses are organizing an innovative lamp replacement coalition whereby participating businesses take turns each month serving as the collection "host" for spent fluorescent lamps.

For the above reasons, therefore, FMI urges EPA to adopt the proposed conditional exclusion of mercury-containing lamps from hazardous waste regulation.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00181
COMMENTER Exxon Chemical-Americas
SUBJECT EXCL1
COMMENT The ECA comments on the Mercury-Containing Lamps Proposed Rule are summarized as follows: ECA supports the Conditional Exclusion Option with the specified record keeping and certification requirements, as the best approach for safe and cost-effective disposal of mercury-containing lamps.

ECA encourages quick action to finalize the Conditional Exclusion Option. This will alleviate the uncertainty which currently exists within regulatory authorities on the disposal of fluorescent lamps.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN SCSP-00181

COMMENTER General Electric Company
SUBJECT EXCL1
COMMENT Excluding fluorescent lamps from the definition of hazardous waste would not present any additional risk from mercury in municipal solid waste landfills. While some concerns may exist regarding current emissions of mercury from municipal waste combustors, these risks will be addressed effectively with the promulgation of regulations under the Clean Air Act Amendments.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387). Subsequently, on September 15, 1997, EPA issued a final rule setting emission limits for mercury (and other pollutants) for medial waste incinerators (62 FR 48348) (remanded for further explanation, *Sierra Club v. EPA*, 167 F.3d 658 (D.C. Cir. 1999)). In addition, the Agency finalized a rule that sets performance standards for new municipal solid waste landfills (MSWLF) and emission guidelines for existing MSWLF (61 FR 9905 (March 12, 1996)). Lastly, on April 19, 1996, the Agency proposed a rule that would limit emissions of various air pollutants, including mercury, from hazardous waste incinerators, cement kilns, and lightweight aggregate kilns (61 FR 17358, finalized in part, 63 FR 33782 (June 19, 1998)). In the future, EPA is planning to propose two rules to address (1) air emissions from industrial and commercial incinerators that burn non-hazardous waste, and (2) boilers that burn hazardous waste.

DCN FLEP-00182
COMMENTER Eastman Kodak Company
SUBJECT EXCL1
COMMENT As detailed in our comments, Kodak strongly supports the conditional exclusion option proposed by the Agency for the management of mercury-containing lamps. This option is based both on valid science and the effective expenditure of funds for environmental protection. The conditional exclusion will act to remove impediments to implementing energy efficient lighting retrofits which reduce energy consumption and lessen air pollution from electric power plants.

III. Management Options: Conditional Exclusion Is Best Option
Kodak strongly supports the proposed option of promulgating a conditional exclusion for mercury-containing lamps. This option will allow the generator the selection of either properly permitted landfilling or recycling options as allowed by the States. This choice of options is especially important until a more developed national recycling rule is in place for mercury-containing lamps.

Providing the conditional exclusion is the option which will go the farthest toward promoting energy efficient lighting. A key element of Kodak's energy conservation program is to replace older style lighting with that which is more energy efficient. While Kodak has been aggressively pursuing this program, we have been discouraged by the enormous costs of managing mercury-containing lamps as hazardous waste. This cost has risen even higher within the past year as full compliance with the treatment standards of the RCRA land disposal restrictions has been required. At our largest facility at Kodak Park in Rochester, New York our costs for transportation and landfill disposal of spent fluorescent lamps was $40,000 in 1993 and has been $113,000 for the period of January-August 1994.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards

are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Today=s rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment and disposal of hazardous waste lamps. The Agency did not limit the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes.

DCN FLEP-00183
COMMENTER Chemical Manufacturers Association
SUBJECT EXCL1
COMMENT CMA Supports the Conditional Exclusion Of the two options CMA strongly supports the conditional exclusion with tailored contingent management provisions as the best means of ensuring safe and cost- effective disposal of mercury-containing lamps. The conditional exclusion approach offers the Agency and the regulated community substantial flexibility - both in this proposal and in RCRA rulemaking generally - in what is otherwise a very constrained statutory and regulatory framework.

EPA is thus well within its statutory authority to adopt conditional exclusions to the universe of hazardous waste, as it has already done in its used oil recycling rules. In the case of mercury lamps, the Agency has carefully restricted the proposed exclusion to lamps disposed of in MSW landfills subject to EPA-approved state programs or sent to state-permitted, licensed or registered mercury reclamation facilities. EPA can reasonably conclude that lamps handled in either of these ways will not pose substantial present or potential hazards to human health or the environment. And if lamps are not handled in those ways, they remain potentially hazardous under the TC, and persons managing them remain liable for RCRA compliance.

The conditional exclusion represents a more rational approach, as it would remove the stigma associated with a hazardous waste classification and promote relamping. Furthermore, by encouraging recycling outside the hazardous waste management system, EPA will make more Subtitle C treatment and disposal capacity available for more deserving wastes.

The Conditional Exclusion Would Greatly Reduce Air Emissions. Concerning air emissions, CMA believes that Subtitle C does not offer any significant protection over that offered by Subtitle D and air emissions due to breakage of mercury-containing lamps can be controlled through proper handling and packaging practices. In the United States, mercury lamps account for only 3.6% of total mercury municipal solid waste, and the quantity of mercury potentially released from landfilling lamps (0.03 kg/year) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year. 59 Fed. Reg. 38292/3. As the proposal suggests, id. at 32289/3, the reduced energy demand prompted by widespread use of energy-efficient lighting should lead to far greater reductions in mercury emissions as less coal is burned for power. The common sense, cost-effective way to cut mercury air emissions (as well as those of other pollutants) is to promote energy efficiency by eliminating the disincentive of treating mercury bulbs as hazardous in all cases. Similarly, EPA should use the same logic to promulgate a clean fuels exemption immediately.

As EPA suggests in the preamble, the conditional exclusion approach is grounded squarely within the statutory definition of "hazardous waste" and EPA's regulations implementing it. In Edison Electric v. EPA the D.C. Circuit observed that "RCRA does not define improper rnanagement or specify any type of mismanagement scenario, thus giving EPA the discretion to adopt any factually supportable, plausible scenario. 2 F.3d 438, 445-446 (D.C. Cir. 1993). Going on to uphold the TCLP, the court added, "EPA was certainly free to consider a new mismanagement scenario or a management-based approach . . . ." Id. at 446. In another decision Judge Wald added that EPA's waste listing regulations "expressly permit" the EPA to consider other regulatory schemes, 40 C.F.R. ' 261.11(a)(3)(x), and "plausible" scenarios of mismanagement, id. at ' 261.11(a)(3)(vii), in

deciding whether to list any given waste as hazardous." NRDC v. EPA 25 F.3d 1063,1080 n.4 (DC. Cir. 1994) (dissenting in part and concurring in part).

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA does not disagree with the commenter on the authority provided by the statute to conditionally exclude hazardous waste lamps from Subtitle C regulation. However, in light of information obtained from recent studies and comments, the Agency has determined that the universal waste system is the best approach for streamlining the management standards for hazardous waste lamps while ensuring protection of the environment.

The commenter also raises the issue of a "clean fuels exemption." The Agency finalized an exclusion for "comparable fuel" from the definition of hazardous waste in the June 19, 1998,

Federal Register (63 FR 33782). Information on this final rule can be obtained from the RCRA Hotline at (800) 424-9348.

DCN FLEP-00184
COMMENTER Assn. of International Auto Manuf., Inc.
SUBJECT EXCL1
COMMENT However, if forced to choose, AIAM prefers the option of an exclusion accompanied by conditional requirements rather than the option of adding mercury to EPA's Universal Waste Proposal.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00185
COMMENTER British Things, Inc.
SUBJECT EXCL1
COMMENT IV.CONCLUSION The technology exists to safely and economically manage lamps. The BTI Systems technology has provided such an option to European lamp generators for years. We have further improved the design for U.S. markets. For all the reasons we have identified in our comments here, we believe that regulation under the hazardous waste rules-particularly the Universal Waste approach - would not result in significant risk reduction and greatly increases the costs to lamp generators. Instead, an exclusion as proposed by EPA should be adopted and combined with specific management requirements for lamps.
RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters, yet ensures that lamps are managed in

an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Today's final rule will greatly 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 FLEP-00186
COMMENTER Building Owners or Managers Assn. Int.
SUBJECT EXCL1
COMMENT Given this estimate, BOMA International firmly believes that EPA's proposed conditional exclusion is sufficiently protective of the environment. This approach would ensure that an appropriate level of care is taken in disposing of these lighting products without discouraging the use of these products. BOMA also encourages EPA to implement this option as soon as possible. Continued delay of implementation will, in turn, delay many building owners' decisions to switch to energy-efficient lamps.

OPTION 2: UNIVERSAL WASTE SYSTEM The conditional exclusion option should be discarded only when solid factual evidence is produced to eliminate it. However, if the scientific evidence shows that these products have a significant harmful effect on the environment in Subtitle D landfills and EPA deems it necessary to impose further controls on their disposal, BOMA believes that the regulations must be as minimal as practicable to ensure that building owners are not discouraged from using energy-efficient lighting products.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of

landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00187
COMMENTER PacifiCorp
SUBJECT EXCL1
COMMENT PacifiCorp strongly supports the conditional exclusion option.
In drafting it, the Agency has recognized that the regulation of mercury-containing lamps under the Subtitle C system is not only unnecessary, but environmentally counterproductive because it inhibits full participation in energy-efficient relamping programs such as Green Lights. As EPA correctly states, "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account."

(2)EPA has established a clear legal precedent for determining not to regulate a particular waste under Subtitle C based on the finding that, if the waste is managed in a particular manner, it will not pose a risk to human health and the environment. EPA should follow this course in the case of mercury-containing lamps.

(3)Forcing mercury-containing lamps through the labyrinth of

hazardous waste regulation is not only unwarranted, it will result in the continued forfeiture of emissions savings due to the added costs it will impose on companies wishing to participate in Green Lights and similar energy-efficient relamping programs. (4)The conditional exclusion option will result in the greatest reduction in mercury loadings to the environment because it will ensure maximum participation in Green Lights and other energy-efficient relamping programs--programs which could significantly lower mercury emissions coming from coal-fired power plants. (5)Recycling of mercury-containing lamps is a laudable management option, but disposal in qualified MSWLFs must remain a viable option for lamps.

I. THE CONDITIONAL EXCLUSION OPTION IS FULLY SUPPORTED BY THE RECORD PacifiCorp supports EPA's proposed conditional exclusion for the management of mercury-containing lamps, which would exempt such materials from hazardous waste regulation provided that they are managed in municipal solid waste landfills ("MSWLFs"). 59 Fed. Reg. at 38302. This approach is fully supported by the technical record. Indeed, in light of the record evidence that the management of such materials in qualified MSWLFs poses no threat to human health and the environment, the continued regulation of mercury-containing lamps under the Subtitle C program would be nothing less than arbitrary and capricious.

III. THE CONDITIONAL EXCLUSION OPTION WILL RESULT IN THE GREATEST REDUCTION IN MERCURY LOADINGS TO THE ENVIRONMENT

There is little question that the conditional exclusion option will yield a greater overall reduction in mercury loading to the environment than the universal waste option because it will result in maximum participation in Green Lights and other energy-efficient relamping programs. These programs can result in environmental mercury loading reductions many orders of magnitude greater than can treating spent lights as hazardous waste. A. Exempting Mercury-Containing Lamps From Hazardous Waste Subtitle C Regulation Is Critical To the Success of Green Lights and Other Energy-Efficient Lighting Programs PacifiCorp strongly agrees with EPA's position that "requiring the disposal of lamp wastes as hazardous wastes under full Subtitle C regulations, may discourage participation in energy efficient lighting programs."

59 Fed. Reg. at 38289. Indeed, the cost of treating spent bulbs as hazardous waste can be the "deal breaker." As the Agency itself concedes, "[t]he additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous-wastes can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies." Id. at 38290. PacifiCorp operates nearly 300 facilities in 7 western states. Many of these facilities are located in remote areas, and generate only small amounts of lighting wastes. Managing these wastes under full Subtitle C requirements would be extremely expensive. Indeed, PacifiCorp estimates that this additional cost would make up to 25% fewer facilities financially eligible for Green Lights participation. EPA itself estimates that the conditional exclusion could result in nationwide annualized savings in the range of $85-102 million (with the best estimate of $93 million). 59 Fed. Reg. at 38298-9. In contrast, disposal management of lamps under the universal waste proposal would result in substantially less savings in the range of $16-20 million (with the best estimate of $17 million). Id. at 38298-9. In either case, these are dollars that can achieve much, much greater environmental benefits than they could if spent on regulating spent-bulbs as hazardous waste. The message is simple: full participation in relamping programs -- and the important environmental benefits that can be derived from such programs -- will not be realized until EPA excludes mercury-containing lamps from hazardous waste regulation. Thus, keeping mercury-containing lamps under the web of hazardous waste regulation is not only unwarranted, it has resulted in the forfeiture of millions of tons of emissions savings annually due to the understandable reluctance of many electric utilities and their customers to voluntarily participate in Green Lights and similar energy-efficient relamping programs.

B. Maximum Participation in Green Lights and Similar Programs -- Which Will Occur Under the Conditional Exclusion option -- Will Result in Reduced Mercury Loadings to the Environment From a policy perspective, the conditional exclusion will undoubtedly result in the greatest reduction in mercury loadings to the environment. The record demonstrates that one of the largest manmade sources of mercury loadings into the environment is from fossil fuel combustion. [6] [Footnote 6:

See EPA Office of Air Quality Planning and Standards, National Emission Inventory of Mercury Compounds: Interim Final Report at ES6 (Dec. 1993), Docket No. FLEP-S0026 (the "EPA Emissions Report")] The record also demonstrates that full participation in Green Lights and other DSM programs offers one of the best measures available for reducing these emissions because "energy efficient lighting consumes less electricity, reducing the generation of pollution from power plants." 59 Fed. Reg. at 38289. EPA estimates that full implementation of the Green Lights program will result in a reduction of mercury emissions from fossil fuel combustion by 9.7 Mg -- almost 8 percent -- by the year 2000. Id. EPA also points out that, if energy-efficient lighting were used wherever it is profitable, the nation's demand for electricity could be cut by more than 10 percent. Id. at 38289. This would result "in reductions of estimated annual carbon dioxide emissions of 202 million metric tons (4 percent of the national total), reductions of annual sulfur dioxide emissions of 1.3 million metric tons (7 percent of the national total), and reductions of annual nitrogen oxide emissions of 600,000 metric tons (4 percent of the national total)." Id. Based on PacifiCorp's estimate that the number of its facilities eligible for Green Lights participation would be cut by 25% if spent lamps are regulated as hazardous waste, the conditional exclusion option could result in annual savings of 1,650 tons of carbon dioxide and 5 tons of sulfur dioxide. Putting aside the reduction in emissions of these other environmentally damaging chemicals, EPA's estimates indicated that full participation in energy-efficient lighting programs could prevent as much as two metric tons of mercury from being released into the environment each year. When compared with EPA's estimate that less than 4 pounds of mercury would leach into groundwater from MSW landfills, and less than 1 pound would escape landfills in gaseous form, the choice is clear. To the extent regulating spent bulbs as hazardous waste has even the slightest negative effect on participation in energy efficient lighting programs, it will result in a net environmental harm and therefore should not be employed.

SUMMARY PacifiCorp appreciates the opportunity to comment on this important rulemaking initiative. We look forward to the prompt promulgation of a final rule that establishes a reasonable program under the RCRA system for the management of

mercury-containing lamps. Specifically, we urge the Agency to recognize the immense net environmental benefits of excluding mercury-containing lamps from Subtitle C regulation and allowing their disposal in qualified MSWLFs.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards), which will provide cost savings for generators over full Subtitle C management costs.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

EPA does not disagree with the commenter on EPA's authority to exclude hazardous waste lamps from Subtitle C regulation. However, the Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00188
COMMENTER Westinghouse Electric Corporation
SUBJECT EXCL1
COMMENT GENERAL COMMENTS Option 1: Conditional Exclusion Westinghouse supports, with some modifications, the alternative to provide a conditional exclusion for the management of mercury-containing lamps in properly regulated Subtitle D landfills and recycling facilities. Current requirements are overly burdensome on industry, provide a disincentive for industry to participate in the EPA's Green Lights Initiative, and are not warranted by the low level of risk involved. The conditional exclusion corrects many of these concerns by reducing storage, record keeping, and disposal costs, which encourages participation in the Green Lights Initiative, and ensures mercury-containing lamps are sent to properly permitted landfills or recycling facilities.

It also provides a cost-effective waste management alternative until more recycling capacity is available.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Today's final rule will greatly 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 FLEP-00189
COMMENTER National Aeronautics and Space Admin.
SUBJECT EXCL1
COMMENT A dangerous precedent would be set by allowing hazardous wastes to be disposed in Subtitle D, nonhazardous landfills. Other special interest groups could also lobby to have their wastes exempted. It could be argued that other mercury wastes can also be disposed in solid waste landfills. That argument could then be extended to include the other RCRA metals and even, the other TCLP constituents. The focus of disposal would no longer be balanced between economic and environmental issues. A detailed analysis of the legality of the exclusion based on RCRA should also be undertaken by EPA.

Many solid waste landfills will not accept hazardous wastes for disposal even if it does have an exemption because, of Superfund liability and handling concerns. This is a valid concern considering the number of solid waste landfills on the Superfund National Priorities List.

RESPONSE

The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00191
COMMENTER Utility Solid Waste Activities Group
SUBJECT EXCL1
COMMENT EXECUTIVE SUMMARY USWAG believes that the proposed rule on the management of mercury- containing lamps is a critical step in the right direction for the RCRA program. As an initial point, USWAG strongly supports the municipal solid waste landfill ("MSWLF") option; indeed, we believe this approach is mandated by the technical record and fully authorized under the statute.

In terms of the proposals themselves, the MSWLF option is fully justified by the record evidence demonstrating that the management of mercury-containing lamps in qualified MSWLFs does not present a risk to human health and the environment. Therefore, the Agency is fully within its statutory authority in determining that such materials do not warrant hazardous waste regulation. Further, there is little question that this option will yield the greatest environmental benefit in terms of reduced mercury loadings to the environment -- as opposed to the universal waste option -- because it will result in the greatest participation in Green Lights and other energy-efficient relamping programs. Therefore, because there is not a technical or legal bar to pursuing this alternative, common sense and sound environmental policy dictate that EPA promptly pursue the MSWLF option. In the detailed comments that follow, USWAG

strongly endorses the MSWLF option and highlights the technical, legal and policy reasons for adopting this management scheme.

DISCUSSION 1. THE MUNICIPAL SOLID WASTE LANDFILL OPTION IS MANDATED BY THE RECORD

USWAG wholeheartedly supports EPA's proposal to remove mercury-containing lamps from regulation as hazardous wastes under Subtitle C of the Resource Conservation and Recovery Act ("RCRA") provided that such materials are managed in municipal solid waste landfills ("MSWLFs") that have been permitted by a State/Tribe with an EPA-approved municipal solid waste ("MSW") permitting program or sent to a State permitted, licensed or registered mercury reclamation facility. 59 Fed. Reg. at 38302. Such an approach is authorized under the statute and is fully supported by the technical record.

A. The Rulemaking Record Demonstrates Conclusively That Mercury-Containing Lamps Do Not Meet the Definition of Hazardous Waste When Managed In MSWLFs The data in the rulemaking record and the additional data provided with these comments by the Electric Power Research Institute ("EPRI" demonstrate conclusively that mercury-containing lighting wastes can be safely managed in MSWLFs without posing a threat to human health and the environment. This compelling record evidence makes clear that such materials do not meet the statutory definition of "hazardous waste" - which is conditioned on a solid waste posing "a substantial present or potential hazard to human health and the environment when improperly" managed - 42 U.S.C. ' 6903(5) (RCRA section 1004(5)). Mercury-containing lamps do not present this type of hazard when managed in MSWLFs and EPA is therefore fully justified in moving forward and adopting the MSWLF option. In fact, based on the existing record, USWAG believes that the continued regulation of mercury-containing lamps under Subtitle C would be arbitrary and capricious.

In light of the above, the Agency has clearly established the legal precedent for determining not to regulate a particular waste under Subtitle C based on the finding that, if the waste is managed under a prescribed set of controls, it will not pose a risk to human health and the environment. This is the rationale underlying the proposed MSWLF option for mercury-containing lamps and the Agency is fully empowered under

RCRA to pursue this option. Indeed, because the record evidence makes clear that mercury-containing lamps do not pose a threat to human health and the environment when managed in MSWLFs, the statutory scheme does not authorize EPA to subject these materials to hazardous waste regulation.

III. REMOVING MERCURY-CONTAINING LAMPS FROM HAZARDOUS WASTE REGULATION WILL RESULT IN THE GREATEST REDUCTION IN MERCURY LOADINGS TO THE ENVIRONMENT

In addition to the technical record and legal precedent that justify implementation of the MSWLF option, there is little question that, from a policy perspective, this option will yield a greater reduction in mercury loadings to the environment than the universal waste option because it will result in maximum participation in Green Lights and other energy-efficient relamping programs.

Compounding these monetary and environmental losses is the fact that they are occurring without any net gain in environmental protection. EPA's own data, as supplemented by recent data generated in the Tetra Tech Report, make clear that mercury-containing lighting wastes do not warrant hazardous waste regulation. Thus, keeping mercury-containing lamps under the web of hazardous waste regulation is not only unwarranted, it has resulted in the forfeiture of millions of tons of emissions savings annually due to the understandable reluctance of many electric utilities and their customers to voluntarily participate in Green Lights and similar energy-efficient relamping programs. This result is nonsensical and environmentally counterproductive. [7] [Footnote 7: In fact, one utility points out an additional "undesirable side effect" of stringent lighting waste regulation. "lighting waste regulation is made onerous and costly, a market may develop for reusable (unbroken), though inefficient, mercury light bulbs, in which relampers either sell or give away usable bulbs to other end users. We have already been asked by some of our customers if they can give away their used bulbs rather than dispose of them as hazardous waste. New businesses and industries are often low in starting capital, and they may choose to use determine efficient, but free bulbs to save initial costs. If this scenario develops, the environmental purpose of replacing mercury lamps is defeated, unless an outright ban of mercury lamp use is instituted." Letter from Commonwealth Edison to EPA

(November 1994) (Attachment C).] B. There Is Ample Precedent for the MSWLF Option EPA has not hesitated in the past to remove certain materials from hazardous waste regulation where such action would preserve or promote a more environmentally beneficial program or initiative. See e.g. 40 C.F.R. ' 261.4(b)(10) (56 Fed. Reg. 13406 (April 2, 1991)) (excluding groundwater from free phase hydrocarbon recovery operations from the TC because Subtitle C regulation of such materials would disrupt environmentally beneficial remediation activities); 40 C.F.R. ' 261.4(b)(12) (56 Fed. Reg. 5910, 5912 (Feb. 13, 1991)) (removing CFC recycling operations from hazardous waste regulation to maintain economic incentive to recycle CFCs as opposed to venting CFCs to the environment); 40 C. F. R. ' 261.4(b)(10) (55 Fed. Reg. 11798, 11836 (March 19, 1990)) (removing petroleum-contaminated media from underground storage tanks ("USTs") from the TC because hazardous waste regulation of such materials would greatly delay cleanups and "severely discourage the self-monitoring and voluntary reporting essential to the implementation of the UST program"). In the above cases, EPA correctly determined that it was in the "public interest" to remove the specified materials from Subtitle C regulation because this would result in a greater net environmental gain than would otherwise be achieved if the materials remained subject to hazardous waste controls. The same rationale applies with greater force in the case of mercury-containing lamps. It is indisputable that the MSWLF option will preserve and promote energy efficient relamping programs which, in EPA's own words, offer a "clear net environmental benefit ... even when lamp disposal is taken into account." [8] [Footnote 8: See Letter to Leigh Pegues, Director, Alabama Department of Environmental Services, from Don Clay and Michael Shapiro, U.S. EPA at 2 (Dec. 7, 1992) (Attachment A)] [See hard copy of Comment FLEP-00191 for Attachments]. Further, mercury-containing lamps - unlike the specified materials discussed above - do not even meet the definition of hazardous waste in the first instance if managed in MSWLFs. Thus, based on agency precedent and the existing record evidence in this case, there are compelling policy and legal justifications for adopting the MSWLF option.

Thus, a MSWLF option that fosters greater participation in Green Lights and other DSM programs would have a significant impact on reducing the emissions from fossil fuel combustion. EPA

recognizes this point as well; indeed, this is the primary impetus behind the MSWLF option: [t]herefore, if by reducing the initial costs of participation in the Green Lights program, generators participate in the Green Lights Program, an energy savings will occur. These additional energy savings will decrease the amount of mercury and other pollutants emitted into the atmosphere from coal-burning. Id. at 38290. As was aptly put in an earlier letter from the former Directors of EPA's Office of Solid Waste and Office of Air and Radiation, "[w]e believe that there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe, compelling. . . ." Letter to Leigh Pegues, Director, Alabama Department of Environmental Services, from Don Clay and Michael Shapiro, U.S. EPA at 2 (Dec. 7, 1992) (Attachment A) (emphasis added). [See hard copy of Comment FLEP-00191 for Attachments.] In short, the policy considerations for pursuing the MSWLF option are compelling. The MSWLF option will spur fuller participation in Green Lights and other energy-efficient relamping programs which, in turn, will result in significant reductions in mercury and other contaminant emissions into the environment. The record evidence also makes clear that the larger volume of mercury-containing lamps that will be removed from service as a result of greater participation in energy-efficient relamping programs can be soundly managed in municipal solid waste landfills or qualified recycling facilities. See infra pp. 6-19. In addition, implementation of the MSWLF option will result in greater reduction in mercury loadings to the environment without compromising EPA's mandate under RCRA to protect human health and the environment. Pursuit of any other option - including universal waste option - will result in needlessly forfeiting the significant environmental benefits that can be gained through the MSWLF option.

Rather, the MSWLF option is clearly the preferable option because it will remove the regulatory barriers that have inhibited participation in Green Lights and similar programs while at the same time ensuring that mercury-containing lamps are handled in a manner that is fully protective of human health

and the environment.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses

conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

EPA does not disagree with the commenter on the authority provided by the statute to conditionally exclude hazardous waste lamps from Subtitle C regulation. However, in light of information obtained from recent studies and comments, the Agency has determined that the universal waste system is the best approach for streamlining the management standards for hazardous waste lamps while ensuring protection of the environment.

DCN FLEP-00192
COMMENTER Certified Maintenance Services, Inc.
SUBJECT EXCL1
COMMENT Certified Maintenance Services, Inc. strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C land filling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from land filling of lamps (.04 to .31 tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion than in unnecessary regulating a minor mercury source such as fluorescent lamps.

In closing I would like to stress the fact that Certified Maintenance Services, Inc. supports the conditional exclusion as

the best means of insuring the safe and cost effective disposal
of mercury containing lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but still allows the Agency to set specific management standards to control potential emissions.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00193
COMMENTER Sunset Lighting Services
SUBJECT EXCL1
COMMENT CONDITIONAL EXCLUSION: Sunset Lighting Services strongly
supports the conditional exclusion as the best means of insuring
safe and cost effective disposal of mercury containing lamps.
EPA studies show that mercury does not leak in any significant
amounts from landfills, making Subtitle C landfilling
unnecessary. U.S. lamps contain less than .2% of mercury in the
environment and only 3.8% of mercury in municipal solid waste.

In conclusion, Sunset Lighting Services would like to emphasize
our support for the conditional exclusion.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards).

The Agency believes that management controls for hazardous waste lamps under RCRA are necessary to minimize releases of mercury and other hazardous constituents to the environment during lamp accumulation and transport, to ensure safe handling of such lamps, and to keep hazardous waste lamps out of municipal waste facilities (both landfills and solid waste incinerators). Mercury is high on the Agency=s priority list of toxic pollutants, along with other heavy metals such as cadmium and lead. These metals have been identified as constituents of some waste lamps. The primary health effects from mercury are on the neurological development of children exposed through fish consumption and on fetuses exposed through their mother=s consumption of fish.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00194
COMMENTER Virginia Retail Merchants Association
SUBJECT EXCL1
COMMENT The Virginia Retail Merchants Association supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact,

U.S. lamps account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as fluorescent lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards), but still allows the Agency to set specific management standards to control potential emissions.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls for hazardous waste lamps under RCRA are necessary to minimize releases of mercury and other hazardous constituents to the environment during lamp accumulation and transport, to ensure safe handling of such lamps, and to keep hazardous waste lamps out of municipal waste facilities (both landfills and solid waste incinerators). Mercury is high on the Agency=s priority list of toxic pollutants, along with other heavy metals such as cadmium and lead. These metals have been identified as constituents of some waste lamps. The primary health effects from mercury are on the neurological development of children exposed through fish consumption and on fetuses exposed through their mother=s consumption of fish.

DCN FLEP-00195
COMMENTER South Carolina Electric and Gas Company
SUBJECT EXCL1
COMMENT However, should a landfill become a SUPERFUND site because of

mercury contamination it is our belief that companies such as ours would face another dilemma by unjustly being named a Potential Responsible Party. Even in view of this we believe that approved landfilling is currently the most economical waste management choice for mercury-containing lamps. Therefore SCE&G fully supports the conditional exclusion of used mercury lamps from regulation as hazardous waste as long as the lamps are disposed of in municipal landfills approved by appropriate regulatory agencies. Our reasons for supporting this option include the following:

The conditional exclusion from Subtitle C regulation for mercury-containing lamps will eliminate regulatory barriers which presently restrain participation in the Green Lights Program. Increased participation in the Green Lights Program will eventually lessen the need to manage, transport, and dispose of the inefficient, mercury-containing spent lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency notes that generators of waste can be held liable for releases of hazardous constituents from their waste even if the waste is exempt from Subtitle C regulation.

DCN FLEP-00196
COMMENTER American Lighting Association
SUBJECT EXCL1

COMMENT ALA strongly supports the conditional exclusion as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, U.S. lamps contain less 0.2% of total mercury in the environment and accounts for only 3.8% of the mercury in the municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury from combustion than in unnecessarily regulating a minor source such as fluorescent lamps.

We are entirely comfortable with a regulatory approach that allows landfilling of spent lamps in state-permitted municipal landfills that meet Subtitle D standards for new landfill units.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards), yet still allows the Agency to set specific management standards to control potential emissions.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls for hazardous waste lamps under RCRA are

necessary to minimize releases of mercury and other hazardous constituents to the environment during lamp accumulation and transport, to ensure safe handling of such lamps, and to keep hazardous waste lamps out of municipal waste facilities (both landfills and solid waste incinerators). Mercury is high on the Agency=s priority list of toxic pollutants, along with other heavy metals such as cadmium and lead. These metals have been identified as constituents of some waste lamps. The primary health effects from mercury are on the neurological development of children exposed through fish consumption and on fetuses exposed through their mother=s consumption of fish.

DCN FLEP-00197
COMMENTER Cincinnati Gas and Electric Company
SUBJECT EXCL1
COMMENT The Cincinnati Gas & Electric Company strongly supports the conditional exclusion for mercury-containing lamps, from RCRA Subtitle C regulation. This will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of the regulation.

Not only is the regulation of mercury-containing lamps under a hazardous waste regime unnecessary, but such regulation could impede CG&E's participation in Green Lights and other energy-efficient relamping programs. The exclusion could remove regulatory barriers and allow for greater participation in Green Lights and other DSM programs, thus allowing significant reductions in power generation and the resulting air emissions. A decision by EPA to keep lighting wastes in Subtitle C regulation is not sound from an environmental perspective. The overall reduction in air emissions; including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system. In an EPA letter dated December 7, 1992, from Don Clay (former Assistant Administrator for Solid Waste and Emergency Response) and Michael Shapiro (former Deputy Assistant Administrator for Air and Radiation, now Director of the Office of Solid Waste) to Alabama Department of Environmental Services, EPA itself noted to state regulators that "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account. Mercury emissions are reduced through reduced power plant emissions when inefficient lighting is replaced with efficient lighting. The advantages of energy efficient lighting are clear and, we believe compelling,

regardless of the regulatory status of lamp wastes, whether at the federal or state levels." CG&E agrees with this assessment and believes that this conclusion, coupled with the fact that spent lamps can be safely managed in qualified MSWLFs, clearly supports excluding lamps from Subtitle C regulation so that unnecessary impediments to participation in Green Lights and other DSM programs are removed.

Company strongly supports the conditional exclusion for mercury-containing lamps from RCRA Subtitle C regulation.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than 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. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00198
COMMENTER U.S. Department of Defense
SUBJECT EXCL1
COMMENT This recommendation is based on the following considerations:

1.Mercury in the Environment - With the available technology for the recycling of mercury- containing Lamps, it is not environmentally sound to allow these lamps to be disposed of at a Subtitle D, non-hazardous waste landfill or incinerator. It is clear, even with management practices at these facilities, a substantial airborne release of mercury will occur during normal operations. 2.Promotion of EPA's Waste Hierarchy and Recycling Agenda - Allowing lamps to be disposed of at a Subtitle D facility would be counter productive for the national focus on effective waste decision-making and the comprehensive recycling agenda. In addition to the mercury, the remaining components are made of recyclable materials (glass and aluminum). EPA should encourage recycling of all of these materials.

RESPONSE
Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full

Subtitle C management standards) yet still allows the Agency to set specific management standards to control potential emissions.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Next on the hierarchy is recycling. Today's final rule will greatly 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 FLEP-00199
COMMENTER National Association of Electric Dist.
SUBJECT EXCL1
COMMENT We strongly support the conditional exclusion accompanied by tailored management standards as the best means of ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. Management standards tailored to the risks of handling, disposing, and recycling of lamps will be protective and yet reduce the costs and burdens associated with Subtitle C. EPA should keep in mind that U.S. lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (0.4 to .31 tons) is dwarfed by the emissions of mercury from combustion sources, estimated to be 286 tons per year Clearly, government resources are better spent addressing mercury emissions from combustion than in over regulating a minor mercury source such as fluorescent lamps.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards) yet still allows the Agency to set

specific management standards to control potential emissions.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls for hazardous waste lamps under RCRA are necessary to minimize releases of mercury and other hazardous constituents to the environment during lamp accumulation and transport, to ensure safe handling of such lamps, and to keep hazardous waste lamps out of municipal waste facilities (both landfills and solid waste incinerators). Mercury is high on the Agency=s priority list of toxic pollutants, along with other heavy metals such as cadmium and lead. These metals have been identified as constituents of some waste lamps. The primary health effects from mercury are on the neurological development of children exposed through fish consumption and on fetuses exposed through their mother=s consumption of fish.

DCN FLEP-00200
COMMENTER Duquesne Light Company
SUBJECT EXCL1
COMMENT DLCO is encouraged by the Agency's proposal to re-examine the regulatory status of spent mercury-containing lamps under the RCRA program. The proposed rule on the management of mercury containing lamps is a critical step in the right direction for the RCRA program. DLCO strongly favors the conditional exclusion for mercury-containing lamps. This option ensures that such lamps are managed in an environmentally sound manner without imposing the unnecessary burdens of RCRA's Subtitle C program. We strongly encourage USEPA to adopt this definition in their final rule. The conditional exclusion is supported by a strong technical basis that mercury containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's own data supports this view. Maintaining lighting wastes in the Subtitle C system does not make sense

from an environmental perspective.

In summary, DLCO strongly supports the proposed "conditional exclusion" to ensure that mercury containing lamps are managed in an environmentally sound manner. We sincerely appreciate the opportunity to comment on this important rulemaking and look forward to a prompt resolution of this matter.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00201

COMMENTER WMX Technologies, Inc.

SUBJECT EXCL1

COMMENT SPECIFIC WMX fully understands that the proposed rule, Hazardous Waste Management System; Modification of Hazardous Waste Program; Mercury-Containing Lamps, is intended to foster the installation of energy-efficient lighting programs while still providing safe management options for residuals from the implementation of these programs. WMX agrees with this philosophy and is an active corporate participant in the U.S. EPA's "Green Lights" initiative. WMX fully supports this proposed rule while offering the following comments regarding the management of mercury- containing lamps.

RESPONSE

The Agency appreciates the commenter=s support of Green Lights and the proposed rule to

reduce the regulatory requirements for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00202
COMMENTER Union Camp Corporation
SUBJECT EXCL1
COMMENT UCC's POSITION ON THE CONDITIONAL EXCLUSION Union Camp Corporation strongly believes that the best means of ensuring the safe and cost- effective disposal of mercury-containing lamps is with the conditional exclusion. EPA's own studies have shown that mercury does not leach in significant amounts from municipal landfills, thereby making Subtitle C control over landfilling unnecessary. Further, groundwater monitoring data from two monitored UCC industrial landfills show no elevated levels of mercury. Subtitle C does not offer significant protection of air emissions, over that offered by Subtitle D. This in turn makes the expense of disposal into a Subtitle C facility vastly disproportional to the environmental benefit achieved. It is UCC's understanding that lamps made in the U S. contain less than .2% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is insignificant compared to other sources.

UCC RECOMMENDS EPA USE NATIONAL APPROACH
As mentioned above, UCC operates in many different states. UCC recommends that EPA quickly adopt a conditional

exclusion on lamp disposal to avoid a multitude of state and local regulations from being developed. Lighting upgrades and lamp disposal or recycling will become very complex and costly as more and more regulations are adopted throughout the country. This will only result in delaying or failing to meet the goal of reducing air emissions from power plants via energy-efficient lighting implementation programs.

THE FINAL RULE MUST ALLOW FOR LANDFILLING IN SUBTITLE D AND INDUSTRIAL LANDFILLS UCC believes that the disposal of spent lamps in state-permitted municipal landfills that meet Subtitle D standards for new landfill units is environmentally protective. EPA studies have demonstrated that landfilling of mercury-containing lamps presents little risk to human health or the environment. Mercury has not been shown to leach or otherwise escape from municipal landfills, and indeed, the quantity of lamps assumed to be disposed in landfills each year (250 million pounds) is insignificant in comparison to the 1-million tons of household hazardous waste and the 160-million tons of municipal waste landfilled each year. In summary, UCC recommends that EPA adopt the conditional exclusion for lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00203
COMMENTER American Gas Association
SUBJECT EXCL1
COMMENT Exclusion from RCRA will encourage participation in a significant energy saving program without any additional adverse effects on the environment. Therefore, A.G.A. generally supports Option 1 - conditional exclusion for used mercury-containing lamps from regulation as a Subtitle C hazardous waste.

However, to further encourage participation in programs to reduce greenhouse gas emissions, EPA should consider a full Subtitle C exclusion at 40 C.F.R. 261.4. Because of the small amounts of mercury contained in lighting wastes and the implementation of design standards for new landfills, such as double liners, leachate collection, and groundwater monitoring, stricter management standards are unwarranted.

In conclusion, A.G.A. supports, at the very least, Option 2 the conditional exclusion- for mercury containing lamps and optimally, a full exclusion from Subtitle C of RCRA.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e.,

universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00204
COMMENTER American Lamp Recycling, Ltd.
SUBJECT EXCL1
COMMENT While we are supportive of the Agency's universal waste strategy and position on the incineration of mercury containing lamps, we also believe Option 1 under the proposed rule is nothing more than a "turn-your-back" approach to RCRA waste management which additionally disregards the Agency's legislative and statutory mandate to encourage resource recovery.

The Agency's arguments for option 1 are weak, erroneous, incomplete, and if promulgated, almost certain to be challenged in court by environmental groups and other parties knowledgeable in the Agency's statutory mandates under RCRA.

Also, if the Agency promulgates option 1, the Agency will have failed to meet is RCRA mandate to promote resource recovery and

will have set a very strange and dangerous direction for the RCRA program. We look forward to a responsible mercury-containing lamp regulatory program that is protective of human health and the environment, manageable, sensitive to the economics of American business and promotes resource recovery. ALR is willing to commit its resources to safe and economical lamp recycling, if the Agency is willing to commit to a responsible regulatory program.

RESPONSE

The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in hazardous waste lamps. Recycling is next on the hierarchy. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent 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 FLEP-00205

COMMENTER Pacific Gas and Electric Company

SUBJECT EXCL1

COMMENT PG&E is therefore endorsing the conditional exclusion option for the handling of mercury containing lamp waste. Utilizing this option will decrease the cost of handling and disposing of lamp waste in several ways by avoiding: (1) expensive disposal costs of sending the waste to a chemical waste landfill (see attached), (2) extensive record keeping requirements utilizing key utility personnel, (3) payment of local and state taxes for hazardous waste, (4) maintenance of hazardous waste storage areas in remote locations (industrial and/or businesses may not generate hazardous waste routinely), (5) payment of state generator fees for generators of RCRA waste. These are major

concerns that are evaluated when deciding who participates in relamping projects.

PG&E believes the conditional exclusion has sufficient guidelines such as recycling and/or landfilling in a qualified municipal solid waste landfill to insure that any minimal amounts of mercury that may be released are controlled safely. PG&E believes there is sufficient data to warrant mercury bearing lamp waste be excluded from the Subtitle C system and allowed to be handled according to the proposed regulation.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. The Agency anticipates that waste management costs under the universal waste approach would be lower than full Subtitle C management because hazardous waste transporters and manifests would not be required for lamp shipments between hazardous waste lamp generators and collection points or disposal or recycling facilities. In addition, permits would not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that there is not sufficient data available to warrant a conditional exclusion of hazardous waste lamps. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule includes storage and packaging standards for lamps to prevent

uncontrolled and unintentional breakage during storage and transport.

DCN FLEP-00206
COMMENTER Cornhusker Public Power District
SUBJECT EXCL1
COMMENT Cornhusker Public Power District strongly urges full exclusion from hazardous waste regulation for mercury containing lamps. Cornhusker Public Power recommends the EPA to exclude mercury containing lamps from all RCRA Subtitle C regulation (provided that the lamps are managed in a qualified solid waste landfill or managed at a State approved - mercury reclamation facility).

Again, Cornhusker Public Power District strongly supports the exclusion from Subtitle C regulation for mercury containing lamps.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA is not finalizing the proposed conditional exclusion, because the Agency does not believe it would be sufficiently protective of human health and the environment. Therefore, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed and broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00207
COMMENTER City of Phoenix, AZ
SUBJECT EXCL1

COMMENT We do not support Option 1, disposal in a municipal solid waste landfill that is permitted by the State, for the following reasons: There is a potential for the City, both as the generator and the operator of the landfills, to face CERCLA liability in the future. There is a potential for exposure to landfill operators who are compacting refuse if large numbers are disposed of at one time.

RESPONSE

The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. 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 Agency notes that generators of waste can be held liable for releases of hazardous constituents from their waste regardless of the status of the waste under RCRA Subtitle C. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of hazardous waste lamps and should minimize releases of mercury from hazardous waste lamps.

DCN FLEP-00209

COMMENTER Lincoln Electric System

SUBJECT EXCL1

COMMENT LES strongly supports the "Conditional Exclusion" from Subtitle C requirements for the management of waste mercury-containing lamps. The adoption of the exclusion would encourage continued energy conservation programs related to the installation of energy efficient lighting. The mandated disposal of waste mercury-containing lamps, under the exclusion requirements, in a properly designed and operated Subtitle D Municipal Solid Waste (MSW) landfill would provide the appropriate level of protection from mercury for human health and the environment.

LES urges that a final rule be issued which adopts the "Conditional Exclusion" from Subtitle C requirements for the management of waste mercury-containing lamps.

The disposal of waste mercury-containing lamps in a Municipal Solid Waste landfill, or through appropriate recycling, will provide a cost effective disposal option that is protective of human health and the environment.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00210

COMMENTER Tampa Electric Company

SUBJECT EXCL1

COMMENT Concerning EPA's Lighting Wage proposal Tampa Electric Company (Tampa Electric) is strongly in favor of the option to exclude mercury-containing lamps from Subtitle C regulation. The high

cost of managing fluorescent lighting waste as hazardous waste has proved to be a disincentive for participation in EPA's Green Lights program. We learned this directly from two large commercial customers as a result of our involvement in a City of Tampa public education campaign concerning management of fluorescent lighting waste.

Tampa Electric believes the two large customers described above are very typical. Unless EPA pursues the conditional exclusion of mercury-containing lighting waste from Subtitle C regulation, it is likely that many others will elect not to participate in energy efficient relamping projects for similar reasons.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp

transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00212
COMMENTER Pennzoil Company
SUBJECT EXCL1
COMMENT The costs of handling and disposing of replaced lighting materials will be considered in determining which lighting is profitable to replace. EPA has proposed two options for managing replaced lighting. One will provide a conditional regulatory exclusion for mercury-containing lamps. The other would add mercury lamps to EPA's Universal Waste Proposal issued February 11, 1993 (58 Fed. Reg. 8102). The first option would provide a much more significant incentive for Pennzoil to replace old, inefficient lighting than would the second option. For this reason Pennzoil strongly supports the conditional regulatory exclusion for mercury-containing lamps.

We believe EPA has demonstrated through its review of the potential groundwater and air impacts that the adoption of the regulatory exclusion option would not adversely impact the environment. Coupled with the significant environmental benefits, such as reduced carbon dioxide and mercury emissions from the burning of fuel by utilities, the selection of the regulatory exclusion option appears to be easily justified.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency believes that there is not sufficient data available to warrant a conditional exclusion for hazardous waste lamps. EPA does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in

municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00213
COMMENTER Consolidated Edison Company (Con Edison)
SUBJECT EXCL1
COMMENT Con Edison strongly supports the proposed conditional exclusion from Subtitle C regulation for mercury-containing lamps. The exclusion, as proposed, will ensure that such lamps are managed in an environmentally sound manner without the unnecessary constraints and burdens of RCRA Subtitle C.

Failure to pursue the conditional exclusion for lighting waste from Subtitle C will result in a continuing reluctance by electric utilities, including Con Edison, and their customers to fully participate in energy-efficient relamping programs. Thus, EPA and citizens of the United States will needlessly forfeit significant and environmentally beneficial reductions in air emissions (including mercury emissions) that would otherwise be achieved by full scale relamping programs.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency believes that there is not sufficient data available to warrant a conditional exclusion for hazardous waste lamps. EPA does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00214
COMMENTER American Municipal Power-Ohio, Inc.

SUBJECT EXCL1
COMMENT AMP-Ohio appreciates the opportunity to comment in favor of the conditional exclusion from hazardous waste regulation for mercury- containing lamps and in opposition to the "universal waste option" as a solution for environmentally sound disposal of spent lighting wastes.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00215
COMMENTER Sterling Chemicals, Inc.
SUBJECT EXCL1
COMMENT EPA's proposed Option One, which would conditionally exclude mercury-containing lamps from regulation as hazardous waste, is preferable to Option Two (the Universal Waste Management system) and is certainly preferable to the current requirements for full management under Subtitle C. Sterling's specific comments follow.

I. OPTION ONE: CONDITIONAL EXCLUSION FROM SUBTITLE C A. General Support for the Conditional Exclusion Sterling strongly supports EPA's proposed Option One to conditionally exclude mercury-containing lamps from Subtitle C requirements. We applaud EPA's efforts to look holistically at the environmental consequences of discouraging, through unnecessary regulation, the increased use of energy efficient lamps. EPA acknowledges that Subtitle C regulation of these lamps creates a disincentive to participate in the Green Lights program where mass relamping and accompanying disposal issues would arise. At the same time, use of energy efficient lamps helps reduce fossil fuel combustion emissions, including mercury.

III. CONCLUSION In sum, Sterling urges EPA to adopt Option One as the right management system for spent mercury-containing lamps. EPA's data support a determination that properly designed, permitted, and operated MSW facilities provide adequate public health and environmental protection. Continued regulation under Subtitle C is unwarranted.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency believes that there is not sufficient data available to warrant a conditional exclusion for hazardous waste lamps. EPA does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp

(including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00217
COMMENTER Lighting Management, Inc.
SUBJECT EXCL1
COMMENT We at LMI strongly support the conditional exclusion as the best means of handling lamps. We again urge the EPA to act quickly.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00220
COMMENTER Farmington Electric Utility System
SUBJECT EXCL1
COMMENT We ask for the exclusion of mercury-containing lamps from this regulation.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule

provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00221
COMMENTER Broadway Lighting Services
SUBJECT EXCL1
COMMENT Broadway Lighting supports the conditional exclusion of the safe and cost effective disposal of mercury containing lamps. It is our feeling that since this is a small industry and the total amounts of mercury are insignificant in the overall picture of mercury emissions.

Our support for the conditional exclusion remains strong and we are sure you will agree to its elimination.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. The Agency does not agree the amount of mercury in hazardous waste lamps is insignificant. EPA does not believe the proposed conditional exclusion would adequately protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency believes that there is not sufficient data available to warrant a conditional exclusion for hazardous waste lamps. EPA does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-00222

COMMENTER Columbus Southern Power & OH Power Co.
SUBJECT EXCL1
COMMENT We would like to highlight the following: Columbus Southern Power and Ohio Power support a conditional exemption for lighting waste, proposed by the U.S. EPA, from Subtitle C (hazardous waste) regulation.

Columbus Southern Power and Ohio Power believe that treating lighting waste as a nonhazardous waste would increase participation in Green Lights and other demand-side management programs that replace inefficient lighting, thus contributing to energy savings and reduced power plant emissions.

We strongly support a conditional exclusion for mercury-containing lamps from Subtitle C regulation. Such an exclusion would remove regulatory barriers to participation in the Green Lights and other Demand Side Management programs and allow much larger volumes of inefficient lighting to be replaced as a result.

The exemption of mercury-containing lighting waste from Subtitle C regulation will encourage greater participation in the Green Lights Program since lighting waste could then be handled in an economically feasible manner. CSP/OPCo alone has a total of 1324 facilities and 2.75 million square feet of lighting space. Energy savings and associated power plant emission reductions from upgrading such an amount of inefficient lighting has a definite favorable impact on the environment, while mercury containing lighting waste would still be managed safely in a municipal solid waste landfill.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills.

(For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00224
COMMENTER Amtech Lighting Services
SUBJECT EXCL1
COMMENT Support for Conditional Exclusion Amtech Lighting Services is in total support of the conditional exclusion as the most effective way to insure safe and cost effective means to handle disposal or recycling of mercury containing lamps.

In the area of air emissions, Subtitle C does not significantly offer protection more than that offered under Subtitle D.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards). Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined

and less stringent set of standards than full Subtitle C management standards.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00225
COMMENTER Imperial Lighting Maintenance Company
SUBJECT EXCL1
COMMENT We firmly believe that the conditional exclusion is not only the best means of ensuring the safe and cost effective disposal of mercury-contained lamps, but it will be beneficial in many other ways, such as increasing air pollution.

Another side effect, if the conditional exclusion is not enacted, is that many customers who might have retrofitted their fluorescent fixtures to a more energy efficient source will reconsider if the end cost is increased drastically. Then, more oil, coal, etc will be necessary to generate additional energy. This would certainly add to air pollution and other dangerous side effects that the government is seeking to reduce.

In summary, we strongly urge the conditional exclusion as the best means of ensuring the safe and overall most cost effective disposal of mercury containing lamps.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management

of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00226
COMMENTER FMS Lighting Management Systems, Inc.
SUBJECT EXCL1
COMMENT As a Small Quantity Generator of fluorescent & HID lamps, we support the conditional exclusion as the best method to insure the safety and to be the most cost effective method of disposal of mercury containing lamps. We reached this conclusion after many hours of study and discussion with other who share our concern. Our findings are as following:

We urge the EPA to exercise leadership on this subject of lamp disposal by not delaying or failing to finalize the conditional exclusion.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and

transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

The Agency notes that today=s rule does not affect the regulatory status of generators of small volumes of spent lamps, including households and conditionally exempt small quantity generators (CESQGs are facilities that generate 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 waste stream and manage them using the same systems developed for the regulated portion, thereby removing hazardous waste lamps from the municipal waste stream and minimizing the amount of hazardous constituents going to municipal landfills and combustors.

DCN FLEP-00227
COMMENTER Page Electric Utility
SUBJECT EXCL1
COMMENT SUMMARY Page Electric Utility strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes regulatory barriers to greater participation in Green Lights and other demand side management ("DSM") programs.

Page Electric Utility appreciates the opportunity provided during this public comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste

rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00228
COMMENTER STAPPA/ALAPCO
SUBJECT EXCL1
COMMENT As the conditional exemption would be very difficult to enforce, it cannot be expected that there would be a high compliance rate with the condition. The lamps that are not disposed of in landfills meeting the Subtitle D, 40 CFR 258 regulations would be sent to either industrial solid waste landfills or incinerators.
RESPONSE
The Agency understands the commenter's concerns pertaining to the enforceability of the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. 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 a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the Subtitle C management standards. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00229
COMMENTER Global Recycling Technologies, Inc.
SUBJECT EXCL1
COMMENT SUMMARY 1.Continued disposal of lamps in the MSW stream under current practices is the least preferred method.

PERSPECTIVE The "Conditional Exclusion" position is supported by the lamp manufacturers and some Electric Utilities and is based on the belief that the cost of proper management of mercury-containing lamps will hinder participation in conversion to energy-efficient lighting. Their position raises questions in an effort to attempt to discredit recycling, and cast doubt on the dangers of mercury from lamps to the environment. For example, they have; a). questioned TCLP and provided self-generated data on it's so-called inconsistencies, but ultimately were proven wrong [1] [Footnote 1: "Management of Used Fluorescent Lamps: Preliminary Risk Assessment"; Truesdale, Beaulieu, Pierson, Research Triangle Institute - Revised May 14, 1993. Section 3: 3.1.3.], b). stated that 15% of the mercury is "embedded" in lamp glass when it is not [2],[3], [Footnote 2: Attachment 1; Total mercury study by The Coalition of Lamp Recyclers consisting of 31 samples with an average of 1.6 ppm mercury in glass.][See hard copy of Comment FLEP-00229 for Attachments] [Footnote 3: "Management of Used Fluorescent Lamps: Preliminary risk Assessment" , Truesdale, Beaulieu, Pierson, Research Triangle Institute - Revised May 14, 1993. (Pg. 146; MRT SYSTEM mass balance calculations.)] and c). provided "data" that suggests mercury in landfills from mercury - containing lamp waste is not, and never will be, harmful to the environment. The "data" in question is inconclusive at best, and is demonstrated in several places in the Federal Register [4], [Footnote 4: EPA 40 CFR Part 261.4; Federal Register, July 27 1994; Hazardous Waste Management System; Modification of the Hazardous Waste Program; Mercury-Containing Lamps.] and the RTI Report [5]. [Footnote 5: "Management of Used Fluorescent Lamps: Preliminary Risk Assessment "; Research Triangle Institute - Revised May 14, 1993.]

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste

rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00231
COMMENTER Ohio Valley Electric Corporation
SUBJECT EXCL1
COMMENT OVEC/IKEC strongly supports the conditional exclusion for mercury-containing lamps, which will ensure that such lamps are managed in an environmentally sound manner without the undue constraints and burdens of RCRA Subtitle C regulation.

From an environmental perspective, separating lighting wastes from the Subtitle C system would be beneficial. The record is clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in Green Lights and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system. This coupled with the fact that spent lamps, including incandescent bulbs, can be safely managed

in qualified municipal solid waste landfills, clearly supports excluding lamps from Subtitle C regulation so that impediments to participation in Green Lights and other demand-side management programs are removed.

Regulation of mercury-containing lamps under a hazardous waste regime is not only unnecessary, but equally important would impede industries' full participation in Green Lights and other energy-efficient relamping programs. Energy savings and associated emission reductions from upgrading facilities should not be discouraged by U.S. EPA through regulation. U.S. EPA itself acknowledges in the proposal that the additional costs associated with managing, transporting, and disposing of lighting wastes as hazardous wastes would create an additional disincentive to join Green Lights and make the initial investment in energy-efficient light technologies. In fact, keeping lighting wastes in the Subtitle C system may persuade OVEC/IKEC to not participate in the Green Lights program.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while

maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00232
COMMENTER Houston Lighting and Power Company
SUBJECT EXCL1
COMMENT Pursuant to the July 27, 1994 proposed Environmental Protection Agency (EPA) rulemaking on lighting waste disposal (59 Fed. Reg.38288), Houston Lighting & Power Company (HL&P) is providing comments in support of the EPA proposed option for conditional exclusion from Subtitle C regulation of mercury-containing lighting wastes.

The Rulemaking Record Demonstrates Conclusively That Mercury-Containing Lamps Do Not Warrant Hazardous Waste Regulation Analytical studies conducted by the electric Power Research Institute ("EPRI") demonstrate conclusively that mercury-containing lighting wastes could be safely managed in Municipal Solid Waste Landfills (MSWLF) or at qualified recycling facilities without posing a threat to human health and the environment.

The EPA Has Ample Legal Authority to Pursue The Conditional Exclusion In view of the technical record demonstrating that mercury-containing lighting wastes do not pose a threat to human health and the environment when managed in MSWLFs, it is our understanding that the EPA is fully authorized under section 3001 of RCRA statute to determine that the lamps do not warrant hazardous waste regulation. Proper management of spent mercury-containing lighting wastes in MSWLFs have been shown by the EPA and independent studies to adequately protect human health from ground-water contamination and/or mercury gas emissions. The legal precedent for determining not to regulate mercury-containing lighting wastes under Subtitle C is achieved as long as the waste is managed under a permissible set of controls and does not pose a human health or environment threat. This rationale should be applied by the EPA to mercury-containing lighting wastes, as it was correctly taken by the Agency in their recent decision not to regulate used oil as hazardous waste given certain conditions are met. The Conditional Exclusion of Lighting Wastes Would Promote Energy-Efficient Lighting Programs and Recycling Efforts

The conditional exclusion is clearly the preferable option for handling these materials because it would remove the regulatory barriers that would inhibit energy-efficient relighting programs. With regard to lamp recycling, we support this management practice and consider present lamp recycling techniques (i.e. lamp crushing and multiple packaging) to be environmentally sound. HL&P appreciates the opportunity to comment on this proposed rulemaking and we urge your consideration for the conditional exclusion of mercury-containing lighting wastes from Subtitle C regulation.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that

mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA does not disagree with the commenter on the authority provided by the statute to conditionally exclude hazardous waste lamps from Subtitle C regulation. However, in light of information obtained from recent studies and comments, the Agency has determined that the universal waste system is the best approach for streamlining the management standards for hazardous waste lamps while ensuring protection of the environment.

DCN FLEP-00233
COMMENTER Uniroyal Chemical Company, Inc.
SUBJECT EXCL1
COMMENT We believe that this option will result in greater protection of the environment. If selected, it will result in all mercury containing light bulbs being disposed in either EPA approved state municipal solid waste landfills or permitted or licensed mercury reclamation facilities. Today, light bulbs which do not exceed the TCLP test mercury level are not necessarily managed appropriately. While the light bulbs we disposed in 1993 were nonhazardous, they did contain 120 ppb mercury. Because they were not hazardous, we could have selected a less environmentally protective disposal method, e.g. municipal incineration in an incinerator without air emissions treatment for mercury.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00234
COMMENTER Minnesota Mining and Manufacturing (3M)
SUBJECT EXCL1
COMMENT Additionally, 3M does not support the conditional exclusion as the best means of disposal of spent fluorescent lamp. 3M agrees with the fact that the administrative burden must be reduced or eliminated. Although, the disposal method associated with this option may not pose a significant threat to the environment, it does pose a potential threat to human health. During an era of environmental conservationism, it seems inappropriate to place this material in a landfill, when there are economical recycling

alternatives readily available.

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00236

COMMENTER Conservation Lighting, Inc.

SUBJECT EXCL1

COMMENT The Conservation Lighting Company strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps.

RESPONSE

The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate

that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00238
COMMENTER Energy Specialties, Inc.
SUBJECT EXCL1
COMMENT Regarding conditional exclusion, ESI supports it as the best means of providing for the safe and cost effective disposal of mercury containing lamps. EPA studies show mercury does not leach in significant amounts from landfills making Subtitle C unnecessary. Plus, EPA studies have shown that the big amounts of mercury in the environment are the result of combustion. That is where we need to focus our efforts. Our customers regularly inquire with us as to regulatory procedures for lamp disposal but we have not been able to gather any consistent advice. EPA's quick action on the mercury in lamps issue would be very important.

Energy Specialties applauds the EPA for the efforts to control this pollutant, however, we believe the EPA must act quickly and pass the conditional exclusion on spent fluorescent lamps.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that

mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00239
COMMENTER National Sign Association
SUBJECT EXCL1
COMMENT III. Specific comments on Alternative I (the "Conditional Exclusion") NESA strongly encourages EPA to adopt Alternative I: the "Conditional Exclusion" alternative. [1] [Footnote 1: In the preamble EPA states that as of June 30, 1994, EPA had approved 36 State MSW landfill programs and was actively reviewing the remaining State programs. 59 Fed. Reg. at 38294. EPA also stated that for the purposes of this rule even partial approvals would count as "EPA approved" programs. Id. The clear implication is that there will be a sufficiency (if not a plentitude) of EPA-approved, State-permitted, MSW landfills to accept the lamp wastes. If this implication is inaccurate, the lamp wastes will have to go to a Subtitle C landfill and the advantages of Alternative I are dissipated.] EPA's own data (summarized above) clearly indicate that waste fluorescent lamps do not

significantly affect either human health or the environment. Nevertheless, because the waste lamps are classified as hazardous materials the proposed Rule, requires companies to incur great costs and inconvenience. At a minimum, Alternative I will enable NESA members to reduce their administrative burden. It will also permit NESA members to avoid the problems inherent in Alternative II, which would incorporate waste lamps into EPA's proposed Universal Waste Rule's "special collection system".

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

DCN FLEP-00240

COMMENTER Luminaire Service, Inc.

SUBJECT EXCL1

COMMENT According to EPA studies, mercury does not leach from municipal landfills in significant amounts. Because of this and the fact that Subtitle C does not offer significantly more protection than Subtitle D and Subtitle C landfilling is more expensive, it

> would appear that the small benefit does not justify the cost. Regulations and funding would be better spent addressing mercury emissions from combustion than for minor mercury sources such as lamps.
>
> To that end, I would like to stress my strong support for the conditional exclusion. This approach is environmentally safe. It will assist in the EPA's push toward more energy-efficient lighting by providing generators a way to economically dispose of spent fluorescent and HID lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards) yet allows the Agency to set specific management standards to control potential emissions.

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C

management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00240
COMMENTER Luminaire Service, Inc.
SUBJECT EXCL1
COMMENT With the provisions that I outlined above (allow crushing, record keeping by transporters, packaging requirements and strict regulation of reclaimed products) included in the conditional exclusion, I feel that this is the best means of safe mercury-containing lamp disposal and will be of benefit to everyone involved.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

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 Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

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 universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of hazardous waste lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Transporters are not required to keep any records specifically under the universal waste program. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities.

DCN FLEP-00241
COMMENTER Lighting Solutions
SUBJECT EXCL1
COMMENT In conclusion, Lighting Solutions supports conditional exclusion as the best means of ensuring safe and cost effective disposal of mercury containing lamps. We feel that to designate lamps as hazardous wastes will undermine EPA's goal by setting up a scenario which encourages the accumulation of large quantities of intact lamps increasing the opportunities for environmental problems. A Universal Waste Rule would be the epitome of inefficiency, until such time that an infra structure can be put in place to assure a variety of safe and cost effective options for the disposal of lamps. Classifying lamps as hazardous waste in our opinion is short sighted and in the long run will damage the lighting management community's efforts as well as those of the EPA.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous

waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

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 a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the Subtitle C management standards. It should be noted that prior to today=s rule, spent lamps were considered hazardous waste if they exhibited a hazardous waste characteristic.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Allowing handlers of spent lamps to accumulate the lamps for longer periods of time will not increase opportunities for environmental problems, as the commenter states. The universal waste rule includes storage and packaging standards to prevent uncontrolled and unintentional breakage of lamps. The Agency believes that today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent hazardous waste lamps.

DCN FLEP-00242
COMMENTER Murphy Electric Maintenance Company
SUBJECT EXCL1
COMMENT Murphy Electric Maintenance Co. supports the modification of the hazardous waste program concerning fluorescent and HID lamp disposal. We believe that lamps should be conditionally excluded from Subtitle C hazardous waste.

Please exempt the lamps from Subtitle C regulations.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule

provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00244
COMMENTER Air Products and Chemicals, Inc.
SUBJECT EXCL1
COMMENT Air Products supports the conditional exclusion option, which allows disposal in Subtitle D landfills or state-permitted recycling centers, prohibits disposal in incinerators, and requires record keeping for shipments.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00245
COMMENTER American Iron and Steel Institute
SUBJECT EXCL1
COMMENT Of the two waste management options offered for comment in the proposal, AISI strongly favors the conditional exclusion, which would allow disposal in regulated Subtitle D municipal landfills or recycling by state-permitted or state-registered recyclers.
RESPONSE

The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00246
COMMENTER Efficient Lighting and Maintenance, Inc.
SUBJECT EXCL1
COMMENT Efficient Lighting supports the conditional exclusion of the disposal of mercury containing lamps. It is the best means of insuring safe and cost effective disposal. The insignificant amounts of mercury that might be released by leaching or air emission do not support the costs of Subtitle C landfilling. The environmental benefits do not merit the extra cost. The EPA would better spend its time addressing mercury emissions from combustion sources that the 3.8% of mercury that mercury lamps put in municipal solid waste. It has been difficult obtaining consistent advise from regulatory agencies concerning proper procedures for disposal of lamps as each agency interprets the requirements differently. The EPA should act to eliminate this confusion and work towards passing the conditional exclusion thereby promoting energy efficient relamping.
RESPONSE
In today-s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of

landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00247
COMMENTER Total Lighting Service
SUBJECT EXCL1
COMMENT Total Lighting Service supports safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury doesn't leach in great amounts from landfills.

In closing, Total Lighting Service would like to restate that it strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that

mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00248
COMMENTER Midwest Resources, Inc.
SUBJECT EXCL1
COMMENT Midwest Resources Inc., parent company of Midwest Power and Midwest Gas submits the following comments on the proposed lighting waste rule: Midwest Resources strongly endorses the conditional exclusion option of the proposed rule on the management of mercury-containing lamps. Data collected by the Electric Power Research Institute (EPRI) demonstrate conclusively that mercury-containing lighting wastes can be safely managed in MSWFLs or lighting recycling facilities without posing a threat to human health and the environment. EPA's studies indicate that mercury-containing lamps when placed into sanitary landfills do not leach mercury far enough through the subsurface to contaminate groundwater. The data points out that the regulatory limits for certain metals, particularly mercury are overly stringent and mercury-containing lighting wastes are being inappropriately included in the Subtitle C hazardous waste system. The record also indicates that gas emissions attributable to the disposal of mercury- containing bulbs is very small and hardly measurable when compared to other sources. Studies of the effect of landfill gas production reveal minimal ambient mercury concentrations in the orders of magnitude below the OSHA permissible exposure limit for airborne

mercury. In short, the data indicates that mercury containing lamps when placed into sanitary landfills do not pose a risk to human health and the environment. EPA is fully empowered under RCRA to pursue the option of determining not to regulate a particular waste under Subtitle C based on the finding that, if the waste is managed in a particular manner, it will not pose a risk to human health and the environment. Midwest Resources appreciates the opportunity to comment on this proposed rule and strongly urges EPA to establish a final rule that is reasonable for the management of mercury-containing lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

DCN FLEP-00249
COMMENTER CVM Electric, Inc.
SUBJECT EXCL1
COMMENT CVM Electric, Inc., supports Conditional Exclusion of lamps containing mercury. This alternative encourages reduction of energy consumption and provides the most cost-effective means of preserving the environment. Classifying lamps as Subtitle C Hazardous or as Universal Waste, will slow down efforts to make lighting systems more efficient. This means burning more fossil

fuels. Fossil fuels will put many times more mercury into the atmosphere than Conditional Exclusion. By comparison, mercury in landfill from lamps amounts to less than **2** ton per year, while mercury released from combustion sources is estimated at 286 tons per year. Proper lamp disposal procedures vary by government agency and disposal site. We have done several large projects involving tens of thousands of lamps. Whether we speak with the land-fill operator, a government agency or the like, we get very little consistent information on proper lamp disposal. In NYS we can still dispose of lamps containing mercury in sanitary landfill. Some landfills accept lamps, others will only accept them after very costly testing. One state agency refers to "spent lamps" as non-hazardous waste, while another requires our customers to recycle the lamps whole, treating them as hazardous waste. We should do everything practical to protect the environment for our children's children. However, we do not need more government bureaucracy. If the EPA treats lamps containing mercury as Subtitle C Hazardous Waste or Universal Waste, every group re-lamping or retrofit job will qualify our client as either a Small Quantity or Large Quantity Generator. This will make them RCRA-regulated generators.

Overall, we need a national standard for the proper disposal of lamps containing mercury. There are too many uncertainties. This results in clients hesitating to improve their lighting system resulting in the use of more energy and placing more mercury into the atmosphere. We encourage EPA to regard lamps containing mercury as Conditionally Excluded from Subtitle C.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion

that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

EPA studies have determined that the majority of hazardous waste lamps fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Spent lamps that are managed as universal waste under Part 273 are not included in a facility's determination of hazardous waste generator status (' 261.5(c)(6)). Therefore, if a facility manages hazardous waste lamps under the universal waste system and does not generate any other hazardous waste, the facility will not be subject to other parts of the Subtitle C regulations such as the hazardous waste generator regulations in Part 262. In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under ' 261.5 are met.

DCN FLEP-00250

COMMENTER International Assn. of Lighting Man. Co.
SUBJECT EXCL1
COMMENT It is for this reason that NALMCO supports conditional exclusion as the means for disposal of mercury-containing lamps. US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. According to EPA studies, mercury does not leach in significant amounts from municipal landfills. This would indicate that Subtitle C landfilling is unnecessary in that it does not offer significant protection in the area of air emissions over that offered by Subtitle D. The small environmental benefit achieved by Subtitle C does not justify the additional expense. The quantity of mercury potentially released from the landfilling of lamps (.04 to .31 tons) is slight compared to the 286 tons per year emitted from combustion sources. EPA resources would be better spent addressing the mercury released from combustion sources than unnecessarily regulating the minor mercury source from fluorescent lamps.

NALMCO is an association highly educated and experienced in the issues surrounding energy-efficient lighting and the safe and cost effective disposal of mercury-containing lamps. Based on this knowledge, EPA must quickly act on implementing the conditional exclusion approach to lamp disposal. This approach will provide generators with a safe and economical way to dispose of lamps while at the same time continuing to promote energy-efficient lighting upgrades and spot relamping. The ultimate goal of reduced air pollution through energy reduction will be reached without increasing the cost of lighting management. Once the EPA implements a national disposal plan, the state regulatory agencies may be able to implement broad-based energy efficient lighting programs. Companies that operate in multiple states will be able to implement plans and policies for lamp disposal on a company-wide basis. Again, NALMCO strongly urges the EPA to implement the conditional exclusion approach to lamp disposal.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal

waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the full Subtitle C management standards. Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.
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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00251
COMMENTER Nelson Electric Company
SUBJECT EXCL1

COMMENT Our company agrees with and supports the conditional exclusion as the best method for effective disposal of mercury lamps. Based on EPA studies we know the lamps containing mercury account for 3.8% of the total mercury in landfills. It seems the EPA resources could be more wisely spent on regulating combustion sources.

Nelson Electric knows that there is a wide variety of ways to dispose of spent lamps from state to state across the country and we think that there should be a uniform national policy. An aggressive and speedy approach should be taken by the EPA to assure this happens. Nelson Electric appreciates the EPA's concern with at safe and environmentally sound policy for the disposal of lamps containing, mercury. Once again we very much support the conditional exclusion and Thank You for your consideration.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00252
COMMENTER Associated Industries of Vermont
SUBJECT EXCL1
COMMENT Associated Industries of Vermont (AIV) strongly supports the conditional exclusion as the best means of ensuring the safe and cost effective disposal of mercury-containing lamps. AIV is Vermont's manufacturing trade association with over 500 members representing approximately 85% of the state's manufacturing workforce. AIV's position on this issue-is based on our conviction that-government resources would be much better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source, such as fluorescent lamps.

Finally, the Association strongly encourages EPA to act quickly to finalize a conditional exclusion to end the current confusion on this issue within Vermont's regulated community.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are recycled or treated in an environmentally protective manner at Subtitle C hazardous waste facilities. Fewer hazardous waste lamps will be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and landfills and decreasing the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks). Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air

emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00254
COMMENTER Lymlights, Inc.
SUBJECT EXCL1
COMMENT However, the handling of lamps is of a major problem due to packaging and breakage. This causes the cost of disposal to be significant burden upon our customers. EPA studies have shown that the mercury contained in the lamps does not and would not leach in significant amounts from municipal landfills. Air quality protection under Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal disproportionately expensive when compared to the environmental benefits to be obtained. Therefore Lymlights, Inc. strongly supports the conditional exclusion as the best means of insuring the safe and cost effective means of disposing of lamps containing mercury.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion

that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00257
COMMENTER Tri-County Lighting Services, Inc.
SUBJECT EXCL1
COMMENT Tri-County Lighting Services, Inc. firmly supports the proposed Conditional Exclusion as the best method of cost effective disposal of mercury containing lamps. The EPA studies have shown, less than .007% of mercury leaches from landfills, not very notable amounts. The expenditure of disposal is vastly disproportional to the environmental advantage accomplished. In the United States, mercury containing lamps account for only 3.8% of total municipal solid waste. A total of 643 (mg) are placed in MSW landfills per year, of that, 20 (mg) of mercury containing lamps would be placed in MSW landfills per year. The energy in deciphering whether fluorescent lamps pose a potential threat should be concentrated more on other sources of mercury leaching products, where the contamination risk is higher.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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DCN FLEP-00258
COMMENTER Colorado Lighting, Inc.
SUBJECT EXCL1
COMMENT Because of the points that have been summarized above, Colorado Lighting, Inc., is in strong support for the conditional exclusion of fluorescent and HID lighting.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00259
COMMENTER Cherry City Electric, Inc.
SUBJECT EXCL1
COMMENT We urge the acceptance of the conditional exclusion as the means for instituting and enforcing safe and cost effective disposal

of lamps containing amounts of mercury. It certainly provides our firm with the necessary guidelines, rules and yet freedom of simplicity to operate. What excited me most about the EPA GREEN LIGHTS PROGRAM is the volunteer approach to environmental change. It encouraged and fostered the concept that if the lighting retrofit does not make sense in a sound and profitable way, the customer should not proceed. Lamps labeled as Subtitle C Hazardous Waste or handled under the Universal Waste Rule will WITHOUT A DOUBT PREVENT RETROFIT PROJECTS FROM BEING INSTITUTED.

It is a simple matter of costs being added to the project. I recently prepared a bid to group relamp 3,700 fluorescent fixtures in the 14 floors of a major office facility in downtown Portland, Oregon. The project was postponed and later canceled due to "additional concerns of an environmental nature" which the customer felt could not be addressed under the current confusing spent lamp regulations. This project would have dealt with 7,600 lamps.

Adopt the Conditional Exclusion approach for spent lamp disposal. It and only it at this point in time can reasonably and cost effectively allow the highly successful aims and values of the GREEN LIGHTS PROGRAM to continue. As a lighting industry professional I know it is the correct thing to do. Once a uniform national approach is in place, our company will be able to move quickly to educate our customers on the proper handling of their fluorescent and HID lamps. It can and will protect our environment.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00260
COMMENTER Salt River Project
SUBJECT EXCL1
COMMENT SRP strongly supports the conditional exclusion for mercury-containing lamps, which ensures that such lamps are managed in an environmentally sound manner without excessive constraints of RCRA Subtitle C regulation.

The proposed exclusion is based on a sound technical record, as supplemented by USWAG and the Electric Power Research Institute in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous waste when managed in qualified municipal solid waste landfills ("MSWLFs"). EPA's own data confirms that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are de minimis.

SRP believes that there are significant operational and regulatory disincentives to participating in environmentally relamping programs -- such as "Green Lights" -- as long as lighting wastes remain potential candidates subject to hazardous waste regulation. The cost of managing lighting wastes as hazardous waste makes participation in relamping programs economically impractical, both for the electric utility and any large customer which chooses to participate in these programs on their own. The conditional exclusion option will result in the greatest reduction in mercury, loadings to the environment because it will ensure maximum participation in Green Lights and other energy--efficient relamping programs. EPA correctly recognizes "that there is a clear net environmental benefit from energy-efficient lighting, even when lamp disposal is taken into account." For these reasons, SRP strongly supports EPA's proposed conditional exclusion option that would remove lighting wastes from hazardous waste regulation.

In conclusion, SRP appreciates the opportunity to comment on such a vital waste issue and supports the proposed conditional exclusion option. The issuance of the proposed rule provides a signal to the states and the regulated community that EPA is intent on resolving this problem in a timely manner.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00261
COMMENTER New Hampshire Dept. of Env. Services
SUBJECT EXCL1

COMMENT EPA's first proposal is an exclusion if the spent lamps are disposed of in a municipal landfill that are permitted by States/Tribes with EPA approved municipal solid waste landfill permitting programs or managed in mercury reclamation facilities that are permitted by States/Tribes. NHDES does not support this option for the following reasons:

RESPONSE

The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

DCN FLEP-00262

COMMENTER OG&E Electric Services

SUBJECT EXCL1

COMMENT By acknowledging this important fact in the Proposed Rule, the Agency has taken the first critical step in eliminating existing disincentives toward utility/industry participation in energy-efficient lighting programs such as Green Lights. However, it is only through promulgation of a final rule that provides for the conditional exclusion of mercury-containing lamps from regulation as hazardous wastes that the Agency will witness maximum participation in these programs and a corresponding reduction in mercury loadings to the environment.

I. OG&E Strongly Endorses the Conditional Exclusion Option for Mercury-Containing Lamps The conditional exclusion is fully supported by the technical record that the disposal of mercury-containing lamps in municipal solid waste landfills does not pose a threat to human health or the environment and that their continued regulation under the Subtitle C program is unnecessary.

As evidenced by the above, the disposal of hazardous waste

lamps in municipal solid waste landfills does not pose a threat to human health or the environment. Accordingly, OG&E strongly endorses the conditional exclusion option that would allow mercury-containing lamps to be managed in this manner. II. Excluding Mercury-containing Lamps from Subtitle C Regulation will Result in Maximum Participation in Energy-Efficient Lighting Programs and a Corresponding Reduction in mercury Loadings to the Environment. The conditional exclusion option will remove existing disincentives toward utility/industry participation in energy-efficient lighting programs such as Green Lights and result in reduced mercury loadings to the environment as supported by the technical record.

As evidenced by the above, removal of mercury-containing lamps from Subtitle C regulation would encourage maximum participation in Green Lights and other energy-efficient lighting programs. The overall emission reduction of mercury and other pollutants that would be realized from these programs is obvious and far outweighs any perceived benefits of retaining hazardous waste lamps in the hazardous waste system.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00263
COMMENTER Lighting Service, Inc.
SUBJECT EXCL1
COMMENT Lighting Service supports the conditional exclusion as the best way of disposing lamps that contain mercury. Since EPA studies indicate that less than .01 percent of the mercury in municipal solid waste landfills leaks from the landfill, we feel that fluorescent and high intensity discharge lamps should not be considered a hazardous waste and removed from the Subtitle C landfill classification. Based bn EPA study of mercury production and use, a major source of mercury in municipal solid waste is household batteries which accounts for about 88% of the mercury in municipal solid waste. Lamps account for only 3.8% of the mercury in Municipal solid waste and should be considered a minor source of mercury.

The EPA voluntary conservation program called "Green Lights" which encourages pollution prevention through energy efficient lighting could be seriously undermined if spent lamps are classified as hazardous waste and come under the full regulation of Subtitle C. The cost of disposing the spent lamps would be prohibitive and may outweigh the benefits of installing more energy efficient lamps.

Please consider the conditional exclusion as our nation's most viable option.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste

rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

DCN FLEP-00265
COMMENTER Indiana Manufacturers Association
SUBJECT EXCL1
COMMENT Specifically, given 1) the proposed exclusion is based upon a convincing technical record and US EPA's own data which support the fact that mercury-containing lamps do not need to be regulated as hazardous waste when managed in qualified municipal solid waste landfills; and 2) that according to EPA "there is a clear net environmental benefit from energy efficient lighting, even when lamp disposal is taken into account," the decision to move forward and implement the exclusion should be made as quickly as possible.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In

addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00266
COMMENTER Power Savers, Inc.
SUBJECT EXCL1
COMMENT SUPPORT FOR CONDITIONAL EXCLUSION Power Savers, Inc. has had difficulty in obtaining a consistent decision from regulating agencies for the proper disposal of lamps. The EPA should act on correcting this confusion and should help the country and businesses reduce cost to achieve the full effect of energy efficient retrofitting by promulgating the conditional exclusion. Power Savers, Inc. supports the conditional exclusion as the best means of providing a cost effective and safe means of disposal of mercury containing lamps. The EPA's own studies show that mercury does not leach in unsafe quantities from landfills making Subtitle C unnecessary. As for air emissions, Subtitle C will not offer very much protection over and above subtitle D. This would make the expense for disposal disproportional to the benefit afforded to the environments In fact, all U.S. lamps contain less than .2% of the total mercury in our environment, and they account for only 3.8% of mercury in municipal landfills. The mercury potentially released from lamps in landfills (.04 to .31 tons) is nothing compared to other sources, estimated at 286 tons per year. I believe the EPA can better utilize their resources on these 286 tons rather than the minimal amount lamps contribute.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00267
COMMENTER ABD Lighting Management Co., Inc.
SUBJECT EXCL1
COMMENT ABD Lighting Management Company, Inc. strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in

municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion I than in unnecessarily regulating a minor mercury source such as fluorescent lamps. Our company has had significant difficulty in obtaining consistent advice from regulatory agencies in the proper procedure for disposing of lamps. Each government agency seems to have a different interpretation of requirements, providing little confidence that our company is in compliance. EPA should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefits of energy efficient relamping by promulgating the conditional exclusion.

AID Lighting Management Company operates in many different states. If EPA fails to exercise leadership on the disposal issue by delaying or failing to finalize the conditional exclusion, our company faces the prospect of spent lamps being regulated in a wide variety of different ways across the country, as states move to adopt their own regulatory schemes. Such variations make it extremely difficult to design and implement company-wide policies and procedures with respect to lighting upgrades and lamp disposal or recycling. Further, it is extremely difficult to advise our clients and customers as to their approach of handling this problem. It also prolongs the tremendous uncertainty within the regulated community about the compliance options that are available. The end result is that the agency will either fail to achieve or delay the achievement of the environmental goal of reducing air emissions from electric power generation through the implementation of broad-scale energy efficient lighting programs. The further result of extending the confusion that now exists also extends the amount of time necessary to educate the generators an the proper handling of this waste stream. The current confusion is causing a high percentage of generators to continue disposing of mercury-containing lamps in an unregulated waste stream. Once a uniform national approach is in place, our company will be able to move quickly to educate our customers on the proper handling of their fluorescent and BID lamps. In conclusion, we categorically support the conditional exclusion of lamps in the

program. The cost/benefits have not been demonstrated or proved to any informed body.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00268
COMMENTER Indiana Chamber of Commerce
SUBJECT EXCL1
COMMENT On behalf of the Indiana Chamber of Commerce, I am hereby submitting these continents on EPA's July 27, 1994 proposed rule concerning mercury-containing lamps Indiana Chamber supports option one identified in EPA's rule: an exclusion from regulation as hazardous waste for mercury lamps, provided they are disposed in municipal landfills that are permitted by states/tribes with EPA-approved municipal solid waste landfill permitting programs or managed in mercury reclamation facilities that are permitted, licensed or registered by states/tribes.
RESPONSE
The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00269
COMMENTER Primo Lighting Management
SUBJECT EXCL1
COMMENT We strongly support "conditional exclusion" as the most environmentally smart/safe method of lamp disposal. The amount of potentially released mercury from the landfilling of lamps is by far outweighed by the emissions of mercury from combustion

sources. We are against the "Universal Waste" option and believe it would cause excessive additional requirements for all parties involved. The resultant reduction of pollution (carbon dioxide, nitrogen oxide, sulphur dioxide) released into our atmosphere daily by utilities nationwide continues to be substantially reduced through the installation of energy efficient lighting. The ongoing permanent reductions of these pollutants greatly exceed the amount of mercury pollutants generated through lamp disposal. As a company, we constantly monitor industry and governmental agency data released which is related to lamp disposal. Each new article seems to have a varying interpretation of lamp disposal. One article from "Inside EPA" - July 9, 1993 (copy attached) suggested that the environmental benefits from energy upgrades projects (and resultant lamp disposal) could easily justify municipal landfill disposal. Another EPA article, "Green Lights Upgrade" 12/92 sent the same message but had no clear cut guidelines. We believe that a timely finalization of the "condition exclusion" for lamp disposal will reduce the confusion now experienced by contractors and generators. As a company providing employment, paying taxes, contributing to the community, and reducing pollutants through energy efficient lighting projects, we cannot afford the liability of the "gray guidelines" areas now surrounding lamp disposal. Please help our industry in our efforts improve our environment by resolving the lamp disposal issues by enacting upon the conditional exclusion on lamp disposal.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage

trucks).

The Agency agrees with the commenter on the environmental benefits of participation in energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00270
COMMENTER The Barney Roth Company
SUBJECT EXCL1
COMMENT Our company strongly supports the conditional exclusion as the best means, of insuring the safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, US lamps contain less than .2 k of total mercury in the environment and account for only 3.8 k of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .l tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly the EPA resources are better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as

fluorescent lamps. Our company has had significant difficulty in obtaining consistent advice from regulatory agencies in the proper procedure for disposing of lamps. Each government agency seems to have a different interpretation of requirements, providing little confidence that our company is in compliance. EPA should act quickly to eliminate current confusion, reduce building maintenance costs, and gain the full benefit of energy efficient relamping by promulgating the conditional exclusion.

In closing, may I repeat that our company supports conditional exclusion for the disposal of fluorescent lamps. Any additional regulations would appear unjustifiable due to the small amounts of toxic material versus the exorbitant cost handling and disposal. In addition, lighting manufacturers have addressed the reduction of mercury in lamps, with the marketplace once again responding to environmental concerns. I ultimately expect this to will be eliminated through the cooperation of manufacturers and scientists in the near future.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards that will be less costly to comply with.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other

sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency believes that because today's rule retains requirements for hazardous waste lamps to ultimately be managed in accordance with RCRA Subtitle C hazardous waste management requirements, it may provide incentives for lamp manufacturers to pursue additional source reduction efforts to reduce or eliminate the amount of mercury used in the manufacture of fluorescent tubes. If source reduction is pursued aggressively by the fluorescent lamp manufacturing industry, the overall contribution of mercury from fluorescent lamps to the environment will decrease over time.

DCN FLEP-00271
COMMENTER RTC Marketing of Ohio
SUBJECT EXCL1
COMMENT MY COMPANY STRONGLY SUPPORTS THE CONDITIONAL EXCLUSION AS THE BEST MEANS OF INSURING THE SAFE AND COST EFFECTIVE OF MERCURY CONTAINING LAMPS. EPA STUDIES HAVE SHOWN THAT MERCURY DOESN'T LEACH IN SIGNIFICANT AMOUNTS FROM MUNICIPAL LANDFILLS. MAKING SUBTITLE C LANDFILLING UNNECESSARY. IN ADDITION, IN THE AREA OF AIR EMISSIONS, SUBTITLE C DOES NOT OFFER SIGNIFICANT PROTECTION OVER THAT OFFERED BY SUBTITLE D, MAKING THE EXPENSE OF DISPOSAL VASTLY DISPROPORTIONAL TO THE ENVIRONMENTAL BENEFIT ACHIEVED. IN FACT, US LAMPS CONTAIN LESS THAN .2% OF TOTAL MERCURY IN THE ENVIRONMENT AND ACCOUNT FOR ONLY 3.3% OF TOTAL MERCURY IN MUNICIPAL SOLID WASTE. THE QUANTITY OF MERCURY POTENTIALLY RELEASED FROM LANDFILLING OF LAMPS (.04 TO .31 TONS) IS DWARFED BY THE EMISSION OF MERCURY FROM CONSUMPTION SOURCES. ESTIMATED TO BE 265 TONS PER YEAR. CLEARLY EPA RESOURCES ARE BETTER SPENT ADDRESSING MERCURY EMISSIONS FROM COMBUSTION THAN IN UNNECESSARY REGULATION OF A MINOR MERCURY SOURCE

SUCH AS FLUORESCENT LAMPS. OUR COMPANY HAS HAD SIGNIFICANT DIFFICULTY IN OBTAINING CONSISTENT ADVICE FROM REGULATORY AGENCIES IN THE PROPER PROCEDURE FOR DISPOSING OF LAMPS. EACH GOVERNMENT AGENCY SEEMS TO HAVE A DIFFERENT INTERPRETATION OF REQUIREMENTS, MAKING IT DIFFICULT FOR OUR COMPANY TO BE SURE THAT WE ARE TO COMPLIANCE. EPA SHOULD ACT QUICKLY TO ELIMINATE CURRENT CONFUSION, REDUCE BUILDING MAINTENANCE COSTS, AND GAIN THE FULL BENEFITS OF ENERGY EFFICIENT RELAMPING BY PROMULGATING THE CONDITIONAL EXCLUSION.

I FEEL THERE IS A NEED FOR A UNIFORM NATIONAL APPROACH AND SPEEDY EPA ACTION. I OPERATE IN MORE THAN ONE STATE. IF EPA FAILS TO EXERCISE LEADERSHIP ON THE LAMP DISPOSAL ISSUE BY DELAYING OR FAILING TO FINALIZE THE CONDITIONAL EXCLUSION, OUR COMPANY FACES THE POSSIBILITY OF SPENT LAMPS BEING REGULATED AT THE WHIM OF EACH STATE WE OPERATE IN. ALL THIS WILL SERVE TO ADD TO THE CONFUSION FOR BOTH ME AND MY CUSTOMERS AND ADD TO THE COST OF OVERALL OPERATIONS. THE SOONER THE EPA ACTS AND PUTS IN PLACE A NATIONAL UNIFORM APPROACH, THE SOONER WE CAN ADVISE OUR CUSTOMERS ON THE PROPER LAMP DISPOSAL PRACTICES AND IMPLEMENT THOSE PRACTICES IN OUR DAILY OPERATIONS. IN SUMMARY. I SUPPORT THE CONDITIONAL EXCLUSION FOR THE REASONS OUTLINED ABOVE AND ANXIOUSLY AWAIT EPA ACTION TO THIS MATTER SO WE CAN GET ON WITH OUR DAY TO DAY AFFAIRS AND NOT BE CONSTANTLY CHECKING WITH THE DIFFERENT AUTHORITIES TO MAKE SURE WE ARE IN COMPLIANCE.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate

from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00272
COMMENTER Detroit Edison Company
SUBJECT EXCL1
COMMENT Detroit Edison strongly supports the conditional exclusion option for managing waste mercury containing lamps. The EPA's own data, and that provided by USWAG, clearly show that the regulation of lighting waste as hazardous is not only unnecessary for the protection of the public and the environment, but environmentally and economically detrimental, because it discourages early change out of inefficient lighting. Further, if enforced uniformly (which any regulation should be), it will draw numerous parties into the entire hazardous waste regulatory web so as to significantly overload the federal and state agency staffs, taking resources away from other needed programs.

In addition to not presenting a risk to the public or the environment, allowing disposal of mercury- containing lighting waste in municipal landfills will encourage the accelerated change out of less efficient lighting, resulting in less energy use and reductions in air emissions, including sulfur dioxide,

nitrogen oxides, carbon dioxide and mercury and other trace metals. It is Detroit Edison's belief that uniform enforcement of regulation of waste mercury-containing lighting as a hazardous waste will greatly impact programs, like the EPA's Green Lights Program, designed to encourage accelerated phase-out of inefficient lighting. This has already been exemplified by the numerous utilities, including Detroit Edison, that have not participated in the Green Lights Program to, date due in large part to the regulation of mercury lighting waste as hazardous. The EPA has also indicated that, "requiring the disposal of lamp wastes as hazardous wastes, under full Subtitle C regulation, may discourage participation in energy efficient lighting programs."(59 Fed. Reg. at 38289) Requiring lighting waste to be handled and disposed of as hazardous and uniformly enforcing that requirement will draw a significant number of parties into the hazardous waste regulatory web that have not had to deal with that system in the past. Most facilities that generate mercury-containing lighting waste, including office buildings, also generate very small quantities of "other hazardous waste." When lighting waste is included in their monthly hazardous waste generation quantities, many will leave conditionally exempt status and move into small quantity generator status and others will move from small quantity generator status to large quantity status. At Detroit Edison's main office complex, without any accelerated lighting change out program, approximately 5000 waste bulbs are generated each year. That waste alone makes the complex a small quantity generator of hazardous waste as opposed to a conditionally exempt generator. Any accelerated change out will make it a large quantity generator. It should be noted that other small quantities of hazardous waste are also generated at the complex that must also be managed. The Detroit Edison complex is not believed to be larger than other office complexes or unique in generating other small quantities of hazardous waste. As a Company with numerous facilities, many of which, on an individual monthly basis, move in and out of the small quantity and/or large quantity hazardous waste generator status, it has been determined that the only way to assure compliance is to manage the facilities according to the most restrictive status requirements that they may fall into. This will not only place a significant burden on the generating facilities, but also on the federal or state regulatory agency. Again, this burden will be imposed with no

resulting benefit to the public or the environment.

Detroit Edison believes that The Agency clearly has the legal authority to pursue the conditional exclusion option. The record is clear that mercury-containing lamps do not pose a threat to human health or the environment when managed in a municipal waste landfill. As was the case with the regulatory decision not to list used oil as a hazardous waste, which was upheld in court, the conditional exclusion option adequately controls any plausible mismanagement scenario associated with lighting waste.

Again, Detroit Edison greatly appreciates this opportunity to provide input into this rulemaking. The Company strongly encourages the Agency to adopt the conditional exclusion option for managing lighting wastes in the future. The Agency has the legal authority to allow disposal of lighting waste in municipal waste landfills, such a practice does not present any unacceptable risks to the public or the environment, it makes best use of limited financial resources and it will encourage facilities to voluntarily participate in accelerated change out of inefficient lighting which will result in a net benefit to the environment.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards

than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Spent lamps that are managed as universal waste under Part 273 are not included in a facility's determination of hazardous waste generator status ('261.5(c)(6)). Therefore, if a facility manages hazardous waste lamps under the universal waste system and does not generate any other hazardous waste, the facility will not be subject to other parts of the Subtitle C regulations such as the hazardous waste generator regulations in Part 262. In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

EPA does not disagree with the commenter on the authority provided by the statute to conditionally exclude hazardous waste lamps from Subtitle C regulation. However, in light of information obtained from recent studies and comments, the Agency has determined that the universal waste system is the best approach for streamlining the management standards for hazardous waste lamps while ensuring protection of the environment.

DCN FLEP-00273
COMMENTER Lighting Maintenance, Inc.
SUBJECT EXCL1
COMMENT Lighting Maintenance, Inc. (LMI) strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of lamps containing mercury. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary, In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, US lamps contain less than .2% of total mercury in the

environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling from lamps (.04 to .3l tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion than in unnecessarily regulating a minor mercury source such as fluorescent lamps. Our company has had significant difficulty in obtaining consistent advice from regulatory agencies in the proper procedure for disposing of lamps. Each government agency seems to have a different interpretation of requirements, providing little confidence that our company is in compliance. In fact, even though Illinois does not have a lamp disposal requirement, we can not get anyone to make a definitive stand as to our being in compliance if we do not follow particular guidelines, whatever they may be. EPA should Act quickly to eliminate current confusion, reduce building maintenance costs and gain the full benefits of energy efficient relamping by promulgating the conditional exclusion.

If the EPA fails to exercise leadership on the lamp disposal issue by delaying or failing to finalize the conditional exclusion, our company faces the prospect of spent lamps being regulated in a wide variety of different ways, as states move to adopt their own regulatory schemes. Such variations make it extremely difficult to advise our clients and customers as to their approach of handling this problem. It also prolongs the tremendous uncertainty within the regulated community about the compliance options that are available. The end result is that the agency will either fail to achieve or delay the achievement of the environmental goal of reducing air emissions from electric power generation through the implementation of broad scale energy efficient lighting programs. The further result of extending the confusion that now exists also extends the amount of time necessary to educate the generators on the proper handling of this waste stream. The current confusion is causing a high percentage of generators to continue disposing of lamps containing mercury in an unregulated waste stream. Once a uniform-national approach is in place, our company will be able to move quickly to educate our customers on the proper handling of their fluorescent and HID lamps. We therefore, in summary, state our position to be supportive for the conditional

exclusion for our industry and lamps from being regulated as hazardous waste and thereby incurring costly legislation and controls.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00274
COMMENTER Master Lighting Service Co., Inc.
SUBJECT EXCL1
COMMENT We at Master Lighting wish to express our desire that conditional exclusion is the best means of safe and cost effective disposal of lamps which contain mercury. It is our understanding that EPA studies have shown that mercury does not leak in significant amounts in land fill situations. Resulting in Subtitle C land filling unnecessarily. It is also our understanding that lamps containing less than .2% of total mercury in the environment and accounts for only 3.8% of the total mercury in solid waste. The quantity of mercury potentially released from lamps that are landfilled is dwarfed by the emission of mercury from combustion sources which is estimated at 280 tons per year. It would seem that EPA budgets could be better used addressing mercury emission from combustion sources than in unnecessary regulating a minor mercury source such as lamps. At the present time, we at Master Lighting have had extreme difficulty in obtaining information on a State, County or Federal level here in Ohio regarding the right and proper disposal of mercury containing lamps. This lack of direction has caused several of our potential customers to delay going ahead with a total lamp and ballast retrofit. This delay going to energy saving ballasts has surely resulted in more pollutants than the lamp disposal issue.

We strongly wish to encourage you to move forward with the conditional exclusion for the safe and cost effective disposal of mercury containing lamps. Your speedy response to this very serious need is appreciated.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would

sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).
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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt

today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00275
COMMENTER Aetna Corporation
SUBJECT EXCL1
COMMENT We at Aetna Corporation would like to express our strong conviction that the conditional exclusion is the best way to insure that lamps containing mercury are disposed of in a manner which is both safe and cost effective. In its own studies the EPA has proven Subtitle C landfilling unnecessary by showing that no significant amount of mercury leaks from municipal landfills. Additionally, there is very little difference in the amount of protection offered by Subtitle C over Subtitle D with regards to air emissions. The small environmental benefit provided by Subtitle C does not justify the considerable expense of EPA-regulated lamp disposal. The 286 tons of mercury released by combustion sources each year far exceeds the .04 to .31 tons potentially released from the landfilling of lamps. Only 3.8% of mercury in municipal solid waste and .2% of total environmental mercury is a result of US lamps. Surely the EPA could have a greater impact on the environment through regulation of combustion sources than of fluorescent lamps. It has been difficult for our company to ensure that we are in compliance with EPA and States regulations regarding mercury-containing lamp disposal. Government agencies have given us inconsistent advice regarding proper procedure for lamp disposal. To illustrate the extent of the problem, Massachusetts allows the shipment of lamps to recyclers without manifest, however Rhode Island treats lamps as hazardous waste requiring licensed hazardous waste transporters. We have a service vehicle stationed in Tiverton, RI (across the street from Fall River, Massachusetts) which services locations in both Massachusetts and Rhode Island. If the technician who operates that vehicle removes two (2) lamps from a service call in Fall River and carries them in his vehicle to his base location in Rhode Island, he will be in violation of Rhode Island regulations. To date there are four States with conflicting regulations within our service area, each of which can be reached within a few hours drive. In order for Aetna Corp. to provide our customers with the full benefits of energy efficient lighting management programs, the EPA must work to eliminate the confusion which now exists within regulatory agencies and formulate universal,

federally mandated regulations for handling spent lamps.

In conclusion, we at Aetna Corp. feel that the environmental benefits sought by the EPA may well be achieved by creating national guidelines regarding on- and off-site crushing, proper procedure and emission standards for recycling facilities, and the implementation of the conditional exclusion with regards to safe lamp disposal.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are recycled or treated in an environmentally protective manner at Subtitle C hazardous waste facilities. Fewer hazardous waste lamps will be managed in the municipal solid waste stream, therefore reducing the number of lamps going to municipal combustors and landfills and decreasing the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks). Once the lamps are properly treated and no longer hazardous waste, the treated lamps may be disposed in a solid waste facility. Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities.

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

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 Aany 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 crushing of hazardous waste lamps clearly falls within the definition of treatment under RCRA (40 CFR 260.10).

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-00277
COMMENTER Taunton Municipal Lighting Plant
SUBJECT EXCL1
COMMENT TMLP appreciates the opportunity provided during this public

comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps and in opposition to the "universal waste option" as a solution for proper disposal of spent lighting wastes.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00278

COMMENTER Imperial Lighting Maintenance Co.

SUBJECT EXCL1

COMMENT We firmly believe that the conditional exclusion is not only the best means of ensuring the safe and cost effective disposal of mercury-contained lamps, but it will be beneficial in many other ways, such as not adding to the serious problem of air pollution. We feel that EPA resources could be better spent addressing mercury emissions from combustion (286 tons per year) rather than in unnecessarily regulating a very minor mercury source such as fluorescent lamps (less than .3 tons per year). Another side effect, if the conditional exclusion is not enacted, is that many customers who might have retrofitted their fluorescent fixtures to a more energy efficient source will reconsider if the end cost is increased drastically. Then, more oil, coal, etc will be necessary to generate additional energy. This would certainly add to air pollution and other dangerous side effects that the government is seeking to reduce.

In summary, we strongly urge the conditional exclusion as the best means of ensuring the safe and overall most cost effective

disposal of mercury containing lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

Studies show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than the Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

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DCN FLEP-00279

COMMENTER Consumers Power Company

SUBJECT EXCL1

COMMENT CPCO strongly supports EPA's effort to modify the management requirements for mercury-containing lamps in the July 27, 1994 proposed rule (published in the Federal Register (Pages 38288 through 38304). In particular, CPCO specifically support EPA's proposal to exclude mercury-containing lamps from regulation as hazardous wastes under Subtitle C of the Resource Conservation and Recovery Act (RCRA) provided that such materials are managed in Municipal Solid Waste Landfills (MSWLFS) that have been

permitted by a State/Tribe with an EPA-approved MSW permitting program or sent to a State permitted, licensed or registered mercury reclamation facility 59 Fed Reg at 38302. Such an approach is not only authorized under the statute but is fully supported by scientific data. In light of the overwhelming record evidence that the management of such materials in MSWLFs does not pose a threat to human health and the environment, the continued regulation of mercury-containing lamps under the Subtitle C program is contrary to scientific evidence and would be arbitrary and counter productive.

2. The exclusion is based on sound scientific evidence found in both EPA and electric industry research that mercury-containing lamps disposed of in municipal solid waste landfills do not pose either a leaching or air emission threat to the environment or human health. The proposed exclusion is grounded on a compelling technical record, as supplemented by USWAG and EPRI in their separate comments, that mercury-containing lamps do not warrant regulation as hazardous wastes when managed in qualified municipal solid waste landfills. EPA's own data demonstrate that mercury does not leach from MSWLFs at levels that pose a threat to human health and the environment and that mercury emissions from landfill gas are below human health risk standards established by OSHA. 3. Regulation of a waste should be based on demonstrated environmental hazards and not on a preconceived regulatory agenda which does not take into account the difficulties faced by the regulated community or the existing availability of reputable recyclers. The negative opinion that if the exclusion option was finalized, lamps would unfortunately be sent to solid waste landfills (and not to recyclers) because it would be initially inexpensive and convenient management method reflects a reluctance to accept scientific evidence and a insensitivity to the cost of doing business. The exclusion option allows companies to choose between two environmentally sound approaches. The conservative approach of requiring recycling for the lamps as the only option does not address the scanty of recyclers (both currently and in the near future) or the possible prohibitive cost for small businesses and businesses located in rural areas. The implied attitude that because a safe disposition option is less expensive, convenient and reasonable is not acceptable, regardless of human health and environmental data, is a

counterproductive attitude in today's worldwide competitive economic market.

4. The exclusion will remove artificial regulatory barriers to greater participation in Demand-Side Management programs such as the EPA's "Green Lights" program. The cost of managing lighting wastes as hazardous makes participation in relamping programs economically impractical, both for the electric utility and any large customer which chooses to participate in these programs on their own. As many other responsible utilities, CPCO endorses the concept of pollution and has initiated many demand-side management projects both within our Company and for our customers. Due to regulatory and cost constraints, CPCO and other electric utilities have not, however, adopted the Environmental Protection Agency (EPA) "Green Lights" Program because of the direct and indirect regulatory and economic burden imposed by the existing regulation of mercury-containing lamps. Keeping lighting wastes in the Subtitle C system does not make sense from an environmental perspective. The record is clear that the overall reduction in air emissions, including mercury emissions, attributable to full participation in "Green Lights" and other energy-efficient relamping programs far outweighs any perceived benefits of retaining lighting wastes in the hazardous waste system.

6. While CPCO believes that the recycling of spent lamps should remain an alternative, recycling is not the solution for the management of all spent lamps or for all types of businesses. Recyclers will not be able to accommodate the huge volumes of lamps that would be generated by eliminating other disposition options. The exclusion still allows industry to select reputable recyclers.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The universal waste rule ensures that mercury emissions are minimized during all stages of lamp management. It should be noted that the universal waste approach does not mandate recycling. The universal waste rule includes storage and packaging standards for handlers of mercury lamps to ensure the proper management of spent lamps and to prevent uncontrolled and unintentional breakage during storage and transport to the recycling or treatment facility. Under the universal waste rule, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) are subject to all hazardous waste management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities. In addition, the Agency believes that recycling facilities guard against excessive mercury emissions since it is in the recycling facility's best economical interest to strive to limit mercury releases since mercury is essentially the product of the recovery process.

EPA has data indicating that the existing lamp recycling industry is currently only operating at approximately one-third of design capacity. The industry should therefore be able to accommodate a significantly larger volume than it handles at the present time. In addition, the Agency believes that if demand for recycling increases, investment funds will be available to expand the capacity.

DCN FLEP-00281
COMMENTER Michigan Dept. of Natural Resources
SUBJECT EXCL1
COMMENT The draft letter also indicates that the conditional exemption option would cause the creation of a resource intensive regulatory system, a system difficult to enforce, and one that would require tracking of whether the lamps went to a landfill or an incinerator.

Implementation and Enforcement The conditional exemption option assumes that RCRA generators would ensure that the lamps would be sent to land disposal facilities as opposed to incinerators. Unless the generator specifically contracts with a waste hauler to dispose of the lamps in a municipal solid waste landfill, they would not be able to ensure, that the ultimate disposition is an incinerator. Tracking this disposal would be resource intensive and difficult to enforce.

RESPONSE
The Agency understands the commenter's concerns about enforcement and tracking issues pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00283
COMMENTER Michigan Chamber of Commerce
SUBJECT EXCL1
COMMENT The Michigan Chamber of Commerce strongly supports the conditional exclusion for mercury-containing lamps, which will assure that such lamps are managed in an environmentally sound manner without the constraints and costly requirements set forth in RCRA Subtitle C regulation.

If regulated as a hazardous waste when spent, many Michigan

> Chamber members would be subject to stringent and costly requirements of RCRA. Likewise, members stand to benefit from both a cost and liability perspective if the RCRA controls on management of spent lamps are replaced with more appropriate tailored requirements as set forth in the conditional exclusion. Such flexible programs will remove the current disincentives to the implementation of EPA's Green Lights program which promotes the replacement of inefficient lamp technology with new lamp technology, reducing the pollution from power generation.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards). The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

EPA studies have determined that the majority of hazardous waste lamps fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Spent lamps that are managed as universal waste under Part 273 are not included in a facility's determination of hazardous waste generator status (''261.5(c)(6)). Therefore, if a facility manages hazardous waste lamps under the universal waste system and does not generate any other hazardous waste, the facility will not be subject to other parts of the Subtitle C regulations such as the hazardous waste generator regulations in Part 262. In addition, today's final rule does not affect the

regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

DCN FLEP-00284
COMMENTER Virginia Power
SUBJECT EXCL1
COMMENT Virginia Power has reviewed the options presented in the subject Environmental Protection Agency (EPA) proposal as contained in the Federal Register dated July 27, 1994 for the disposal of lighting waste. Based on this review, Virginia power strongly supports the proposed alternative of conditional exclusion of these lighting wastes from Subtitle C regulation. Conditional exclusion of these wastes will ensure that waste mercury-containing lamps are managed in an environmentally sound manner while still maintaining the attractiveness and cost effectiveness of energy efficient lighting conversion programs.

The EPA proposal outlines two options for management of waste Lamps. One option would exclude waste lamps from hazardous waste regulation provided that the lamps are disposed of in a state approved municipal solid waste landfill or sent to a state approved reclamation facility. The second option would include waste lamps in the Universal Waste Rule but relax certain collection and storage standards for the lamps. Virginia Power Supports the first option of conditional exclusion based on the following rationale: The conditional exclusion will provide appropriate environmental protection for the materials in waste lamps without requiring excessive costs or resources for disposal. Both EPA's own studies and those of independent organizations have shown that lamp wastes do not pose a threat to human health or the environment when managed in qualified municipal solid waste landfills. As a result, any option which would include lamp waste under the Universal Waste Rule will result in unnecessarily increasing the cost of lamp disposal and the national resources required to manage this waste.

The conditional exclusion will allow environmentally beneficial energy efficient lighting retrofits to continue to be attractive options for the public. EPA has established that there is a net environmental benefit to energy efficient lighting retrofits, even

when lamp wastes are considered. This conclusion is the basis for EPA's highly successful Green Lights program, of which Virginia Power is a utility ally. The proposed conditional exclusion will help ensure maximum public participation in energy efficient lighting retrofits by ensuring that such retrofits remain attractive and economic to the public As a result, national environmental benefits of programs such as Green Lights will be maximized by the proposed conditional exclusion. Increased responsibilities and costs for lighting retrofits, which would result from inclusion of lamp wastes under the Universal Waste Rule, will reduce the number of energy efficient lighting retrofits by making many retrofits unattractive and uneconomic. Although preferable to the current Subtitle C requirements, inclusion of lamp wastes under the Universal Waste Rule will also slow the lighting related efficiency improvements of the Energy Policy Act of 1992, which increased the minimum efficiency standard for certain lamps and ballasts, by discouraging early replacement of old equipment with equipment meeting the new standards.

As stated previously, Virginia Power is a utility ally of EPA's Green Lights program. By joining the program, Virginia Power agreed to evaluate over 4.6 million square feet of space and retrofit energy efficient lighting in this space where economic. Virginia Power also agreed to promote energy efficient lighting to customers. As of the end of 1993, Virginia Power has installed energy efficient lighting in over 270,000 square feet of space, obtaining an average rate-of-return of about twenty seven percent (27%). To date, Virginia Power has not included significant disposal costs in the costs for Green Lights upgrades, since EPA action on disposal rules has been pending and the amount of waste materials generated by the upgrades has been limited. However, as retrofits under the Green Lights program accelerate, lamp waste disposal costs will be included in project costs used to determine if the project meets EPA's economic criteria. Management of lamp waste as hazardous waste under the current Subtitle C regulations or inclusion of lamp waste in the Universal Waste Rule, will significantly increase project costs and likely make most retrofits fail the Green lights economic criteria. As a result, Virginia Power will have to reevaluate the benefits of participation in Green Lights. Virginia Power has also incorporated energy efficient lighting

retrofits into programs promoting economic commercial building energy efficiency options to customers. The method and extent of lighting retrofit promotion in these programs will also have to be reevaluated if lamp waste continues to be managed under current Subtitle C regulations or included under the universal waste rule.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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The Agency appreciates the commenter's support of energy-efficient lighting programs. By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses

conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner and are properly recycled or treated prior to disposal. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00285
COMMENTER Legislative Commission on Waste Mgmt.
SUBJECT EXCL1
COMMENT We write to express our strong objections to conditionally exempting lamps from hazardous waste regulation and allowing their disposal in certain landfills. Such a decision defies common sense.
RESPONSE
The Agency agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00286
COMMENTER Creative Lighting, Inc.
SUBJECT EXCL1
COMMENT Creative Lighting has investigated the various proposed conditions for lamp disposal under this rule change and we feel quite strongly that the conditional exclusion is the safest and most cost effective means to ensure proper disposal. Your own studies have shown that no significant amount of mercury is leaking from current landfill sites due to lamp disposal and lamp mercury is no where even a significant percentage of the total U.S. mercury disposal problem. The amount of mercury admitted through other combustion sources is almost a 1000 times greater problem. The proposed Subtitle C would have almost no significant affect on protection of that which is provided in Subtitle D and the expense of this type of over regulated disposal would have severe economic hardship on my company and our fragile customer base. We have had continuing difficulty in obtaining informative advice from our current plethora of agencies and the regulations change from agency to agency with confusion and misinformation being the rule of the day. Currently obtaining information on which companies are licensed to handle certain types of lamp disposal, what actual quantities of lamps require disposal and when special handling required, are just a few of the problems that now exist. Misinformation seems to be the order of the day and a little bit of knowledge is a dangerous thing.

In closing I only ask that the EPA realize the long term consequences of its decisions and take a strong leadership role in applying a new regulation based on conditional exclusion that will save a fragile industry and provide for a single U.S.

> standard for safe and effective lamp disposal. We need to eliminate the confusion and misinformation and contradiction that exists between various federal state and local agencies that is currently not effectively dealing with the needs of safe and practical lamp disposal. The future goals of reduced combustion emissions and over dependence on fossil fuel rests solely on our industry to speed the conversion and use of more energy efficient lighting systems and this transformation and it's timing rely on a safe, practical and non burdening system for lamp disposal. Please support a national universal approach through a conditional exclusion provision.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 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 in states that are not authorized for the federal Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00287
COMMENTER E.F. Friesenhahn
SUBJECT EXCL1
COMMENT Establishing a new precedent. By allowing mercury-containing lamps into Subtitle D, non- hazardous landfills, the EPA is clearly setting the precedent, which opens the door for potential challenges from other special interest groups for specific materials to be exempt from RCRA regulation. This precedent is potentially bringing the environmental movement back to the 1970s era, when the focus of disposal was more financially driven rather than a balance between the economic and environmental issues. In addition, the EPA should conduct a detailed investigation of the legality of the exclusion concept based on RCRA requirements.
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during

storage and transport, due to breakage.

DCN FLEP-00288
COMMENTER City of New Braunfels/Co. of Comal
SUBJECT EXCL1
COMMENT Promotion of the EPA's waste hierarchy and recycling agenda. Allowing lamps to be disposed of at Subtitle D, non-hazardous landfills would be counterproductive for the national focus on effective waste decision-making and the comprehensive recycling agenda. In addition to the obvious hazardous waste constituent, mercury, the remaining components of lamps are glass and aluminum end caps. The EPA should encourage recycling of these materials and the effective recycling of mercury through valid technology.
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. 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 Agency believes the waste hierarchy and recycling agenda is being promoted under today=s final rule. Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Second on the hierarchy is recycling. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent 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 FLEP-00289
COMMENTER Fluorescent Maintenance Company
SUBJECT EXCL1
COMMENT Fluorescent Maintenance Company believes the best solution to limiting mercury pollution from spent lamps is the Conditional Exclusion from Subtitle C in conjunction with the NEMA recommended Best Management Practices. The Conditional Exclusion

is the best method because it is workable, affordable, and accomplishes the goal of limiting mercury pollution.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage. Uncontrolled crushing and breaking of lamps allows mercury to be emitted to the air. The universal waste rule provides a format for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards that full Subtitle C management standards.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00290

COMMENTER Tacoma Public Utilities

SUBJECT EXCL1

COMMENT Our utility offers incentives for the installation of energy efficient lighting fixtures with efficient fluorescent lamps and we are especially concerned about making certain the options for disposal are available close to our service territory prior to any issuance of restriction related to disposal in municipal landfills. If disposal options are not readily available to contractors and building owners, we have found in the past that totally inappropriate dumping occurs. Assuming that recycling is a better disposal method than municipal landfill dumping (and that may not be a good assumption), there is no lamp recycling facilities even in contiguous states, let alone close to our service territory. Until that industry is viable in our vicinity, the cost for proper disposal of lamps under the

universal waste options may bring to a screeching halt
responsible energy efficient fixture installation here in the
Pacific Northwest and encourages irresponsible dumping of lamps.
I believe as well it is important to balance the pollution
reduction attributes associated with installation of energy
efficient fixtures and lamps against the waste hazard posed by
small amounts of mercury in a municipal landfill. We may be in
an either/or situation when we need to strive for balance.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. The Agency is not limiting management options under the universal waste rule to recycling. Today's final rule will greatly facilitate the environmentally sound collection and increase the proper recycling or treatment of spent hazardous waste lamps. The universal waste rule allows a handler of spent lamps to accumulate the lamps for one year without obtaining a permit, thus providing sufficient time to send the lamps to proper recycling or treatment facilities in an economically feasible manner. Accumulation for longer than one year is allowed if solely to facilitate proper recovery, treatment or disposal.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00291
COMMENTER A-1 Lighting Service, Inc.
SUBJECT EXCL1
COMMENT Amounts of mercury leached from lamps doesn't warrant Subtitle C
landfilling. We support the conditional exclusion as the best
means of disposal of mercury containing lamps.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

DCN FLEP-00292
COMMENTER Old Dominion Electric Cooperative
SUBJECT EXCL1
COMMENT In order to encourage energy-efficiency programs such as Green Lights, Old Dominion supports the exclusion of mercury containing lamps from hazardous waste regulations provided they are disposed in municipal landfills. We feel that there is no risk of environmental degradation with such an exclusion and that there are many benefits of the Green Lights program. The attached document provides more detailed comments to the proposed regulations.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00293
COMMENTER American Airlines, Inc.
SUBJECT EXCL1
COMMENT DISCUSSION EPA's proposal indicates that disposal of MCL [mercury-containing lamps] in MSW landfills poses little threat to human health and the environment. Consequently, there appears to be little added benefit to be gained by managing MCLs as a hazardous waste. The biggest risks from MCLs are apparently posed by disposal of such lamps in waste incinerators or in substandard landfills. Consequently, the goal of any new rule should be to ensure that MCLs are either disposed in appropriate landfills or, preferably, recycled. American believes that, because of the pervasive use of MCLS, EPA's goals can be best achieved by making it as easy as possible for the regulated community to properly dispose of their MCLs. Clearly, the easiest disposal method would be for generators to dispose of the lamps along with the rest of their nonhazardous wastes.

American urges the EPA to promulgate a rule which provides a conditional exclusion from Subtitle C regulations for mercury containing lamps ("MCLs") which are disposed of at permitted municipal solid waste ("MSW") landfills or industrial waste landfills or which are recycled. The data provided in the proposed rule indicate that the disposal of lamps in MSW landfills poses little risk to human health and the environment.

The greatest risk posed by these lamps appears to be from combustion in waste incinerators. American believes that the best way to keep lamps out of the incinerators and unapproved landfills is to adopt a rule which makes it as easy as possible to comply. A conditional exemption will achieve such a goal.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because EPA does not believe it would adequately protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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DCN FLEP-00295

COMMENTER Texas Instruments, Inc.

SUBJECT EXCL1

COMMENT TI strongly urges the EPA to adopt the option for conditional exclusion from Subtitle C regulation proposed in this rule as the best means for ensuring the safe and cost-effective disposal of mercury-containing lamps. EPA studies indicate that mercury may not leach in significant amounts from municipal landfills, making Subtitle C land filling unnecessary but still protecting the environment.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because EPA does not believe it would adequately protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste

regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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DCN FLEP-00296
COMMENTER State of Ohio EPA
SUBJECT EXCL1
COMMENT Given the limited information on the environmental or health effects of handling mercury-containing lamps, as stated in the July 27, 1994 Federal Register, coupled with rapid depletion of solid waste landfill capacity, the Ohio EPA does not view a conditional exclusion for disposing of lamps at a Subtitle D landfill as a feasible alternative. Without sound management practices, we feel that allowing disposal of lamps at a Subtitle D landfill will encourage mismanagement and force states to establish their own management standards. Since solid waste landfill disposal fees are typically less than the fee charged by recyclers or permitted hazardous waste management companies, generators would be less likely to choose the more expensive management method. In addition, this alternative would seem to contradict the federal and state objective to promote waste minimization and pollution prevention.
RESPONSE
The Agency understands the commenter's concerns pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule

adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

The Agency believes the waste hierarchy and recycling agenda is being promoted under today=s final rule. Source reduction, which is the reduction or elimination of the toxicity and/or volume of a waste product, is at the top of EPA's hierarchy of solid waste management methods. The Agency encourages cost-effective source reduction of mercury contained in fluorescent lamps. Second on the hierarchy is recycling. Today's final rule will greatly facilitate the environmentally-sound collection and increase the proper recycling or treatment of spent 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 FLEP-00298
COMMENTER New York Power Authority
SUBJECT EXCL1
COMMENT EPA's municipal solid
waste landfill standards have been updated to require liners and leachate collection systems, therefore, such facilities are fully capable of handling lighting waste in an environmentally responsible manner without jeopardizing lighting efficiency programs. Due to the fact that, in most cases qualified municipal solid waste landfills are more protective of human health and the environment the universal waste option is not the optimum disposal method for lighting waste. Moreover, evidence supporting the exclusion of mercury containing lamps from Subtitle C regulation is found in the technical records submitted by USWAG and EPRI. In separate comments to the proposed rule for Lighting waste, both USWAG and EPRI have submitted data demonstrating the unwarranted regulation of mercury containing lamps as hazardous waste if such are managed in qualified landfills. According to EPA's own data, the possibility of landfill mercury contamination due to lighting waste is minimal. Lighting waste accounts for only 3.8% of the mercury in landfills, the majority of mercury in landfills is

due to batteries - 88% and thermometers - 3.9%, which are currently exempt from hazardous waste regulation. [Footnote 1: Federal Register, Vol. 591 No.143, Proposed Rules, July 27, 1994, at 38291] Another compelling reason for the exclusion of mercury containing lamps from Subtitle C regulation is the fact that the widespread use of efficient lighting dramatically reduces mercury emissions. Mercury emissions are reduced by 60% through reduced power plant emissions due to lighting upgrades. Thus, more mercury is emitted into the atmosphere as a result of electric generation than is found in the lamps themselves. [Footnote 2: EPA, Fluorescent Lamp Disposal, Air and Radiation, 6202J, January 1993, at 7010.] Therefore, it is unreasonable for EPA to discourage lighting upgrades by over-regulating lighting disposal methods in the context of EPA having established overall reductions of mercury emissions as a result of efficient lighting upgrades.

New York Power Authority ("NYPA") strongly supports the conditional exclusion of mercury containing lamps from the Resource Conservation and Recovery Act's ("RCRA's") Subtitle C hazardous waste regulation requirements. It is our opinion that by regulating mercury containing lamps as a hazardous waste EPA is placing an undue regulatory and economic burden on all utility DSM efficient lighting projects and discourages participation in Green Lights Programs. It is NYPA's opinion that the current format of RCRA is ineffective as it applies to lighting waste and a regulatory change to correct the situation and facilitate relamping programs is strongly in demand. Therefore, NYPA joins other electric utilities, APPA and the EPA Green Lights Department in encouraging the introduction of an alternative management program for the structuring of an environmentally sound method for the disposal of lighting waste, outside the hazardous waste regulatory system. Subjecting lighting wastes to hazardous waste regulation has proven to be a major deterrent for many utilities across the country from participating in relamping programs that benefit utilities, customers, human health and the environment.

NYPA appreciates the opportunity provided to submit its comments in support of the conditional exclusion of mercury containing lamps from hazardous waste regulation and in opposition to the "universal waste option" as a solution for disposal of spent

lighting waste. We are confident That the US EPA will balance all available options and introduce comprehensive rules governing the disposal of lighting waste in a manner that will benefit human health and the environment.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks). It should be noted that mercury thermostats are also currently regulated as universal waste under 40 CFR Part 273.

DCN FLEP-00302
COMMENTER Conserve Electric Company, Inc.
SUBJECT EXCL1
COMMENT The Conserve Electric Company, Inc. strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved. In fact, US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. The quantity of mercury potentially released from landfilling of lamps (.04 to .31 tons) is dwarfed by the emission of mercury from combustion sources, estimated to be 286 tons per year. Clearly EPA resources are better spent addressing mercury emissions from combustion that in unnecessarily regulating a minor mercury source such as fluorescent lamps.

In closing we would reiterate that Conserve Electric Company, Inc. is in total support for the conditional exclusion as the best means of insuring the safe and cost-effective disposal of mercury containing lamps.

RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

DCN FLEP-00306
COMMENTER Lighting Maintenance and Service, Inc.
SUBJECT EXCL1
COMMENT LMS firmly believes that the conditional exclusion is the best way of assuring safe and cost efficient disposal of mercury containing lamps. Since EPA studies show that mercury doesn't leach in significant amounts f rom municipal landfills, Subtitle C landfilling is completely unwarranted. Additionally, in the area of air emissions, Subtitle C doesn't offer substantial protections over those offered by Subtitle D, making the disposal costs enormously disproportional to any environmental benefit received. In fact, US lamps contain less than .2% of total mercury in the environment and account for only 3.8% of total mercury in municipal solid waste. Lamps release a mere .04 to .31 tons of mercury per year, whereas the emission from combustion sources is estimated to be 286 tons per year. Unquestionably EPA resources would be better spent addressing

mercury emissions from combustion sources, rather than needlessly regulating fluorescent lamps.

In conclusion, Lighting Maintenance and Service, Inc., strongly supports the conditional exclusion, with the exceptions we have noted, as the best option available to EPA for attaining its environmental goals.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

DCN FLEP-00300
COMMENTER ElectricSave Company
SUBJECT EXCL1
COMMENT B GENERAL SUPPORT FOR CONDITIONAL EXCLUSION - The ElectraSave
Company strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps. EPA studies have shown that mercury does not leach in significant amounts from municipal landfills, making Subtitle C landfilling unnecessary. In addition, in the area of air emissions, Subtitle C does not offer significant protection over that offered by Subtitle D, making the expense of disposal vastly disproportional to the environmental benefit achieved.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

The universal waste rule represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-00301
COMMENTER Minnesota Pollution Control Agency/MOEA
SUBJECT EXCL1
COMMENT 5. Precedent of CE Alternative for Other Mercury Products
Allowing the CE alternative for lamps would have significant potential ramifications for other mercury-containing products. Even though we believe that the data shows emissions resulting from lamps alone under the CE alternative are unacceptable, we believe that EPA, in assessing the CE alternative, should also include the human health and environmental impacts of these other effects of the CE alternative. Supporters of the CE alternative argue that lamps should be allowed to be disposed of in solid waste landfills because lamps are an insignificant source of mercury emissions and the limited available solid waste landfill data does not indicate mercury at levels of concern. By logical effect, any other mercury product should also be afforded the CE alternative, since these products have also been historically disposed of in the solid waste stream. This course of action would have serious potential impacts since lamps and other mercury products are responsible for significant mercury emissions across the nation. Lamps are now the second largest product use of mercury in the United States. [Note 1: "Mercury." Engineering and Mining Journal. March 1994. Pages 21-22. (Enclosure 5.) (See hard copy of Comment FLEP-00301 for attachment.)] Lamps have a known and relatively short lifetime compared to other products containing mercury. On a tonnage basis, mercury use in lamps has increased over 50 percent between 1989 and 1992 [Note 1:"Mercury." Engineering and Mining Journal. March 1994. Pages 21-22. (Enclosure 5.)(See hard copy of Comment FLEP-00301 for attachment.); Note 2: "Management of Used Fluorescent Lamps: Preliminary Risk Assessment." U.S. EPA. Washington, D.C. May 1993. Page 87. (U.S. EPA 1993a.); Note 3: "Characterization of Products Containing Mercury In Municipal Solid Waste in the United States, 1970-2000." EPA 530-R-92-013. U.S. EPA. Washington, D.C. April 1992. (U.S. EPA 1991c.)] It is the only product category that is projected to increase its mercury consumption in the future. Mercury use in lamps is far exceeding forecasts made only two years earlier. [Note

1:"Mercury." Engineering and Mining Journal. March 1994. Pages 21-22. (Enclosure 5.) (See hard copy of Comment FLEP-00301 for attachment.); Note 3: "Characterization of Products Containing Mercury In Municipal Solid Waste in the United States, 1970-2000." EPA 530-R-92-013. U.S. EPA. Washington, D.C. April 1992. (U.S. EPA 1991c.)] Therefore, lamps represent a significant and expanding source of mercury that cannot be ignored or downplayed. There are an enormous number of other mercury-containing products, including thermostats, switches, thermometers, gauges, relays, manometers, and others. The MPCA estimates that 50 to 65 percent (3851 to 6937 lbs.) of the annual mercury emissions (7636 to 10,722 lbs.) in Minnesota are related to mercury-containing products. [Note 4:"Strategies for Reducing Mercury in Minnesota." MPCA Mercury Task Force. Minnesota Pollution Control Agency. St. Paul, Minnesota. 1994. (Enclosure 6.) (See hard copy of Comment FLEP-00301 for attachment.)] In other states, the emissions from mercury products will be higher or lower than Minnesota's depending on population and specific industry uses. In any case, mercury-containing products, as a source category, are responsible for a significant amount of mercury emissions across the nation.

On the other hand, the CE alternative provides a significant and unprecedented deviation from the hazardous waste regulatory framework by allowing lamps to be sent to a solid waste landfill. In addition, the CE alternative lacks storage, transport, and other management standards for lamps, which are key components of the RCRA regulatory framework. Therefore, we believe strongly that the burden of proof is not with those supporting the UW alternative, which is totally consistent with the RCRA framework already deemed to be protective of human health and the environment. The burden of proof is with those that support the CE alternative to show, conclusively, that lamps disposed of outside of the RCRA framework in the solid waste stream will be protective of human health and the environment. Included in the analysis of the CE alternative must be conclusive, definitive mercury emissions data related to the discard, breakage, storage, on-site crushing (which CE supporters advocate as long as it is conducted in compliance with Occupational Safety and Health Administration (OSHA) standards that do not relate to environmental

protection), transportation, tipping, compaction, solid waste landfill leachate, gas venting at solid waste landfills, and discharges and sludge management at wastewater treatment plants that treat landfill leachate. In addition, mercury emissions related to mismanagement must also be included in the CE alternative analysis. Experience with all waste management systems demonstrates that there will be a percentage of mismanagement. Under the CE alternative, a percentage of lamps and crushed/broken lamps would end up at other waste management facilities including mass burn incinerators, solid waste shredding/processing facilities, and composting facilities. Given the complexity of the nation's solid waste management system, lamp mismanagement may be prevalent under the CE alternative. Therefore, the analysis must include conclusive, definitive mercury emissions data related to the amount of lamps that would likely be mismanaged under the CE alternative. This includes mercury emissions during activities leading up to, including, and following incineration, composting, and other processing/shredding activities. Until all of these significant data gaps are credibly filled, it is too early to conclude that human health and the environment will be protected under the CE alternative. To do so would be a dangerous precedent, given the fact that the UW alternative is totally consistent with the Resource Conservation and Recovery Act (RCRA) framework already deemed to be protective of human health and the environment. When all data gaps are filled, we believe the data will show that mercury is a significant regional and global pollutant and that the CE alternative would allow lamps to be a significant source of environmental mercury contamination.

RESPONSE

The Agency understands the commenter's concerns about issues surrounding the conditional exclusion and agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate

that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00303
COMMENTER IllumElex Corporation
SUBJECT EXCL1
COMMENT IllumElex Corporation strongly supports the conditional exclusion as the best means of insuring the safe and cost effective disposal of mercury containing lamps. All of the EPA studies that we are aware of have shown that mercury does not leach in significant amounts from landfills, making Subtitle C landfilling unnecessary. It must be stated that all US lamps contain less than .2% of the total mercury in the environment and account for 3.8% of the total mercury found in municipal solid waste. The quantity of mercury from combustion sources is far greater than the quantity of mercury potentially released from landfills.

Aside from making good business sense, the conditional exclusion is supported by the best scientific evidence available. IllumElex Corporation supports the conditional exclusion and ask that you consider the impacts of any delays or failing to finalize it would have.
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

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presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

DCN FLEP-00304
COMMENTER A&K Service Corporation
SUBJECT EXCL1
COMMENT A&K would like to voice its support for conditional exclusion as the best means of disposal while offering safe and cost effective means of disposal of mercury containing lamps. According to studies from the EPA, mercury does not leach in significant amounts from municipal landfills. Because of these studies A&K feels that Subtitle C landfilling would be unnecessary. We also feel that if we are forced to group these lamps together for mass disposal the risks for leaching would be greatly increased. Additionally, we feel that the protection against air emissions offered by Subtitle C is not significantly different from that offered by the current Subtitle D and makes the expense to benefit ratio vastly disproportional. We feel that this ratio is extremely important when a "generator" is considering retrofitting a large area and is confronted with a mandatory disposal fee for his spent lamps. In many instances this fee could offset any assistance offered by the generators local utilities and could dissuade him from making any changes in his existing lighting. When this occurs even large companies may decide that it is not cost effective to be in compliance with programs such as Green Lights or any other programs like it. I do not think it is necessary to point out the benefits of these people reducing the amount of monthly electricity consumed or the repercussions of them not doing so. The fact is that these lamps account for less than 3.8% of total mercury in municipal solid waste. An amount that is vastly less than that released by combustion. It is clear that the EPA could use its

resources more wisely by studying emissions levels from combustion rather than placing unnecessary regulations on a minor mercury source such as fluorescent lamps.

In closing, A&K would like to again voice its support for the conditional exclusion. It is clear that this is the only viable alternative for the safe handling and disposal of fluorescent and HID lamps. We also feel that these guidelines need to be uniform from state to state and can only be implemented by a federal agency such as the EPA.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. EPA remains concerned that landfill releases may pose threats over the long term, although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport. Uncontrolled crushing and breaking of lamps allows mercury to be emitted into the air. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The Agency believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. This view is supported by cost analyses conducted by EPA on typical light upgrades. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is $64 at the national average electric rate of seven cents per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would be less than one percent of its operating costs. See the February 1997 edition of "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted a number of independent analyses of the internal rate of return (IRR) of various lighting upgrades. The Agency has found that, holding all other lamp operating costs constant, the cost of lamp disposal had minimal impacts on an upgrading project's IRR. At a $0.50/lamp transportation and recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and recycling cost, the IRR was 50 percent **C** only a slight decrease in IRR despite a 100 percent increase in waste management costs. Because of these reasons, EPA continues to believe that use of energy efficient lamps is independent of the policy options.

Simultaneous with the effort to modify the management of hazardous waste lamps, the Agency has been actively pursuing regulation of mercury air emissions from a wide variety of other sources. On December 19, 1995, EPA issued a final rule limiting emissions of mercury and other pollutants from large municipal waste combustors (60 FR 65387).

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 Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. However, more than 35 states already have either added hazardous waste lamps to their universal waste programs or are proposing to do so. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-00305
COMMENTER Sierra Club National Solid Waste Comm.
SUBJECT EXCL1
COMMENT We strongly oppose the conditional exclusion of lamps as a hazardous waste.

A significant adverse effect of the conditional exclusion option would be the impact on recycling of waste lamps. Under this option, cheaper disposal in municipal landfills would be chosen over sending lamps to recycling facilities. Recovery of mercury

for reuse must be considered the preferred management option, since all others have the potential for eventual release of the mercury into the environment. Regulations should promote this option. Savings in the costs of electricity will provide adequate incentives for the Green Light program.

RESPONSE

The Agency understands the commenter's concerns pertaining to the conditional exclusion. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport. It represents a significant cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner and are properly recycled or treated prior to disposal. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Today's final rule will greatly 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 FLEP-00307

COMMENTER Associated Industries of Massachusetts

SUBJECT EXCL1

COMMENT Option #1, the exclusion of mercury-containing lamps from regulations as hazardous waste provided that the lamps are disposed of in certain licensed/permitted "municipal solid waste" landfills, is the better option. Keeping in mind that fluorescent lights do not present the same degree of environmental hazard as other chemicals regulated under RCRA Subtitle C, many conscientious businesses view the present system of having to ship and dispose of these lamps within the strict RCRA Subtitle C permitting procedures as an example of regulatory overkill, especially when they are being encouraged by EPA to use them.

Excluding mercury-containing lamps from regulations as hazardous waste and allowing for the disposal of the lamps in certain licensed/permitted "municipal solid waste" landfills will ease the present burden on companies and foster compliance with the law while producing minimal risk to the environment. It would actually encourage the use of permitted landfills and discourage the use of non-permitted landfills which would be an environmental benefit.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

The Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

The Agency believes that management controls under RCRA are needed to minimize the release of mercury from lamps into the environment. Although most mercury emissions are associated with combustion, all releases contribute to the mercury reservoirs in land, water and air. In addition, mercury has been shown to be transported in the atmosphere many miles from the source of its release.

DCN FLEP-00308
COMMENTER All-Phase Construction
SUBJECT EXCL1
COMMENT All-Phase supports the conditional exclusion of lamps. The content of mercury in lamps accounts for only .2% of total mercury in the environment. Clearly, regulation would be best suited to the larger contributors. The EPA would best serve the

public by eliminating the confusion and announce the conditional exclusion of lamps. Furthering the EPA's objective of reducing pollutants through conservation.

To help businesses across the nation, along with benefitting the public, we recommend that the EPA exercise its leadership in the lamp disposal issue by finalizing the conditional exclusion.

In closing, we at All-Phase endorse conditional exclusion to help our environmental future.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-00309

COMMENTER Bethlehem Apparatus Company

SUBJECT EXCL1

COMMENT 4. Adoption of a Uniform Rule Will Eliminate Confusion as to the Regulatory Status of Lamps in the Various States. A significant problem for generators, which EPA recognizes, could result if the conditional exclusion were adopted. Three states already require the segregation of fluorescent Lamps for separate processing; Wisconsin, Minnesota, and Washington. Other states could soon follow suit. Adoption of uniform RCRA compliance

standards would eliminate confusion as to generator, transporter and disposal requirements. Although the Proposed Rule is less stringent, and thus not mandated to be adopted by States, it will likely gain acceptance due to the attractiveness of reducing current compliance requirements.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 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 in states that are not authorized for the federal Subtitle C hazardous waste program, and will not be effective in authorized states since the requirements are promulgated under pre-HSWA authority. The requirements promulgated today will not be effective in authorized states until the state revises its program to adopt equivalent requirements under state laws. EPA is encouraging states to adopt today's final rulemaking that adds hazardous waste lamps to the federal universal waste program.

DCN FLEP-L0001

COMMENTER Environmental Technology Council

SUBJECT EXCL1

COMMENT Unfortunately, one of the two alternatives that EPA has proposed -- the so-called "conditional exclusion" -- is an environmentally unacceptable approach advocated by one group, which does not want its mercury hazardous waste subjected to RCRA Subtitle C controls. The argument presented by EPA in support of this alternative understates the data on mercury releases, and is refuted by EPA's toxicity characteristic level for mercury. Mercury in fluorescent lamps is as toxic as mercury in other wastes at similar concentrations, which EPA has long required be managed as hazardous waste to protect human health and the environment. Why is mercury in fluorescent lamps now benign?

In short, the exclusion option would worsen the already serious mercury contamination problem in this country. In addition, the argument that managing used fluorescent lamps as hazardous waste would slow down relamping is contradicted by economics and real world experience, as outlined below. Further, the exclusion option would devastate a growing lamp recycling industry, which cannot compete with the far lower costs of disposal without pretreatment in nonhazardous waste landfills. Equally important, excluding wastes that exhibit the toxicity characteristic from RCRA Subtitle C would be unlawful. Such wastes meet the statutory definition of "hazardous waste," and EPA lacks authority to exempt the wastes from Subtitle C requirements. The Agency of course has the authority to adopt modified standards under Subtitle C to address any unique factors presented in regulating the storage, transportation, recycling, treatment and disposal of mercury lamps; the universal waste option represents such a modification. The Agency, however, cannot exclude indisputably hazardous wastes, conditionally or otherwise, from hazardous waste controls.

Contrary to EPA's implication in this proposed rule, the Agency's position has long been that wastes which exhibit a hazardous waste characteristic are "clearly" and with a "high degree of certainty" hazardous. See e.g., 45 Fed. Reg. 33,084, 33110-12 (May 19, 1980) ; 52 Fed. Reg. 8705 (March 19, 1987) ; 55 Fed. Reg. 11,831 (March 29, 1990). Given the Agency's well established position on the hazards posed by wastes that fail the TC, it would be arbitrary and unjustified to exclude mercury- containing lamps from Subtitle C. Indeed, the fact that EPA repeatedly admits that environmental release and fate data for mercury lamps is incomplete makes the "conditional exclusion" even more unacceptable. 59 Fed. Reg. at 38,290-93. V. EPA HAS NO LAWFUL BASIS TO EXEMPT CLEARLY HAZARDOUS WASTES FROM RCRA SUBTITLE C
As discussed above, EPA acknowledges that used mercury- containing lamps frequently exhibit the TC, and wastes which exhibit the TC are clearly hazardous. In this situation creating a conditional exclusion from Subtitle C would be contrary to RCRA. EPA asserts that it can properly base the conditional exclusion on "the Agency's authority to identify characteristics of hazardous waste and the statutory definition of hazardous waste." 59 Fed. Reg. 38,293. As discussed below,

however, EPA has no authority to exempt clearly hazardous wastes from RCRA Subtitle C regulations. Section 3001(b)(1) of RCRA directs EPA to "promulgate regulations identifying the characteristics of hazardous waste which shall be subject to the Provisions of this subchapter." 42 U. S. C. ' 6921 (b) (1) (emphasis added). This is a clear statement of congressional intent that wastes identified as hazardous by characteristic must be subject to the applicable standards of RCRA Subtitle C. EPA's proposed exclusion for mercury lamps would directly contravene this legislative intent.

But Congress did not authorize the Agency to limit the application of the TC only to certain wastes, absent an express statutory exclusion or deferral. Because no such exclusion or deferral for mercury lamps can be found within RCRA, none is authorized. Environmental Defense Fund v. EPA, 852 F.2d 1309, 1310 (D.C.Cir. 1988)(noting that absent the Bevill Amendment, "there was no provision in RCRA permitting the deferral of mining waste regulation" under Subtitle C). See also City of Chicago v. EDF, No. 92-1639 (U.S. Sup. Ct. May 2, 1994)(although RCRA exempts municipal incinerators from Subtitle C, ash from these facilities is not exempt because the statute contains no express exemption for the ash). And see National Railroad Passenger Corp. v. National Ass'n of Railroad Passengers, 414 US. 459 (1974)(holding that when Congress expressly prescribes the scope of a statute's application, and then provides for specific exemptions, other exemptions are not authorized) . Similarly, in Edison Electric Institute v. EPA, 2 F.3d 438 (D.C.Cir. 1993), the court upheld EPA's deferral of certain petroleum-contaminated wastes from the TC, but only because of two factors not present for mercury lamps. First, the deferral was necessary to "integrate" overlapping provisions of RCRA, Subtitles C and I. Second, the deferral was only a temporary measure to give EPA additional time to coordinate regulations under the two subchapters. As the court ruled, "the temporary deferral is justified precisely and only because it is a way station on the road to a permanent accommodation of the two Subchapters." Id. (Emphasis added.) No such justifications exist for excluding from Subtitle C mercury-containing lamps which fail the TC, and therefore the proposed exclusion would violate the statute. EPA also cannot rely on the statutory definition of "hazardous waste" to justify the conditional exclusion. EPA's

legal rationale appears to be that mercury-containing lamps can be excluded from Subtitle C because they may not pose a substantial present or future threat to human health or the environment when disposed of in accordance with the conditions of the exclusion. This "contingent management" rationale is foreclosed by the statute itself, however.

EPA's position is tenable only if RCRA ' 1004(5) defined a hazardous waste as a solid waste that posed a hazard when properly and improperly managed. Of course, the statute is not so worded. Where a waste poses a hazard when mismanaged, but not when it is properly managed, it meets the statutory definition of hazardous waste. In fact, EPA itself rejected the very approach it now advances: Applying the TC only to wastes actually managed as suggested in the mismanagement scenario (i.e., co- disposal in a MSW landfill) would involve the creation of a management-based approach to identifying hazardous wastes. EPA's current approach to establishing characteristics which identify certain wastes as hazardous is not contingent upon the way individual wastes are managed. Rather, consistent with the RCRA Section 1004(5) definition of hazardous waste, EPA is identifying waste ". . . that may pose a substantial present or potential hazard to human health and the environment when improperly.. managed." 55 Fed. Reg. 11,798, 11,806-07 (March 29, 1990)(first emphasis added; second and third emphasis by EPA). The proposed exclusion cannot be reconciled with this established Agency position nor with RCRA.

RESPONSE

The Agency understands the commenter's concerns about the management of hazardous waste lamps that exhibit a hazardous waste characteristic for mercury and agrees with the commenter that the proposed conditional exclusion approach would not sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. Studies conducted by the Agency indicate that the greatest potential for mercury

emissions from spent lamps occurs during storage and transport, due to breakage.

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. An added benefit of the universal waste approach is that the reduced cost of managing spent lamps may result in a greater quantity of lamps being collected and recycled and fewer hazardous waste lamps should be managed in the municipal solid waste stream. Therefore, the number of lamps going to municipal combustors should decrease and the potential for lamps to be crushed or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks) will decline.

DCN FLEP-L0003
COMMENTER Greater Fort Wayne Chamber of Commerce
SUBJECT EXCL1
COMMENT The Greater Fort Wayne Chamber of Commerce strongly supports the conditional exclusion for mercury- containing lamps. These lamps can be managed in an environmentally sound manner without the constraints and costly requirements set forth in RCRA Subtitle C regulation.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN SCSP-L0005
COMMENTER U.S. Department of Energy
SUBJECT EXCL1
COMMENT On April 12, 1993, the Department of Energy (DOE) submitted comments to the docket on the subject NPRM, supporting the proposed

alternate management system for waste batteries and suspended and/or canceled pesticides that are recalled. DOE also recommended that EPA consider including certain mercury containing wastes as special collection system wastes under the proposed 40 CFR Part 273. In support of that recommendation, DOE submitted available information on the management of fluorescent light tubes withing the DOE complex, using the proposed Part 273.2 petition criteria.

While DOE considers the proposed Part 273 collection system to be a viable option for management of fluorescent light tubes, recently, we=ve been informed by representatives from the National Electrical Manufacturers= Association (NEMA) of another option being considered by EPA for management of this particular waste stream. That option is a conditional exemption under 40 CFR 261.4 for light tubes that are recycled or disposed in Subtitle D landfills.

DOE encourage EPA to pursue its evaluation of a conditional exemption as a possible alternative to management of fluorescent light tubes. DOE would support such an exemption if EPA determines it to be protective of human health and the environment.

DOE also recommended that EPA consider including certain mercury containing wastes as universal waste wastes under the proposed 40 CFR Part 273. In support of that recommendation, DOE submitted available information on the management of fluorescent light tubes withing the DOE complex, using the proposed Part 273.2 petition criteria. While DOE considers the proposed Part 273 collection system to be a viable option for management of fluorescent light tubes, recently, we've been informed by representatives from the National Electrical Manufacturers' Association (NEMA) of another option being considered by EPA for management of this particular waste stream. That option is a conditional exemption under 40 CFR 261.4 for light tubes that are recycled or disposed in Subtitle D landfills. DOE encourages EPA to pursue its evaluation of a conditional exemption as a possible alternative to management of fluorescent light tubes. DOE would support such an exemption if EPA determines it to be protective of human health and the environment.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the

proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-L0006
COMMENTER National Food Processors Association
SUBJECT EXCL1
COMMENT NFPA supports Option 1, Conditional Exclusion, as described in the July 27, 1994 proposed rule. The conditional exclusion would require generators of used mercury-containing lamps to 1) either dispose of the lamps in a municipal solid waste landfill that it permitted by a State/Tribe with an EPA approved MSW permitting program or send the lamps to a State permitted, licensed, or registered mercury reclamation facility and 2) keep a record of the lamps sent to management facilities. An important feature for NFPA of this option is that mercury-containing lamps would be regulated under the Resource Conservation and Recovery Act,

Subtitle D. NFPA believes the information on which EPA has developed the proposed rule justifies the conditional exclusion option in terms of the minimal potential risk to public health and the environment. The conditional exclusion option provides reasonable alternatives for the-management of used mercury-containing lamps. Facilities would be able to select the management alternative that best fits their individual circumstances with the knowledge that appropriate public health and environmental protection safeguards are in place. NFPA, in particular, supports the inclusion of licensed, permitted, or registered mercury reclamation facilities as a management alternative.

RESPONSE

The Agency appreciates the commenter-s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps rather than the proposed conditional exclusion. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Today's final rule will greatly facilitate the environmentally sound collection and increase the proper recycling or treatment of hazardous waste lamps. Facilities still have the option of sending spent lamps to be recycled or disposed in non-hazardous waste landfills once the lamps have been properly treated and are no longer hazardous waste under Subtitle C. The Agency did not limit the universal waste system to recycled waste based on the belief that less complex regulations will increase collection of universal wastes. 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 FLEP-L0007
COMMENTER Office of the Under Secretary of Defense
SUBJECT EXCL1
COMMENT 1. Proposed Option 1 (i.e. Conditional Exclusion) is the

preferred option for the management of mercury-containing lamps. Because Option 1 results in much greater compliance savings in comparison to Option 2 (Universal Waste Management System/Universal waste), Option I is more likely to promote greater participation in EPA's "Green Lights" program. Further, Option 1 imposes the fewest and least exigent additional requirements on the already heavily regulated community while still accomplishing the desired environmental protections.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN SCSP-L0007

COMMENTER Large Public Power Council

SUBJECT EXCL1

COMMENT Agency's Green Lights Program PC understands that the Agency, in order to support and facilitate the Green Lights Program, is considering initiating a separate rulemaking for fluorescent lighting wastes which would exclude these wastes from Subtitle C regulation and would instead establish special management standards. The LPPC supports the Agency undertaking such a rulemaking. However, if the Agency for any reason decides not to promulgate such a rule, fluorescent lighting wastes should be included in the wastes subject to the special management requirements proposed in this rule.

RESPONSE

Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. The universal waste rule represents a cost reduction over full Subtitle C management requirements for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN SCSP-L0009
COMMENTER National Electric Manufacturers Assn.
SUBJECT EXCL1
COMMENT For the past two years the NEMA and its member companies have been working with the Agency to resolve the issues surrounding the disposal of lamps containing mercury. During this time we have submitted numerous documents to the Agency and had many meetings and phone calls with Agency staff to address both the technical and policy aspects of the issue. The purpose of this letter is to summarize for the Agency in one document the basis for our continuing recommendation that lamps be exempted from the hazardous waste regulations.

NEMA has, therefore, recommended that, based on the fact that lamps can be safely managed outside the Subtitle C system, EPA should exempt lamps from the definition of hazardous waste and thereby remove the associated barriers to re-lamping programs nationwide. This solution would also prevent non-compliance with authorized Subtitle C programs.

It is our hope, therefore, that the Agency will proceed to promulgate the hazardous waste exemption. NEMA reminds the Agency that promulgation of an exemption at this time, does not preclude recycling/reclamation; it simply allows recycling/reclamation to exist in the marketplace with other lamp management alternatives. Technical Basis for NEMA's Recommendation NEMA's recommendation that lamps be exempted is based on the two key points raised at the beginning of this letter: 1) lamps are unnecessarily captured by the Toxicity Characteristic, and 2) this designation is having a deleterious effect on re-lamping programs designed to increase the energy-efficiency of lighting and decrease the pollution caused by electric power generation. Our rationale is discussed in more detail below.

The benefits of upgrading lighting systems to those that are more energy-efficient are too compelling to squander. We recommend that EPA propose a hazardous waste exemption for lamps and, at the same time, issue an interim final rule with a sunset date which exempts lamps. This approach will preserve EPA's ability to move forward with the proposal if the interim final rule fails to become effective either because of litigation or other administrative reasons. There is an urgent need for EPA to publish these documents quickly. Interested commenters are currently confused by EPA's Universal Waste proposal which fails to suggest an alternate option for lamps.

Conclusion. In conclusion, NEMA recommends, based on the reasons stated above, that 1) lamps be exempted from the definition of hazardous waste, and

RESPONSE

On July 27, 1994, EPA proposed two alternative approaches for the management of hazardous waste lamps. The first approach was to conditionally exclude spent lamps from hazardous waste regulation and the second approach was to add mercury lamps to the universal waste system. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions.

EPA studies have determined that the majority of hazardous waste lamps fail the TCLP for mercury and sometimes for lead. Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. The Agency

published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of spent hazardous waste lamps under several regulatory approaches. The Agency does not have extensive data characterizing the behavior of mercury released from spent lamps in a landfill environment over long periods of time. Although available data may support the conclusion that mercury may stay in a stable, non-mobile state over the shorter term and may not migrate from a landfill environment very quickly. Data show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats to human health and the environment over the long term. Studies also show that the greatest threat of mercury releases from the management of lamps is during storage and transport, due to breakage. The universal waste rule provides a framework for controlling the management of spent lamps during storage and transport, while at the same time providing a more streamlined and less stringent set of standards than full Subtitle C management standards.

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

The universal waste rule represents a cost reduction over full Subtitle C management requirements for generators, collectors, and transporters, yet ensures that lamps are managed in an environmentally protective manner. An added benefit of the universal waste approach is that 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

DCN FLEP-L0002
COMMENTER Memphis Light, Gas and Waste Division
SUBJECT EXCL1
COMMENT Summary MLGW strongly supports ERA's first alternative for the management of lighting wastes as published in the Federal Register a Lighting Waste Proposal (59 Fed. Reg. 38288-90). MLGW supports the exclusion of mercury-containing lamps from the hazardous waste regulation under Subtitle C of Resource Conservation Recovery Act (RCRA), contingent on disposing of the lamps in a state approved municipal solid waste landfill. Such

an exclusion can foster greater participation in "Green Lights" and other demand-side management (DSM) programs.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-L0011

COMMENTER No Affiliation (name illegible)

SUBJECT EXCL1

COMMENT I am simply appalled that EPA would even consider allowing a TCLP mercury bearing waste to be disposed in a municipal landfill.

2. The proposed approach creates a scientific contradiction by implying that leachable mercury from fluorescent light tubes is not hazardous, while arguing that leachable mercury from other sources IS hazardous. From a scientific point of view, this argument simply does not hold water. These kind of decisions only undermine the credibility of EPA and only serve to validate criticisms directed at government agencies. How can an agency expect to build credibility when it doesn't honor its own standards?

RESPONSE

The Agency understands the commenter's concerns about management issues pertaining to the conditional exclusion. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the

proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), but also allows the Agency to set specific management standards to control potential emissions. 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 Agency does not have data characterizing the behavior of mercury in different types of landfills over long time periods, although available data from shorter-term studies suggest that mercury can be, and has been released to groundwater and air from municipal landfills. (For a more complete discussion of mercury releases from landfills and fate and transport in groundwater, see the Toxicity Section of this Response to Comments document). Data available to the Agency show that mercury can be found in municipal landfill leachate, and EPA remains concerned that landfill releases may pose threats over the long term. The Agency has concluded that some management controls are essential for these wastes. The Agency published a Notice of Data Availability on July 11, 1997 (62 FR 37183). This notice presented data collected by the Agency and an assessment of potential mercury emissions from the management of hazardous waste-containing lamps under several regulatory approaches.

DCN FLEP-L0012
COMMENTER Navajo Tribal Utility Authority
SUBJECT EXCL1
COMMENT The Navajo Tribal Utility Authority strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes expensive regulatory barriers to greater participation in demand side. management programs such as "Green Lights".

The Navajo Tribal Utility Authority appreciates the opportunity provided during the comment period to submit these views in favor of the conditional exclusion from hazardous waste regulation for mercury-containing lamps. The Authority opposes the "universal waste option" as a solution for appropriate disposal of spent lighting wastes.

The Navajo Tribal Utility Authority strongly supports the conditional exclusion from Subtitle C regulation for mercury-containing lamps. Such an exclusion removes expensive regulatory barriers to greater participation in demand side. management programs such as "Green Lights".
RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps because the Agency does not believe the conditional exclusion would sufficiently protect human health and the environment. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.

DCN FLEP-00018
COMMENTER Sony Electronics, Inc.
SUBJECT EXCL1
COMMENT In response to your request for comments, Sony Electronics, Inc. would like to support Option 1 which supports exclusion of mercury-containing lamps from regulation, provided such lamps are disposed of in permitted municipal landfills or are managed in a permitted mercury reclamation facility.
RESPONSE
The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage

trucks).

DCN FLEP-00086
COMMENTER Northeast Utilities Service Co.
SUBJECT EXCL1
COMMENT III. Regulation as Hazardous Waste Would Be Burdensome and Expensive and Would Result in Minimal Environmental Benefit Many practical difficulties, or burdens, are imposed on lighting waste generators when lighting wastes are regulated as hazardous. Generators must obtain EPA ID numbers (or possibly increase generator quantity status); comply with satellite accumulation, labeling and manifesting requirements; ship lamps only via hazardous waste transporters; train all personnel handling lamps; in some cases establish RCRA container storage areas to accommodate the waste after it is moved from satellite storage; keep records; comply with land disposal restrictions; and manage broken lamps. Note: Not all the requirements described above apply to conditionally exempt small quantity generators (generators of less than 100 kg of hazardous waste per month), However, a change-out of over 350 four-foot fluorescent lamps will exceed this threshold making the generator a small quantity generator for the entire year. Finally, environmental agencies have attendant administrative costs in overseeing a regulated program
RESPONSE
Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps rather than the proposed conditional exclusion. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Spent lamps that are managed as universal waste under Part 273 are not included in a facility's determination of hazardous waste generator status

('261.5(c)(6)). Therefore, if a facility manages hazardous waste lamps under the universal waste system and does not generate any other hazardous waste, the facility will not be subject to other parts of the Subtitle C regulations such as the hazardous waste generator regulations in Part 262. In addition, today's final rule does not affect the regulatory status of conditionally exempt small quantity generators (CESQGs), (i.e., those generators that produce less than 100 kg of hazardous waste per month). CESQGs continue to be conditionally exempt from full Subtitle C regulation provided that the provisions under '261.5 are met.

The Agency notes that the regulatory requirements of the universal waste rule applicable to handlers and transporters of universal waste are less complex than the full Subtitle C regulations. Universal waste handlers who generate or manage items designated as universal waste have to follow streamlined standards for storing universal waste, labeling and marking waste or containers, preparing and sending shipments of universal wastes off-site, employee training, and response to releases. Universal waste transporters must comply with all applicable Department of Transportation regulations and ensure transportation of universal waste to a universal waste handler or a destination facility. Transporters of universal waste no longer have to comply with the RCRA hazardous waste manifest requirements or obtain an EPA identification number (as hazardous waste transporter) as long as they travel through states that consider hazardous waste lamps to be a universal waste. However, destination facilities (i.e., facilities that treat, dispose, or recycle universal wastes) remain subject to all Subtitle C management requirements applicable to permitted or interim status hazardous waste treatment, storage, and disposal facilities.

DCN FLEP-00203
COMMENTER American Gas Association
SUBJECT EXCL1
COMMENT If EPA adopts the conditional exclusion, we urge EPA to exclude mercury containing lamps when their quantity is such that they would be small quantity conditionally exempt in and of themselves, rather than combined with other waste. For example, disposal of mercury containing lamps at a large quantity generator site, such as an LNG plant, or a transportation garage, will be a tremendous burden if special handling, manifesting, and other requirements apply. This generation of the mercury containing lamps is no different than small quantity conditional exempt generator except that there is some activity ongoing on site, which causes the site to have a generator status. Therefore, these lamps should be excluded.
RESPONSE
The Agency appreciates the commenter's support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling

potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Spent lamps that are managed as universal waste under Part 273 are not included in a facility=s determination of hazardous waste generator status. Handlers that accumulate more than 5,000 kilograms of total universal wastes at any one time are designated as large quantity handlers of universal waste and are subject to the notification requirements of 40 CFR 273.32. The notification requirement ensures that regulatory agencies are aware of the large quantity handlers of universal waste. The notification requirement is a one-time notification and is applicable on a Asite-specific@ basis. Large quantity handlers must notify the EPA Regional Administrator of their universal waste management activities and obtain an EPA identification number only if they do not already have one. Small quantity handlers (those that accumulate less than 5,000 kilograms of total universal waste) are not required to notify EPA of their universal waste management activities and need not obtain an EPA identification number. Generators of universal waste lamps that have never generated more than 100 kg of hazardous waste in a calendar month, but now accumulate more than 5,000 kg of universal waste lamps must notify the Agency of their universal hazardous waste management activities. Under the universal waste system, conditionally-exempt quantity generators 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)).

DCN FLEP-00233
COMMENTER Uniroyal Chemical Company, Inc.
SUBJECT EXCL1
COMMENT In 1992, Uniroyal replaced a significant quantity of fluorescent light bulbs at its world headquarters with more energy efficient lamps. We generated approximately 30 cubic yards of fluorescent light bulbs which were analyzed for mercury content via the Toxicity Characteristic Leaching Procedure (TCLP) and determined nonhazardous. Subsequently, we requested and received authorization from the state of Connecticut to dispose of the waste bulbs as a nonhazardous special waste per the definition of a bulky waste under CT Solid Waste Management Regulations,

Sec. 22a-209-1. Our nonhazardous waste was disposed at the Waste Management of North America, Inc. New Milford, CT subtitle D landfill which is approved by the Connecticut Department of Environmental Protection. (See the appendix for supporting data.) The subject proposed rule presents two alternatives for management of fluorescent light bulbs. Uniroyal supports option 1: Conditional Exclusion.

RESPONSE

The Agency appreciates the commenter=s support of the proposed rule to reduce the regulatory requirements for the management of hazardous waste lamps. However, based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., the universal waste rule is less stringent than full Subtitle C management standards), 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 for generators, collectors, and transporters. An added benefit of the universal waste approach is that fewer hazardous waste lamps may 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 or broken in uncontrolled environments during storage and transport (e.g., dumpsters and garbage trucks).

Spent lamps that exhibit a hazardous waste characteristic for mercury or any other hazardous constituent are subject to today's rulemaking. Lamps that do not exhibit any hazardous waste characteristic are not subject to Subtitle C regulation, including the standards finalized today.

DCN FLEP-00178

COMMENTER General Electric Company

SUBJECT EXCL1

COMMENT The exclusion as proposed by EPA is necessary in that it regulates lamps outside of the Subtitle C system. However, the exclusion should be combined with mandatory tailored best management practices designed specifically to reduce the risks associated with mercury- containing lamps (e.g., air emissions from breakage). This approach, reinforced in GE's comments, is actually more protective of the environment than either of the options contained in the Agency's proposed rules and provides the maximum risk reduction in the most cost effective manner.

RESPONSE

In today=s rule, the Agency is not finalizing the conditional exclusion option for the management

of hazardous waste lamps. The Agency does not believe that its proposed conditional exclusion approach would sufficiently protect human health and the environment. EPA gave considerable weight to actions that would minimize mercury emissions to the environment while encouraging the collection and environmentally-sound management of spent lamps. Based upon commenter input and additional information collected and reviewed by the Agency since the publication of the proposed rule, EPA decided to adopt the proposed universal waste approach for controlling potential risks from the management of spent hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule is less stringent than full Subtitle C management standards) yet still allows the Agency to set specific management standards to address potential emissions during storage and transport. It is the Agency=s intent that these standards act as best management practices.

DCN FLEP-00087
COMMENTER NECRRRA
SUBJECT EXCL1
COMMENT WHEREAS, NECRRRA believes that the conditional exclusion will allow generator selection of either properly permitted landfilling or recycling options permitted by state law and will not impede the implementation of energy efficient lighting retrofits which reduce energy consumption and lessen air pollution from power plants,
RESPONSE
In today=s rule, the Agency is not finalizing the conditional exclusion option for the management of hazardous waste lamps. Today's final rule adds hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. The Agency has determined that hazardous waste lamps meet the criteria established for designating a material as universal waste. The universal waste rule provides a reduced, or streamlined set of requirements (i.e., universal waste rule standards are less stringent than full Subtitle C management standards).

By removing some of the requirements of full Subtitle C management for lamps, a universal waste approach minimizes concerns about decreased participation in energy-efficient lighting programs by simplifying and clarifying the requirements for hazardous waste lamp collection while maintaining Subtitle C control over final treatment and disposal (or recycling) for these lamps. Management costs under the universal waste approach will be lower than full Subtitle C management because hazardous waste transporters and manifests will not be required for lamp shipments between hazardous waste lamp generators and disposal or recycling facilities. In addition, permits will not be required for storage at interim collection facilities. Such an approach could help in assuring that the substantial environmental benefits offered by energy-efficient lighting programs are realized through increased participation.