DCN FLEP-00008
COMMENTER Continental Lighting Services, Inc.
SUBJECT ECON
COMMENT As an EPA Green Lights Ally, we have not experienced a project to date where the payback forecasts -- which include appropriate disposal of lamps and ballasts -- exceed twenty-four months. Many contractors are positioned to compete with little profits above their overhead (including general and administrative costs.) It is ludicrous, therefore, that business and industry attempt to avoid their responsibility to a cleaner, safer environment by requesting a relaxation of current RCRA standards.
RESPONSE
EPA thanks the commenter for their concern about a safer environment. The Agency has examined lamp disposal costs and found that these costs, regardless of disposal scenario, represent less than 1 percent of lifetime lamp management costs. Disposal costs, therefore, are not likely to significantly impact payback forecasts.

DCN FLEP-00015
COMMENTER USPCI
SUBJECT ECON
COMMENT EPA argues that the switch to energy efficient lamps will reduce electricity demand, th yields an internal rate of return of 20-30 years and 3-4 year payback for the companies which make the investment. EPA also takes the position that management of lamps as hazardous waste acts as disincentive to switch to energy efficient lamps due to cost of labeling, 3010 generator notices, and manifesting.
RESPONSE
EPA agrees with the commenter that switching to energy efficient lamps will help reduce electricity demand and thereby contribute toward emissions reductions from utility boilers.

Many factors can affect the rate of return of a lighting upgrade and a building owner's willingness to upgrade. 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 1 percent of its operating costs. See the February 1997 edition "Lighting Waste Disposal" (EPA 430-B-95-004) for additional information on upgrading costs. EPA has also conducted 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 disposal

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. EPA believes that a decision to relamp with energy efficient lamps incorporates many factors and is not likely to be driven by spent lamp disposal costs within the range of current comparative practices.

DCN FLEP-00017
COMMENTER Charles W. Knight
SUBJECT ECON
COMMENT The huge cost of handling these lamps as hazardous waste is not justified by the minimal, if any, environmental benefit that would result. Limited environmental funds should be spent on serious problem areas which do exist.
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 assessment 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 upon 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.

DCN FLEP-00025
COMMENTER Environmental Energy Group/NAEP
SUBJECT ECON
COMMENT The preamble estimated LQG's and SQG's affected by the proposed options to be 47,000 to 64,000 nationally. Based on general field observation and discussions with a variety of those generating waste electric lamps today we would dispute the preamble assumption that 97 percent of spent mercury-containing lamps are currently treated by stabilization and disposed of in hazardous waste landfills. This figure appears to be considerably out of balance with current electric lamp waste disposal practices. The Florida Department of Environmental Protection, Hazardous Waste Management Section estimated (date of publication, July 25, 1994) that "disposal" for waste lamps was 82 percent for regular solid waste landfills, incineration in solid waste combustors (16 percent), and recycling 2 percent nationally. We believe the Florida estimates are more likely to accurately reflect current disposal practices in the U.S. These conditions and the implication with non-conformance with existing Subtitle C requirements should be analyzed to resolve the assumptions made. We do not support the use of this 97 percent assumption to measure costs. Further, we believe it is unlikely that the bulk of waste generators would dispose of electric lamp wastes by selecting hazardous waste landfilling as the principle means of disposal given long term liability or environmental considerations.
RESPONSE
EPA agrees with the commenter that the Agency's preliminary estimate of lamp disposal in Subtitle C landfills was too high. Based on comments received and other data compiled, the Agency has revised its estimates under the baseline to better reflect current conditions. Lamp manufacturers such as General Electric and the National Electric Manufacturing Association (NEMA) believe that the Subtitle C landfilling rate is closer to 3 percent of all lamps. EPA agrees and has revised the economic assessment to reflect a 2 percent Subtitle C landfilling rate under the baseline. In addition, the State of Minnesota, NEMA, and General Electric believe that the current national lamp recycling rate is 10 to 12 percent. EPA agrees with this estimate and has revised the recycling rate under the baseline to 10 percent. Based on available information, the revised economic assessment also estimates that approximately 12 percent of lamps are sent to municipal waste combustors and roughly 76 percent are sent to Subtitle D landfills under the baseline.

DCN FLEP-00025
COMMENTER Environmental Energy Group/NAEP
SUBJECT ECON

COMMENT We are also unable to determine to what extent the cost of Subtitle C compliance has been calculated to include the costs associated with TCLP testing of various lamps (fluorescent, H.I.D., and incandescent) by the waste electric lamp generating community. Based on agency figures for total LQG and SQG sources we would estimate an additional cost savings at an average of $850/generator as a one-time testing cost for lamps of all types they generate which would be most likely eliminated under Option 2. While process knowledge (existing testing, information on different types, sizes, and manufactures of lamps) may be shared, under the provisions of existing Subtitle C generator requirements, TCLP testing should have been previously concluded as a compliance cost element or subject to the current rule baseline cost assessments. Option 2 potentially would remove these generator testing costs under an assumptive management strategy of treating electric lamps as universally hazardous. Although generators may opt to test (or test a greater portion of the electric lamp waste streams they generate) before deciding on their disposal options under Option 2, this seems unlikely. Therefore, cost savings to LQG and SQG entities if Option 2 were selected should be increased by an estimated reduction in waste electric lamp TCLP testing costs. This cost is considered fixed and non-recurring. We have not seen reference as to what would be considered (by the agency) to constitute an appropriate level of spent electric lamp TCLP sampling per lamp type, volume, and/or manufacture which may be generated. This would have a direct bearing on the estimated costs and savings under the proposed Option 2 which would not be recognized under Option 1. This relationship reflects the genuine difference between current Subtitle C management criteria (to test) and the most likely generator activity under Option 2 (to assume a hazardous classification and utilize those economic resources for disposal costs rather than waste lamp testing). We place an estimated savings figure relative to generator testing at 40-54 million dollars nationally for this non-recurring, single cost entry. The estimate has not been discounted to consider generators who have already performed and completed testing for the variety and/or manufacture of waste electric lamps which they generate. We also note that the $850 testing cost assumption will be high in some instances and low in others. The $850 benchmark represents testing multiple waste electric lamps for mercury only and not for other heavy metals

which may be present or are suspected to be contained in lamp types other that fluorescent models. In some respect, these TCLP testing costs and probable savings should be reflected in the assumptions for Economic Impact Analysis. Adopting the exemption under Option 1 removes the requirement which should (but may not) have already been performed at this time under RCRA Subtitle C requirements by individual waste lamp generators. We were not able to obtain and review the agency back-up data on this subject prior to submitting comment and therefore agency consideration may have already been given to this issue in constructing and contrasting the assumptions used.

RESPONSE

EPA agrees that existing generators of lamp wastes should have already characterized their lamps under the baseline scenario and would generally not need to re-characterize them under either option, except as specified otherwise. Therefore, in the final economic assessment, EPA assumed that only first-time lamp generators would characterize their lamp wastes under the baseline or universal waste option. (No characterization would be needed under the conditional exclusion option.) The assessment assumed a one-time cost for sampling and analysis of lamps and negligible costs for using process knowledge. For purposes of simplification, the economic assessment assumed that large quantity generators (LQGs) would test their lamp wastes (i.e., because they are less price sensitive), and small quantity generators would use process knowledge.

DCN FLEP-00040

COMMENTER Eli Lilly and Company

SUBJECT ECON

COMMENT The conditional 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 redeemable, 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 area 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 fighting 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 and therefore are 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

EPA agrees that many factors can affect the rate of return of a lighting upgrade and a building owner's willingness to upgrade, as the commenter suggests. 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 1 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 the decision to relamp with energy efficient lamps is independent of the policy options.

DCN FLEP-00051
COMMENTER Scientific Consulting Laboratories, Inc.
SUBJECT ECON
COMMENT The overall price difference of a major lighting retrofit or remodeling project between disposal at a permitted municipal landfill and a permitted recycling facility is less than 2 percent of the entire cost of the project. For example, a retrofit of a

four 4 foot lamp fluorescent costs about $60.00. The cost of recycling the four lamps, including transportation, is approximately $1.25. For a small $150,000 job involving 2500 fixtures and 10,000 lamps, the lamp recycling portion of the project is only about $3,000. This appears to be a small price to pay in order to properly control the risk from mercury emissions and to encourage resource recovery technologies. If permitted municipal landfills are allowed to accept mercury-containing lamps without appropriate air control measures in place, then, in all likelihood, lamp recyclers will go out of business and a signal will go out that the EPA is not serious about fostering recycling and resource recovery technology.

RESPONSE

The Agency thanks the commenter for the information provided. EPA agrees with the commenter that spent lamp management costs represent a very small percentage of overall retrofit and lamp lifetime operational costs. The Agency believes that the final universal waste scenario will facilitate environmentally sound management of spent lamps.

DCN FLEP-00053

COMMENTER Occidental Chemical Corporation

SUBJECT ECON

COMMENT OxyChem also supports Option 1 based on comments received from its facilities on the cost of managing mercury-containing lamps. In breaking down the cost estimates, OxyChem has 39 small-to-medium-sized facilities which generate between 20-30 lamps/month. The remaining six facilities would be classified as large facilities which generate approximately 1,200 lamps/month. Based on Option 1, OxyChem estimated costs for managing mercury-containing lamps at its small-to-medium-sized facilities to be between $1,200-$1,755/year. This estimated cost is equivalent to each facility generating approximately 25 lamps/month. If managing the lamps under Option 2, the estimated cost for lamp disposal - based on 25 lamps/month at each facility - would be approximately $4,000-$4,200/year. For OxyChem's six large facilities, which generate approximately 1,200 lamps/month, the cost for lamp management under Option 2 equates to a disposal cost of $29,400-$31,100/year. The yearly cost for management of these lamps under Option 1 would equate to approximately $8,700-$13,000/year. For OxyChem's large facilities, OxyChem 's overall cost (using the high-end figures) to manage mercury-containing lamps under Option 1 would be

approximately $24,600, while the cost for Option 2 is approximately $94,800.

RESPONSE

EPA notes the commenter's costs for managing and disposing of its lamp wastes. EPA also notes that a building's compliance costs could vary greatly depending on a number of site-specific factors, such as employee/contractor costs, number/type of lamps being disposed of, transportation distances, and recycling or disposal fees. EPA has revised its waste management and disposal costs for lamps in the final economic assessment to account for, among other things, the size of the building (i.e., small, medium-size, and large), and the number of lamps disposed. The Agency believes this refinement has improved the cost estimates for the various types of lamp generators.

DCN FLEP-00056

COMMENTER International Paper Company

SUBJECT ECON

COMMENT A survey of International Paper's facilities revealed costs at our larger facilities were in the $5200 to $5600 per year range rather than EPA's estimates of $2000 to $2500. We also note that EPA's analysis assumes a sporadic generation rate while our experience indicates that a large manufacturing facility routinely generates 300 to 400 waste lamps per month even though a mass relamping may have taken place in the past. Smaller facilities such as warehouses, converting facilities (container plants, carton and label plants, etc.), and distributors also have a relatively steady generation rate which necessitates an ongoing program to handle waste lamps in an appropriate manner. These programs add appreciable costs to those facilities and in some cases cause the facility to change generator status. This in turn creates even more of a regulatory burden, increasing costs with no commensurate environmental benefit.

RESPONSE

The final economic assessment has been revised to assume an annual relamping rate for failed T12 and T8 lamps (i.e., spot relamping). The assessment also assumes that a certain percentage of buildings conduct group relampings each year.

DCN FLEP-00067

COMMENTER Georgia Power Company

SUBJECT ECON

COMMENT Georgia Power Company does not support the universal waste option as a solution to the lighting wastes problem. As long as lighting wastes remain under the umbrella of Subtitle C regulation, there will be significant economic

burdens associated with relamping programs. Under the universal waste option, lighting wastes would remain subject to the most onerous components of the Subtitle C program: the land disposal restrictions program and the costs of Subtitle C disposal.

RESPONSE

EPA notes the commenter's concerns, but 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 1 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 an independent analysis 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 does not believe that compliance costs under the RCRA program, including costs for LDR compliance, would affect owners' decisions to upgrade. In fact, the Agency notes that it has taken a number of steps over the past few years to reduce burdens to waste handlers under the LDR program, such as streamlined notification and certification requirements.

DCN FLEP-00078

COMMENTER Tennessee Valley Authority

SUBJECT ECON

COMMENT Reasons for Supporting an Exemption from Hazardous Waste Regulation Recycling Costs - TVA estimate that recycling costs TVA about $0.88 per fluorescent light bulbs. This does not include the cost for storing and handling these bulbs before shipping them to the recycler. Based on information from recyclers on the amount of mercury recovered, we estimate that recycling costs TVA over $8,000 per pound of mercury recovered. We estimate that it takes at least 10,000 four-foot fluorescent lamps to recover a pound of mercury.

RESPONSE

EPA notes the commenter's recycling costs. It should be recognized, however, that recycling is generally conducted for the reclamation of the glass and metal end caps, in addition to any mercury recovery. The final economic assessment completed in support of the hazardous waste lamps rule incorporates updated and refined unit cost estimates for recycling and other waste management methods.

DCN FLEP-00079

COMMENTER Voltarc Technologies, Inc.
SUBJECT ECON
COMMENT The comments submitted by the National Electrical Manufacturers Association (NEMA) persuasively enumerate the many reasons that the designation as Universal Waste is undesirable. Key among them is the fact that the cost- benefit analysis is not justified. For example, as the following figures illustrate, the costs of this approach are prohibitive. The cost of disposing of spent lamps by an environmental company servicing Connecticut is as follows: 1) Less than 5 percent broken bulbs- Metal and glass are segregated and recycled. Mercury and powders are retorted and distilled. Cost @ $0.85/ bulb; 2) Entire bulb is crushed and completely retorted for mercury reclamation. All residual mercury is recaptured. Cost @ $1.75/ bulb; 3) Entire bulb crushed, stabilized and landfilled at a RCRA hazardous landfill. Cost @ $0.85/ bulb; 4) Drums of crushed bulbs will be stabilized and landfilled in a RCRA hazardous landfill. Cost @ $375.00 per drum. The cost of disposal would have a major impact on the cost of Voltarc's operations budget. Estimates could easily amount to $300,000 -$500,000 extra per year for increased labor and disposal costs.
RESPONSE
EPA notes the commenter's waste management and disposal costs for lamps. EPA has revised its estimates for lamp disposal in the final economic assessment. For example, the assessment assumes a transportation/reycling cost of $0.40/lamp; it also assumes that all recycled lamps are sent to retorters, at $1.31/lamp for transportation/retorting. EPA believes such costs are comparable to the commenter's for recycling. However, EPA also believes that lamp disposal costs will vary based on site-specific factors. Therefore, the final economic assessment provides a range of per facility costs based on a number of cost assumptions. Finally, the Agency has examined how recycling costs may change over time, as presented in appendix D of the final economic assessment.

DCN FLEP-00080
COMMENTER City of Colorado Springs
SUBJECT ECON
COMMENT Second, it is irresponsible to require the regulated community to pay the estimated $85 - $102 million (EPA estimate) annually to dispose of these lamps as hazardous waste when it cannot be shown that they are a significant threat to human health or the environment when disposed in (MSW) landfills. Additionally, the City's experience with recycling these lamps has shown that the "baseline Subtitle C cost per bulb", mentioned in the preamble

> of the proposed regulation of $.34 to $.36 may be extremely low. Therefore, the total annual disposal cost paid by the regulated community could be much higher. The City recently paid $.47 per lamp for shipping and disposal of a group of bulbs. The cost did not include a surcharge for broken lamps which would have increased the cost. Nor did the cost include the labor expended by the City to inventory, label, package, and consolidate the bulbs before shipping. It should also be noted that the City's shipment included only a small percentage of metal halide, mercury vapor, and high pressure sodium lamps which cost $1.29 per lamp for shipping and disposal only. Is it worth the billions of dollars that will be expended by the regulated community to recover 3.8 percent of all mercury that is disposed of in (MSW) landfills each year? The City's answer is an unequivocal "NO" based upon current data dealing with the potential for a significant threat to human health and the environment from this source.

RESPONSE

EPA notes the costs associated with waste lamp management and disposal provided by the commenter. EPA has revised its estimates for lamp disposal in the final economic assessment. For example, the assessment assumes a transportation/reycling cost of $0.40/lamp; it also assumes that all recycled lamps are sent to retorters, at $1.31/lamp for transportation/retorting. EPA believes such costs are comparable to the costs provided by the commenter. However, EPA also believes that lamp disposal costs will vary based on site-specific factors. Therefore, the final economic assessment provides a range of per facility costs based on a number of cost assumptions. Finally, the Agency has examined how recycling costs may change over time, as presented in appendix D of the final economic assessment.

EPA emphasizes its belief that minimum technical requirements under RCRA are needed to minimize the release of mercury from lamps to the environment. Although most mercury emissions are associate 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 man animal species, particularly aquatic organisms. EPA has recently published a Mercury Study report to Congress (December 1997) that examines many of the health effects resulting from mercury exposure. 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. For these reasons, EPA believes the universal waste approach is the best way to minimize mercury emissions while, at the same time, streamlining administrative procedures and providing enhanced lamp management flexibility.

DCN FLEP-00081
COMMENTER Family Dollar Stores, Inc.
SUBJECT ECON
COMMENT Family Dollar Stores, Inc. Presently operates 2,223 variety discount retail stores in 35 States. Each store is illuminated by some 105 8-foot, 2-lamp fluorescent fixtures. We have engaged a lighting service contractor whose technicians call at each store each month in order to replace failed lamps and ballasts. Over the 12 months ended August 31, 1994, lighting maintenance cost Family Dollar Stores, Inc. in excess of $500,000.
RESPONSE
The Agency thanks the commenter for their information on costs. The Agency=s assessment indicates that the universal waste scenario promulgated in the final rule will provide savings to those facilities currently managing lamps as a RCRA hazardous waste.

DCN FLEP-00085
COMMENTER Town of Sterling, CT
SUBJECT ECON
COMMENT Businesses and facilities in our town are involved in switching their lighting to energy efficient fluorescent lamps. We are concerned that these groups and our town will incur unrealistic disposal costs if the lamps are classified as hazardous waste. We are aware of the EPA data which shows that the lamps are responsible for very small amounts of mercury in the environment, and we believe that it is possible to dispose of or recycle them in a safe and cost-effective manner.
RESPONSE
The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA believes that the majority of lamp generators 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.

DCN FLEP-00089
COMMENTER Town of Killingly, CT
SUBJECT ECON
COMMENT Businesses and facilities in our town are involved in switching their lighting to energy efficient fluorescent lamps. We are concerned that these groups and our town will incur unrealistic disposal costs if the lamps are classified as hazardous waste. We are aware of the EPA data which shows that the lamps are responsible for very small amounts of mercury in the environment, and we believe that it is possible to dispose of or recycle them in a safe and cost- effective manner.
RESPONSE
The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA 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.

DCN FLEP-00095

COMMENTER Allegheny Power System
SUBJECT ECON
COMMENT 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 "[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. [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

EPA notes the commenter's concerns, but 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.

In addition, EPA believes that the universal waste approach will place minimal technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake many such procedures even in the absence of the rule. An example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste approach would not interfere with an owner's willingness to upgrade.

DCN FLEP-00115

COMMENTER American Textile Manufacturers Institute

SUBJECT ECON

COMMENT The cost of handling a spent fluorescent tube as a hazardous waste makes using a fluorescent tube prohibitive. This added cost would greatly reduce the feasibility of such relighting programs, and force industry to continue to operate inefficient systems for years beyond their usefulness. The end result would be a serious increase to employers in energy expenditures, possible reduced employee productivity, an increase in employee-associated problems, and a significant increase in demand on utilities to burn fossil fuels to support inefficient systems. According to estimates from several textile facilities, the cost of handling tubes as a hazardous waste would double the cost of a mercury-containing lamp. To illustrate: one textile manufacturer in Georgia estimated that its facility consumes an average of 80,000 tubes per year. The cost to recycle a tube is $.50. If covered by the universal waste management proposal, one tube would cost the manufacturer $1.00. Another manufacturer in

South Carolina estimates that its land disposal costs would rise from approximately $50.00 per drum in a municipal solid waste landfill to $400.00 per drum if sent to a Subtitle C landfill.

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA notes the commenter's concerns and agrees that lamp waste management and disposal costs can vary greatly depending on a number of factors. However, 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. Finally, the Agency anticipates that lamp recycling costs are likely to decline in future years. This analysis is presented in appendix D of the final economic assessment.

DCN SCSP-00118

COMMENTER Robert M. Quintal

SUBJECT ECON

COMMENT It was estimated by NEMA that if quality landfills are a suitable and viable management method for this waste, then the costs for disposal would continue to be minimal. NEMA acknowledges the fact that quality landfill is not always the predominant disposal option in a given region. In the case of non-availability of modern sealed landfills or areas that rely on incineration, they recommend separation of lamps from the waste stream. This, of course, would have an associated cost. Based upon data collected specific to disposal options for shipments of fluorescent lamps originating in the New England States, the following was determined: 1. Mercury containing spent lamps can continue to be disposed of in the predominant MSW stream at a cost of $.02-$.03/lamp. 2. Collection, transportation and disposal to a modern, quality, sealed landfill would be an additional $.15/lamp. 3. Collection, transportation and disposal to "RCRA" approved hazardous waste landfill would be $.40-$.50/lamp. 4. Current lamp recyclers charge an average of $.50/lamp for recycling, including transportation. Overall, the cost of hazardous waste disposal or recycling would represent 1 percent of the owner and operator cost associated with fluorescent lamp.

[See hard copy of SCSP-00118 for table.] It is obvious that the major factor in evaluating the feasibility of a lighting efficiency upgrade is based upon the potential operating cost reduction. According to an EPA "Green Lights" program update, the recycling/disposal cost adds about 1 month to the payback period of a typical lighting upgrade project. [7] [Reference 7: United States Environmental Protection Agency, Green Lights Update, EPA 430-N-92-004 - December 1992.]

RESPONSE

Regarding the disposal of hazardous waste lamps in municipal solid waste landfills, the Agency notes that spent mercury-containing lamps are one of the highest sources 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 form 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.

Regarding the estimated costs of a lighting upgrade, EPA believes that a 1 percent reduction in the rate of return of a lighting upgrade is not a major consideration in deciding whether to upgrade, given that there are other cost variables that may have a greater impact on the project (e.g., local energy costs). In addition, EPA has conducted 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.

DCN FLEP-00125
COMMENTER J.R. Simplot Company
SUBJECT ECON
COMMENT EPA quotes for hazardous waste disposal of mercury-containing lamps indicate the cost of disposal of these lamps is three times the average cost of hazardous waste disposal. A possible explanation for this is the cost of required treatment prior to

land disposal which went into effect in May, 1994. The average cost per ton of hazardous waste disposal is $400 per ton. Three times this would be $1200 per ton for mercury-containing lamps. This compares to an average cost of $35 per ton for disposal of non-hazardous waste in an approved landfill. There is a tremendous savings if mercury-containing lamps are disposed in municipal landfills. If Option 1 were adopted, as we recommend, the total annual savings could be $65 million to $289 million. The higher number is based on actual price quotes for disposal of mercury-containing lamps while the lower number is based on an engineering estimate; therefore, in all probability the annual cost savings will be closer to the $289 million than the $65 million. EPA's best estimated annual cost savings is $93 million if Option 1 is adopted.

RESPONSE

The Agency recognizes the cost difference between simple Subtitle C disposal and land disposal requirement (LDR) treatment plus Subtitle C disposal. Today=s final rule does not address LDR requirements. Today=s rule, however, is designed to streamline and simplify spent lamp disposal requirements by adding hazardous waste lamps to the universal waste regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements. However, LDR treatment requirements and final Subtitle C disposal for spent lamps that fail the TCLP remain unchanged under the universal waste approach.

DCN FLEP-00130

COMMENTER U.S. Department of Energy

SUBJECT ECON

COMMENT DOE believes that EPA is required to assess the effect of the proposed rule on DOE's mixed waste streams and include mixed waste in the analyses prepared to support the proposed rule. EPA's omission means that the Economic Impact Analysis (prepared under Executive Order 12866) and Paperwork Information Collection Request document (submitted for approval to the Office of Management and Budget under the Paperwork Reduction Act, 44 U.S.C. 3501 et seq.) are incomplete.

RESPONSE

The final economic assessment estimates compliance costs for all 4- and 8-foot fluorescent lamps. The assessment estimates the total number of lamps based on commercial floor space. For the purposes of the analysis, "commercial floor space"

encompasses government buildings, except for buildings with restricted access. Therefore, EPA believes that DOE lamps used at unrestricted sites have been included. Further, EPA recognizes that some lamps may be subject to a variety of Federal or State regulations other than RCRA. In the case of a mixed waste, the radioactive components in mixtures of solid and/or hazardous wastes, and radioactive wastes must be managed in compliance with the Atomic Energy Act (AEA). The hazardous waste components of mixed waste must meet the applicable RCRA standards.

DCN FLEP-00130
COMMENTER U.S. Department of Energy
SUBJECT ECON
COMMENT EPA estimates that the exclusion of mercury-containing lamps from Subtitle C regulatory requirements (Option 1) may result in nationwide annualized savings of approximately $93 million and the special collection of mercury-containing lamps (Option 2) way result in an annualized savings of approximately $17 million. Average annual cost savings per regulated generator are estimated to be $1,600 (best estimate) for Option 1 and $300 (best estimate) for Option 2 (pp. 38297-38300). DOE finds that EPA has underestimated the cost savings associated with both options for some generators. EPA's underestimate results from EPA's failure to consider that some spent mercury-containing lamps are mixed waste and that some large generators also currently need RCRA Subtitle C permits to store and/or treat spent lamps. DOE's mercury-containing mixed waste lamps are not included in the potentially affected universe. Many of these lamps are currently in long-term RCRA-compliant storage until treatment options can be developed and implemented in conjunction with the requirements of individual federal facility compliance agreements and the Federal Facility Compliance Act (which amended RCRA in 1992). Thus the costs associated with long-term RCRA storage, RCRA treatment, and RCRA disposal (including the costs of building and permitting treatment facilities) for mixed waste are not included in EPA's baseline. Consequently, the cost savings associated with an exclusion allowing mercury-containing mixed waste lamps to be disposed in an AEA-regulated disposal facility is not estimated. DOE notes that for the RCRA compliance costs that are included in EPA's baseline, such as the costs of sampling and analysis, costs are far higher for mixed waste than for waste that is not mixed.

RESPONSE
The Agency thanks the commenter for the cost data provided. The final economic assessment estimates compliance costs for all 4- and 8-foot fluorescent lamps. The assessment estimates the total number of lamps based on commercial floor space. For the purposes of the analysis, commercial floor space encompasses government buildings, except for buildings with restricted access. EPA agrees with the commenter that the economic assessment did not take into consideration hazardous waste lamps that become part of mixed wastestreams.

DCN FLEP-00130
COMMENTER U.S. Department of Energy
SUBJECT ECON
COMMENT EPA's cost analysis also does not recognize that some very large quantity generators of spent mercury-containing lamps that are not mixed waste are currently storers and possibly treaters (i.e., crushers) of these wastes. These generators would realize significant cost savings associated with not having to meet current RCRA requirements associated with hazardous waste storage and treatment. The costs of meeting these requirements are not included in EPA's baseline for any generators. An example of potential cost savings is illustrated in Tennessee. In Tennessee, as well as Ohio, lamps that are recycled without being speculatively accumulated are not hazardous wastes. In Oak Ridge, estimated costs for Subtitle C disposal of lamps is estimated at $3.75 per tube. Recycling costs are estimated at $0.40 per tube. Oak Ridge plans to undergo relamping, and lamp generation rates are projected to be approximately 160,000 lamps per year over the next five years. If recycled, as opposed to disposed in Subtitle C, the cost savings would be $536,000 per year for that site alone.
RESPONSE
EPA believes that the majority of owner/operators under RCRA would not greatly benefit under either option by no longer needing a RCRA permit for lamp management. EPA believes that the majority of treatment, storage or disposal facilities (TSDFs) have permits to manage a number of waste types other than lamps. For example, based on consultations with lamp recyclers, EPA found that the overwhelming majority of facilities recycle items other than just lamps, such as thermostats and other mercury-containing devices. Because of this, the Agency does not believe that significant permitting savings would be realized under either option.

The Agency also notes that 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 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.

DCN SCSP-00137
COMMENTER Utility Solid Waste Activities Group
SUBJECT ECON
COMMENT These important emissions saving are at risk, however, because the specter of regulating lighting wastes under RCRA's Subtitle C system threatens to undermine Green Lights and other utility DSM programs. Simply put, the costs and burdens of the hazardous waste regime are a significant deterrent to participating in these voluntary pollution prevention programs. USWAG agrees with EPA that such a result would be environmentally counterproductive and wholly unnecessary. The environmental benefits of Green Lights and other utility DSM programs far outweigh the purported benefits of regulating mercury-containing lighting wastes under RCRA's Subtitle C system.
RESPONSE
The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA also notes the commenter's concerns, but 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.

In addition, EPA believes that the universal waste approach will place minimal technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake many such procedures even in the absence of the rule. An example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste approach would not interfere with an owner's willingness to upgrade.

DCN FLEP-00140
COMMENTER Texas Utilities Services, Inc.
SUBJECT ECON
COMMENT The exclusion will provide cost-effective protection of the environment. Landfills indicate that handling municipal solid waste costs $35 per ton. Without the exclusion, the cost increases to $400 per ton for solid waste classified as hazardous waste. Recycling of lamps when they are classified as hazardous waste is estimated to cost $6,000 per ton, including transportation. If the lamps could not be crushed for disposal that cost would increase to $10,000 per ton due to special handling requirements.
RESPONSE
Non-exempt spent hazardous waste lamps that fail the TCLP are currently subject to full RCRA requirements. Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

DCN FLEP-00142
COMMENTER The Fertilizer Institute
SUBJECT ECON
COMMENT In contrast, the conditional exclusion eliminates the disincentive to relamping that is created by the current

classification of mercury-containing lamps as hazardous waste. By excluding mercury-containing lamps from regulation as a hazardous waste, disposal cost associated with relamping campaigns would be dramatically reduced. In EPA's Economic Impact Analysis, the agency estimates that the disposal cost per mercury-containing lamp is **$**.34-$.36 if classified as hazardous waste and $0.07-$0.09 if conditionally excluded. 59 Fed. Reg. 38,299. Lowering the disposal costs associated with relamping increases the economic incentive for a party to replace existing lighting with energy efficient lighting.

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA also notes the commenter's concerns, but 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.

DCN FLEP-00142

COMMENTER The Fertilizer Institute

SUBJECT ECON

COMMENT Given the substantial cost of testing spent bulbs for mercury content, several TFI members have concluded that, rather than gamble on the vagaries of analytical technique, they are better off assuming that all spent fluorescent bulbs must be managed as hazardous waste, adding further to the cost of managing spent bulbs. It should be noted that there are other RCRA consequences of relamping beyond increased disposal and characterization costs. A non-exempt facility would have increased employee training costs. For example, janitorial staff responsible for

replacing spent fluorescent bulbs arguably would have to receive the hazardous waste training mandated under 40 C.F.R. ' 265.14, as well as "Hazardous Waste Operations and Emergency Response" (HAZWOPER) training, which is required by OSHA. See 29 C.F.R. ' 1910.120(q). In sum, the RCRA-driven costs that a company must incur if it chooses to upgrade its fluorescent lighting are not merely theoretical. They are real; they are significant; and they could dissuade companies from participating in the Green Lights program. Option 1 would eliminate this disincentive; Option 2 would not.

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA also notes the commenter's concerns, but 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.

The universal waste rule does not require formal training for facility employees (such as the HAZWOPER training mentioned by the commenter). However, the universal waste rule does require that employees at large quantity handler facilities be thoroughly familiar with proper waste handling and emergency procedures related to their responsibilities. The rule also requires that employees at small quantity handler facilities be informed of the proper handling and emergency procedures appropriate to the types of universal waste being handled.

In addition, EPA believes that the universal waste approach will place minimum technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake such procedures even in the absence of the rule. An example of this is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste

approach will not interfere with an owner's willingness to upgrade.

DCN FLEP-00143
COMMENTER A-TEC Energy Corporation
SUBJECT ECON
COMMENT A-TEC Recycling, Inc. believes that the emphasis being placed on the cost of recycling is somewhat misleading. For example, if a four feet (4') long fluorescent lamp is installed and used for its life of 20,000 hours using electricity at a rate of $.07/kWh ... over $55.00 is invested in that lamp. That lamp can be recycled for approximately $.50 which is less than 1 percent of the investment already made in the lamp.
RESPONSE
The Agency agrees with the commenter=s data suggesting that waste lamp management costs represent approximately 1 percent of total operational costs over the lifetime of the lamp.

DCN SCSP-00146
COMMENTER Advanced Environmental Recycling Corp.
SUBJECT ECON
COMMENT AERC and others in this business fully comprehend the cost factor associated with recycling and its impact on the Green Lights program. Facilities running efficiently and at capacity will enable costs to be reduced in the process. Additionally, participants in the recycling approach have stated that the recycling costs are insignificant in relationship to larger, long-term liability issues.
RESPONSE
The Agency thanks the commenter for the input. EPA=s analysis indicates that efficient recycling facilities are likely to be able to reduce the average recycling cost per bulb in future years. The commenter may be interested in the information provided in appendix D of the final economic assessment.

DCN SCSP-00146
COMMENTER Advanced Environmental Recycling Corp.
SUBJECT ECON
COMMENT Economic Considerations - The USEPA is concerned about potential negative economic considerations with including fluorescent lamps into the Universal Waste regulation. We cannot afford to exclude lamps from the Universal Waste regulation. Since most fluorescent lamps are a hazardous waste, the Universal Waste proposal provides administrative and both direct and indirect cost relief to generators of fluorescent lamps. In evaluating the potential cost scenario, the USEPA must consider that

current pricing for fluorescent lamps is based on non-competitive and inefficient operations. Facilities must run at or near capacity to be able to cover costs, maintain operating profits, and reduce pricing to the generating community. It is totally unfair to evaluate the long-term success of a viable recycling option with only a handful of facilities throughout the country. It must be stated that this is not speculation. States such as Minnesota and California have experienced on-going, decreasing costs associated with lamp recycling. These decreasing costs are then passed on to the customer. How do we put a price on the long-term environmental considerations? As a nation, have we not learned about the serious negative environmental impact by placing hazardous materials into landfills? As the USEPA proclaimed in 1984 through the Hazardous and Solid Waste Amendments, landfills must be the least desired option for the handling of hazardous wastes. Is there any sound, environmentally ethical reason to allow documented hazardous materials into Subtitle D facilities? I could go on with these obvious rhetorical questions. It absolutely makes no sense. When the USEPA evaluates the economic considerations of this important decision, a comprehensive review is essential. The following factors must be included in this review. Current pricing for the recycling of fluorescent lamps of approximately 10 cents per linear foot is based on an uncompetitive and inefficient operations. A strong USEPA directive to include fluorescent lamps into the Universal Waste regulation will provide capacity, competition, and efficient operations and equate to lower costs. We absolutely do not want fluorescent lamps and other mercury-containing devices to be the next major Superfund issue as we proceed into the 21st Century. As previously stated, the success of the Green lights program is not dependent on lower costs as much as it is dependent on sound direction and consistency from the USEPA. AERC and MTI and others are fully committed to providing viable recycling options at a fair price to our customers. I sincerely believe the results associated with these options are evident.

RESPONSE

EPA agrees with the commenter and is adopting the universal waste approach for the final hazardous waste lamps rule. EPA further agrees that, as the demand for lamp reycling grows, recycling would become more cost competitive with Subtitle C landfilling. EPA believes that increased recycling capacity and continued improvements in technologies would push recycling fees lower. However, because future prices are difficult to predict, the final economic assessment

does not incorporate any projected decrease in lamp recycling prices over the ten-year modeling period.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA's approach to economic analysis in the proposal on mercury-containing lamps is an appropriate one to establish the order of magnitude of the economic impacts of various regulatory options, but should not be assumed to provide accurate figures for the purpose of detailed cost/benefit analysis. There are some questionable assumptions underlying EPA's cost figures, the most significant of which are described in more detail in Section VI.B. Also, the use of aggregate national numbers masks significant variation in costs across the country and among specific classes of lamp users, as discussed below. EPA should keep this substantial variability in mind when using cost figures for decision-making purposes. NEMA prepared a comparative cost analysis for the management of spent lamps for four cities across the country (Los Angeles, Minneapolis, New York, and Atlanta) which suggests that costs can vary significantly based on geographic location (See Enclosure 8). Costs for recycling lamps from a standard size retail store and a standard size office building were found to vary by as much as 100 percent. The study also found that costs for managing the lamps as hazardous waste could vary by the same percentage. NEMA would expect there to be variances of equal magnitude across rural areas and across small generators within a single geographic area. One of the more significant of NEMA's findings is that transportation costs represent a substantial proportion of the cost of managing lamps. Transportation costs were found to account for 25 percent to 50 percent of total costs when segregated transport is required, i.e., for recycling, hazardous waste disposal and segregated solid waste disposal. NEMA would expect transportation costs to account for an even greater share of lamp management costs in rural areas and for small generators.
RESPONSE
EPA agrees with NEMA=s comment about the variability in unit costs of compliance from State to State and from facility to facility. For the purposes of computing

nationwide costs, however, the Agency believes that the use of central estimates of unit costs is sufficient. Further, the Agency agrees that certain lamp generators may need to segregate their lamps from their municipal waste and send the lamps to a Subtitle C landfill or recycler. The final economic assessment captures Subtitle C waste management and disposal costs for lamp generators. Also, it should be noted that under the universal waste regulations, handlers are not required to use hazardous waste transporters.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT In general, NEMA believes that EPA has underestimated the costs of the Subtitle C baseline by failing to consider some very important factors in spent lamp management. This may be because the Agency's failure to enforce Subtitle C has prevented the Agency from focusing on the real-world impact of Subtitle C regulation. NEMA also believes many of the assumptions made regarding the exclusion scenario and the Universal Waste scenario are questionable. Correcting these assumptions may serve to increase the calculated benefits of the exclusion, while adding the costs of the NEMA-developed BMPs will serve to increase its costs. The net effect of these changes may be to introduce little change to the EPA benefits estimate. Still, because EPA has underestimated Subtitle C baseline costs, we believe they have understated the benefits of the exclusion option. (The Universal Waste rule cost estimates are also understated to the degree that Universal Waste requires Subtitle C management.)
RESPONSE
The Agency appreciates the input from the commenter. The final economic assessment revises many of the assumptions applied in the analysis conducted for the proposed action. In addition, the final assessment analyzes cost and economic impacts based on both a high, and low compliance scenario. This methodology was designed in an effort to address commenter concerns related to Areal world@ vs. Afull compliance@ waste management scenarios.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA excludes California, Wisconsin, and Minnesota from the cost analysis

because EPA assumes these States will be more stringent than any EPA rule. This fails to recognize that these States are currently violating Subtitle C of RCRA. The lamps generated in these States should be included in the Subtitle C baseline, and the exclusion and Universal Waste options should count the costs for the requirements currently in place in those States that have less stringent than the BMPs or Universal Waste. Also, the exclusion analysis should consider that some generators in those States will ship lamps out-of-State if the savings are significant.

RESPONSE

The final economic assessment accounts for variations among State programs, such as California's and Florida's. For States that are unlikely to adopt EPA's deregulatory actions, there are no incremental cost effects estimated. Thus, EPA is confident that the final assessment addresses State variability in determining cost savings under both options. Further, under the conditional exclusion option, EPA does not consider lamp exports from States that remain more stringent. Under existing regulations, lamp generators (excluding CESQGs) are required to send their lamps to RCRA-permitted facilities, and the Agency does not expect many generators to violate these rules. The same requirement would hold under the universal waste approach, i.e., they must also send their lamps to RCRA-permitted facilities.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA assumes that CESQG and household lamps are unregulated under Subtitle C. This assumption does not hold in many States that regulate CESQG waste, household hazardous waste, or both. Moreover, even States that do not regulate household hazardous waste under Subtitle C often require that it be collected and managed outside Subtitle D landfills.

RESPONSE

EPA agrees with the commenter that certain States regulate CESQG and household hazardous waste. In addition, certain States have established exempt thresholds that differ from the Federal program. For the purposes of analysis, however, the Agency made the simplifying assumption that States with lamp programs that are more stringent than the Federal program would not be likely to adopt the conditional exclusion option. Therefore, there would be no savings under the conditional exclusion option for small generators in those States.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA assumes that spent lamp generators generate no other hazardous waste. This is clearly an erroneous assumption. Many large and small CESQGs generate solvents, cleaners, rags, or other form of hazardous waste. Thus, they do not have the full 100 kg/mo. available for their spent lamps.
RESPONSE
EPA acknowledges that its estimate of the number of CESQGs may be overstated because some facilities generate other hazardous wastes in addition to lamps. However, EPA does not have reliable data on generation rates for CESQGs. Because of this, the Agency made the simplifying assumption that lamp generation rates would determine regulatory status for lamp generators. Because lamp generators are primarily commercial and industrial facilities that generate low quantities of hazardous waste, the Agency does not believe its approach to quantifying CESQGs is a major limitation to the analysis.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA assumes that generators will store lamps for 90 days if they practice spot relamping. However, EPA does not assume that the lamps must be stored in containers, tanks, or containment buildings meeting the requirements of parts 264/265 of Subtitle C. This is clearly an over-sight on the part of EPA, since any other storage constitutes a violation of Subtitle C. NEMA would expect the cost of such storage to be higher than EPA assumes. i.e., EPA assumes that spent lamps can always be managed in boxes which are available from new replacement lamps. This may not be true for lamp change-outs under the Green Lights Program or a utility Demand Side Management Program, where buildings often change from T-12 lamps to smaller-diameter T-8 lamps and therefore need more boxes.
RESPONSE
With regard to storage costs, EPA expects that the costs of ensuring that spent lamps are stored in accordance with RCRA would generally be low because lamps are a dry waste (i.e., no secondary containment is required) and would probably be kept in containers within a vacant area of the building. The final assessment does consider the cost for packing boxes.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA does not include the fees and taxes for manifesting shipments of hazardous waste. EPA does not include any corrective action costs under the Subtitle C and Universal Waste scenarios. The treatment permits are needed to crush lamps before transportation off-site, and corrective action requirements could also be imposed. Storage permits at recycling facilities could also trigger corrective action requirements. In addition, EPA does not assume any handling costs for unpacking intact boxed lamps at Subtitle C landfills. This is a labor intensive activity which could account for significant costs.
RESPONSE:
EPA has included costs for preparing manifests in its final economic assessment. Additional costs for taxes or fees are assumed to not be mandated by EPA (i.e., they are mandated by states), and are therefore not attributable to its rules. Further, EPA does not believe it is necessary to include many permit-related costs in the final economic assessment. Based on conversations with lamp contractors, EPA believes that few waste handlers have RCRA permits solely to treat, store or dispose of spent lamps. The majority of handlers manage a range of mercury-containing and other devices. The Agency believes, therefore, that waste handlers would generally see negligible permitting savings under either option.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT NEMA's Subtitle C cost estimates are based on price quotes received from hazardous waste landfills and are significantly higher than EPA's estimates. EPA assumes $400 per ton and NEMA found prices to be $150 per cubic yard, which equates to approximately $1 500 per ton (Enclosure 8). NEMA has also found recycling price quotes to range from $.30 to $.86 per four foot lamp. EPA's use of a single figure of $.36 masks this wide range in recycling prices. In addition, EPA's Subtitle C costs did not include LDR confirmatory testing for hazardous waste landfills and did not appear to consider any LDR testing or paperwork costs for residual materials from recycling, which will be effective in

the future. Finally, NEMA found EPA's hazardous waste transportation costs to be low by as much as 25 percent.

RESPONSE

EPA acknowledges that Subtitle C management and disposal costs vary widely depending on many factors. Based on available data, EPA believes its costs for Subtitle C landfilling represent an appropriate national average. EPA has also spoken with a number of lamp recyclers and believes that a nationwide average 1997 recycling (including transport) fee of $0.40 per four foot lamp is accurate.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT EPA did not include

a baseline "familiarization cost" for Subtitle C management but they did include this cost in the other two options. Most generators today are not managing their lamps as hazardous waste and are unaware of the Subtitle C requirements. EPA should include this cost in the Subtitle C baseline. m. EPA has not included any costs for LDR-required testing of recycling residuals that are utilized in a ground-based application such as road base, concrete, or fertilizer.

RESPONSE

EPA has included a familiarization cost for lamp generators under the baseline scenario and universal waste approach. EPA has not included LDR testing costs as described by the commenter. However, the final economic assessment captures the waste characterization costs.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT Areas Where EPA Has

underestimated Exclusion Costs for Landing and Recycling, especially if NEMA's BMPs Are Promulgated a. EPA assumes only 20 percent of lamps going to Subtitle C landfills use segregated transportation. NEMA believes all lamps generated above the CESQG level should be managed in a segregated fashion to avoid unintended releases of mercury. b. EPA does not assume any controlled crushing for lamps going into Subtitle D landfills. Disposal of large quantities of intact lamps in a municipal landfill may present significant landfill stability issues. NEMA

believes controlled crushing at the generator's site or the landfill is appropriate and is likely under the exclusion scenario. c. EPA unrealistically assumes that under the exclusion framework, recyclers do not bear any costs for testing or managing residues of the recycling process. At a minimum, testing costs should be included. Transportation and disposal costs for Subtitle C and D disposal of surplus residuals should also be included. d. EPA assumes that the distance to the nearest Subtitle D landfill is 25 miles. NEMA believes that the distance could be up to 100 miles if the NEMA BMP of a landfill meeting the Subtitle D standards for new landfill units is required. e. EPA assumes that no one will recycle spent lamps under an exemption scenario if landfilling is available as an option. This assumption is not necessarily true[24]. [Footnote 24: 24 The State of California exempted most generators of spent lamps from regulation and recycling has survived within the State]. An increasingly large number of companies (especially large companies) and States perceive recycling to be environmentally preferable and will recycle if it is available and meets State and Federal regulatory requirements, even if it is more expensive. In geographic areas where incinerations is the predominant method of municipal waste disposal and landfilling is relatively scarce, recycling is likely to be provided at rates that are cost-competitive with landfilling. Urban areas with high volumes of spent lamps are also likely to provide recycling which is cost-competitive with landfilling.

RESPONSE

EPA notes the commenter's concerns about the analysis, but believes it captures the primary compliance costs to lamp waste handlers under the baseline and options. For certain cost assumptions in the analysis, EPA has used its best judgment because of a lack of reliable data (e.g., national percentage of lamps being crushed, average transportation distances). For other assumptions, EPA has made simplifying assumptions to address data gaps. Despite these limitations, EPA believes that the final assessment provides useful information about the primary costs to lamp waste handlers under the baseline and options.

The Agency also notes that 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 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.

DCN FLEP-00156
COMMENTER National Electrical Manufacturers Assn.
SUBJECT ECON
COMMENT Universal Waste Costs a. EPA's cost estimates for the Universal Waste option suffer from the same problems as the Subtitle C estimates, since under the Universal Waste approach spent lamps must be disposed as a hazardous waste. EPA should reconsider these cost estimates accordingly. b. EPA assumes that generators will not use consolidation facilities under the Universal Waste scenario because they will increase cost of lamp management over the cost of "milk runs" of spent lamps going directly from collection to the destination facility. EPA needs to recognize, however, that warehouse space costs approximately $3.00 per square foot nationally and $2.00 per square foot in economically depressed area. Since lamps can be stored at a rate of 100 lamps or more per square foot, depending on the height of the building, lamps can be stored at a cost of $.02 to $.03 per lamp per year. Lamps can thus be stored at Consolidation Points very cheaply since there are very few regulatory requirements associated with them. c. Many generators may be encouraged to utilize consolidation facilities at these extremely low prices, rather than recycle at rates of $.30 to $.86 per lamp. Consolidation facility owners may also choose to charge less than the going rate for recycling, believing that new, cheaper recycling technologies will evolve over time or that increasing

capacity will reduce prices over time. This scenario could ultimately lead to "tire piles" of spent intact lamps. In making its final regulatory decision, EPA should consider the likelihood of this scenario given the economics of lamp recycling versus storage.

RESPONSE

EPA notes the commenter's concerns about the analysis. The Agency believes its final economic assessment captures the primary compliance costs to lamp waste handlers under the baseline and options. For certain cost assumptions in the analysis, EPA has used its best judgment because of a lack of reliable data. For other assumptions, EPA has made simplifying assumptions to address data gaps. Despite these limitations, EPA believes that the assessment provides useful information about the primary costs to lamp waste handlers under the baseline and options.

DCN FLEP-00160
COMMENTER Central and South West Services, Inc.
SUBJECT ECON
COMMENT The Agency's regulatory impact analysis confirms in real terms the scope of this problem. Under EPA's analysis, the cost differential between disposal of lighting wastes as a nonhazardous waste versus a hazardous waste is significant. EPA estimates that the annual national cost of Subtitle C compliance for large quantity generators could range from 110 to 134 million dollars. Id. at 38290 CSW believes that these numbers are extremely conservative because they do not take into account, among other things, the costs associated with the requirement to obtain RCRA permits for prolonged on-site management of lighting wastes or for generator consolidation facilities (i.e., central facilities where lighting wastes are consolidated prior to off-site shipment to a commercial facility). In fact, even putting aside the cost of obtaining a RCRA permit, one utility estimates that, in 1994 alone, it will spend upwards of $83,000 to manage, transport and dispose of mercury-containing lighting wastes as hazardous waste. See Comments submitted by Potomac Electric Power Company to RCRA Docket at 3 (Sept. 21, 1994). Multiplying this number by the number of electric utilities in the Utility Solid Waste Activity Group alone (80), yields an annual Subtitle C compliance cost of 6,640,000 million dollars for this particular segment of a industry. Nonetheless, even accepting the Agency's conservative

> cost numbers, EPA 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. The bottom line is that the cost impact of managing lighting wastes under the Subtitle C program is significant and is causing wide-spread reluctance by electric utilities and other potential Green Lights participants from undertaking energy-efficient relamping programs. The net result is the needless forfeiture of significant reductions in mercury and related emissions that can be achieved by full participation in Green Lights and other energy-efficient lighting programs. 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. This message is being echoed by individual electric utilities across the country who believe that the cost of managing lighting wastes under RCRA's Subtitle C system makes participation in the Green Lights program (and related programs) "economically impractical" and results in the "continuing reluctance by many to join this program at the expense of the environment." (Fn. 4 - See letter from Florida Power & Light to EPA (April 6, 1993); letter from Tennessee Valley Authority to EPA (April 15, 1993)). The following excerpts from individual USWAG member comments -- which represent some of the key stakeholders across the country in ensuring the successful implementation of energy-efficient relamping programs -- underscores this point.

RESPONSE

EPA agrees that many factors can affect the profitability of a lighting upgrade, as the commenter suggests. The Agency believes, however, 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 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. In addition, EPA believes that the universal waste approach will place minimal technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake many such procedures even in the absence of the rule. An example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste approach will not interfere with an owner's willingness to upgrade.

DCN FLEP-00161
COMMENTER American Forest and Paper Association
SUBJECT ECON
COMMENT Management costs under the conditional exclusion are much lower than management under RCRA Subtitle C. In addition to ensuring the safe disposal of spent lamps, the conditional exclusion will drastically reduce costs that generators would otherwise incur managing spent lamps as hazardous waste. EPA has estimated that managing spent lamps under the conditional exclusion is approximately 80 percent less costly than managing them as hazardous waste under RCRA Subtitle C. See 59 Fed. Reg. At 38299. The conditional exclusion will save approximately $93,000,000 in waste management costs each year. Id.
RESPONSE
Today=s final rule of adding spent hazardous waste lamps to the universal waste scheme is designed to be deregulatory in overall scope while ensuring appropriate protection of human health and the environment. The Agency=s final economic assessment indicates annual cost savings of approximately $1.5 million under the final rule. Cost savings under the conditional exclusion option are estimated at $6.1 per year. However, the Agency=s emissions model indicates unacceptable increases in mercury emissions from spent lamps under this option.

DCN FLEP-00166
COMMENTER American Electric Power Service Corp.
SUBJECT ECON

COMMENT EPA requested comments on the costs associated with managing lighting waste as Subtitle C waste. Based on pricing we have been provided, the estimated cost of disposal for a full truckload shipment of fluorescent tubes (about 14,000 tubes) is approximately $12,000, assuming no tubes are broken in transit. Extrapolating these costs across the AEP system to account for the 500,000 lamps (in buildings only) to be replaced as one facet of our Green Lights Program, the total cost for disposal/recycling would be approximately $330,000. This does not include administrative or other program costs. Calculations including administrative and other program costs have estimated that the total costs of managing lamps as hazardous waste range from $1.00 to $1.50 per lamp, depending on the generating location, vendor used, amount of waste shipped, etc. With this in mind, the total estimated cost to the AEP System for managing lighting waste generated from our Green Lights Program would be well in excess of $1 million. Similarly, current information from individual AEP power plants indicate that costs of managing lighting wage as hazardous waste are in excess of $15,000 per month, or $180,000 per year. As an aside, costs of hand processing of larger lamps range up to $2.50 per bulb, plus transportation, manifesting fees, profiling fees and taxes. These costs are also significant.

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA also notes the commenter's concerns, but believes that the majority of owners recognize that lamp disposal costs are minimal when viewed in terms of the lamp's life-cycle costs. EPA has also conducted 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.

In addition, EPA believes that the universal waste approach will place minimal technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake many such procedures even in the absence of the rule. An

example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste approach would not interfere with an owner's willingness to upgrade.

DCN FLEP-00169
COMMENTER Advanced Environmental Recycling Corp.
SUBJECT ECON
COMMENT BUSINESS IMPACT: As discussed throughout the comments, the lamp recycling industry is primed to address the entrepreneurial direction of federal and State job programs. This industry is currently providing a variety of employment opportunities, ranging from plant workers to engineers to executives. The Universal Waste option will allow the rapid growth to continue at a greater level. The USEPA should consider the indirect economic advantages of the Universal Waste option, including increased potential for transporters, lighting distribution companies, electrical contractors, and so forth. The Universal Waste option will have a positive business and overall economic impact. This is obviously combined with the environmental advantages.

RESPONSE

The Agency agrees with the commenter that the universal waste approach is likely to enhance positive business growth while, at the same time, ensuring protection of human health and the environment. The final economic assessment predicts a near doubling in the percent of lamps going to recycling under the universal waste scenario (over the ten year modeling period).

DCN FLEP-00171
COMMENTER Monsanto Company
SUBJECT ECON
COMMENT I. MONSANTO SUPPORTS AGENCY ACTION TO PROVIDE REGULATORY RELIEF FOR MERCURY-CONTAINING LAMPS. A. The present approach to regulation of mercury-containing lamps is costly, without attendant environmental benefit. Under present regulations, mercury-containing lamps (Hg-lamps) generally are conceded to fall under hazardous waste regulations, as data from the National Electrical Manufacturers Association (NEMA) and others indicate that many such lamps fail the TCLP test for mercury.

Further, since the mercury content is normally more than 260 ppm total, the TCLP requirement for such lamps is mercury recovery for generators who are not sheltered as small quantity generators. Generators who desire to demonstrate that their bulbs are not hazardous are faced with the costly option of characterizing a sufficient number of lamps to demonstrate that they are not hazardous; even if successful in this respect, there is no assurance that the test will provide shelter with the passage of time as lamp suppliers are changed or as minor changes are made in lamp manufacturing. Most responsible large quantity generators, we suspect, default to management of lamps as hazardous. The cost of management of Hg-lamps under Subtitle C of RCRA is far in excess of any environmental benefit that might accrue from such management. Monsanto Company has established national arrangements for its plants that incur costs of $3 to $13 per bulb for waste treatment and disposal.

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

DCN FLEP-00171
COMMENTER Monsanto Company
SUBJECT ECON
COMMENT At the same time, Option 1 offers the most cost savings. The Agency's data indicates that this option would save $85 to $102 million of the $110 to $134 million presently spent on Subtitle C compliance by large quantity generators. (59 FR 38290, 7/27/94) As costs are maximally reduced this option also makes the greatest contribution toward eliminating the obstacles to implementation of energy conservation programs such as Green Lights.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00171
COMMENTER Monsanto Company
SUBJECT ECON
COMMENT From the viewpoint of cost, the Universal Waste alternative would yield far less benefit than that estimated for the conditional exclusion option, only $16-$20 million per the Agency's estimate.
RESPONSE
The Agency=s final economic assessment indicates that, measured beyond the current baseline for lamps, the universal waste approach is likely to result in reduced mercury emissions. The conditional exclusion option, however, is projected to result in increased emissions.

DCN FLEP-00172
COMMENTER Natural Gas Pipeline Company of America
SUBJECT ECON
COMMENT Nationally, estimated annualized costs for disposal of these lamps are approximately $30 million for Option 1 and $105 million for Option 2 compared to $120 million for managing them under full Subtitle C regulations.
RESPONSE
The Agency notes the commenter=s figures (approximately those presented in the June 23, 1994 Economic Impact Analysis). The economic assessment completed in support of the final rule presents revised and updated cost estimates annualized over the ten year modeling period. Annual cost savings under the full compliance scenario are approximately $1.5 million for the universal waste approach and $6.1 million under the conditional exclusion option. The commenter is encouraged to review the final economic assessment for a full understanding of the analytical methodology, data inputs, findings, and key limitations associated with the final assessment.

DCN FLEP-00172
COMMENTER Natural Gas Pipeline Company of America
SUBJECT ECON
COMMENT Overall, the disposal of these lamps and bulbs in MSW landfills will likely result in a very minor (if any) increased Incremental risk to the environment and will present a significantly lesser risk than already exists with current disposal practices for other mercury containing materials. The estimated annual incremental cost of approximately $75 million to implement Option 2 compared to Option 1 is certainly not justified given this minimal reduction in environmental risk.

RESPONSE
EPA agrees with the commenter about the importance of weighing costs and benefits. The final economic assessment will examine the cost impacts under the options relative to the amount of mercury emitted and thus provide a measurement of relative costs and benefits.
In addition, EPA strongly believes 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.

DCN FLEP- 00175
COMMENTER AT&T, Basking Ridge, N.J.
SUBJECT ECON
COMMENT Finally, the UWR approach is shown in the Proposal to be more costly to manage than the CE program. In our opinion, this extra cost cannot be substantiated by the information and data published in the Research Triangle Institute report.

RESPONSE

Non-exempt generators are currently required to manage waste lamps under full Subtitle C requirements. Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273, resulting in lower overall costs to waste generators/handlers.

DCN FLEP-00176
COMMENTER Coalition of Lamp Recyclers
SUBJECT ECON
COMMENT The baseline cost analysis in the proposed rule is inaccurate and makes an inaccurate assumption. The baseline cost assumes lamps are currently being stabilized and disposed of in hazardous waste landfills, while the remainder of the lamps are recycled. The opposite is the more accurate baseline. Currently, lamps are not managed as a hazardous waste. The mercury emissions are not controlled. The recycling industry as a whole is receiving only 10 percent - 20 percent of the lamps that are being disposed of. The facilities operating in California are receiving, at the most, 20 percent of the lamps. Minnesota has the highest estimate of 50 percent. These estimates are from the States where lamps are considered to be a hazardous waste and recycling is highly encouraged. The conclusion of cost savings is then erroneous. Generators would not see cost savings from the exclusion, but rather continue to dispose of lamps into the MSW.

RESPONSE

EPA agrees that, at present, a large percentage of lamp generators may be in noncompliance with RCRA. In the final economic analysis, EPA estimates costs under two alternative baseline scenarios: 20 percent compliance and 100 percent compliance. These baseline cost scenarios are then compared to the regulatory options.

DCN FLEP-00176
COMMENTER Coalition of Lamp Recyclers
SUBJECT ECON
COMMENT EPA's analysis is correct when it assumes that, given the proposed conditional exclusion, all small and large quantity generators of spent mercury-containing lamps would opt for management in municipal landfill in order to reduce disposal costs. The generator will select the path which results in least cost impact and assume that government agencies have selected the proper path to protect the environment, while considering cost and risk. EPA

should promulgate regulations that provide a distinct incentive for reclamation as opposed to landfill. Disposal costs can also be reduced by recycling provided the recyclers can operate under BMPs and without manifest requirements. To reduce costs further, the generator or collection facility should be allowed to store adequate quantities of lamps for a period of time without a hazardous waste permit. The quantity and time allowance is based upon the ability to adequately protect the lamps from breakage. The collection facility and the generator should be able to ship full truck loads of lamps (approximately 40,000 four-foot lamps for a standard 43 foot truck) with the maximum economic benefit. The generator and the lamp collection facility should draft Best Management Practices that delineates the measures to be taken to prevent breakage and mercury release, including handling and packaging requirements during transportation and storage.

RESPONSE

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 wastes. Generators have several options with regard to waste management, including safe and effective recycling. In addition, as the demand for lamp recycling grows, recycling is expected to become more cost competitive with Subtitle C management. This will occur as recycling capacity increases, economies to scale improve and technology is advanced.

The final rule also simplifies tracking requirements. Under the universal waste rule, 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.

Today=s rule also increases the storage time for handlers of hazardous waste lamps. Handlers may accumulate universal waste lamps for one year. If the lamps are stored or longer than one year, the handler must be able to demonstrate that such accumulation is solely for the purpose of accumulating such quantities of universal waste as are necessary to facilitate proper recovery, treatment, or disposal. (Handlers are not required to notify EPA or the authorized state of storage for longer than one year.)

DCN FLEP-00178
COMMENTER General Electric Company

SUBJECT ECON
COMMENT A management approach that imposes significant and unnecessary costs on managing spent lamps (such as a Subtitle C system) would significantly increase the costs associated with using mercury containing lamps thereby reducing the use of these lamps and the environmental benefits they provide. Moreover, a management scenario that imposes increased management costs without significantly reducing risk sends a message that the use of the product should be reduced. In addition, no single spent lamp management approach is totally free from environmental impacts.
RESPONSE
Non-exempt generators are currently required to manage waste lamps under full Subtitle C requirements. Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273, resulting in lower overall costs to waste generators/handlers.

DCN FLEP-00178
COMMENTER General Electric Company
SUBJECT ECON
COMMENT Generators of spent mercury containing lamps should be able to select the most cost-effective management option within an acceptable level of protection. GE believes that a range of options for managing spent fluorescent lamps--as long as those options are protective--must be available to keep the costs of lamp management reasonable for all generators. A regulatory system that favors one management option over another will decrease the number of facilities available to manage spent lamps (perhaps) creating capacity shortages in some areas) and will increase the costs to generators. The negative effects of such cost increases are obvious. Owners and managers of office buildings, commercial establishments, schools, and other institutions who were considering relamping, lighting upgrades, or shifts from incandescent to fluorescent lamps would be discouraged from doing so. Particularly affected will be smaller offices, for which even small changes in costs or inconvenience might tip the scales for or against upgrading their lighting. It is important to note that this same rationale applies to residences, even though their wastes are excluded from Subtitle C regulation. Many communities are operating household hazardous

waste programs which often include bans on the disposal of household hazardous wastes in municipal landfills. The identification of lamps as hazardous under Subtitle C encourages communities to include lamps in these bans and to require households to dispose of spent lamps at special collection centers. This discourages the purchase of these energy-efficient lamps because of the extra inconvenience associated with their disposal. GE recognizes that some lamp generators will voluntarily choose a more costly option because it will help achieve other objectives, such as meeting corporate environmental goals or reducing liability. Such an approach fits well with a federal floor approach.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00182
COMMENTER Eastman Kodak Company
SUBJECT ECON
COMMENT 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

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA notes the commenter's concerns, but 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.

DCN FLEP-00182

COMMENTER Eastman Kodak Company

SUBJECT ECON

COMMENT V. Economic Impact: Positive Effect on Kodak. As a large generator of mercury-containing lamps, Kodak can realize a significant cost savings if the conditional exclusion option is chosen by the Agency and then subsequently enacted by the States. For our largest facility at Kodak Park in Rochester, New York our actual total costs for transportation and landfill disposal of fluorescent lamps have been the following over the past two years: 1993 360 containers $40,000 1994 (Jan-Aug) 664 containers $113,000. Had the conditional exclusion option been previously adopted we estimate that our transportation and disposal costs would have been $6800 in 1993 and $12,500 in 1994, for a

reduction of 80-90 percent. These represent significant savings of limited

environmental dollars. Other Kodak Facilities would be expected to experience more modest cost savings from the conditional exclusion, more in line with the Agency's estimates in the Economic Impact Analysis. [6] [Footnote 6: 59FR 38299]

RESPONSE

The Agency notes that today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

DCN FLEP-00188
COMMENTER Westinghouse Electric Corporation
SUBJECT ECON
COMMENT Cost reductions are unlikely since residual materials recovered from recycling facilities must comply with Land Disposal Restrictions, hazardous waste transporters are required between Consolidation Point and Subtitle C management facilities, and lamp crushing is not permitted. The prohibition against lamp crushing encourages the accumulation of large quantities of intact bulbs. This increases transportation costs, environmental risks (the number and magnitude of accidents could increase), and is less energy efficient (storage and transportation needs increase for the same number of bulbs).

RESPONSE

EPA believes that cost reductions under both options are likely. Under the universal waste approach, hazardous waste lamp generators would operate under streamlined procedures, such as reduced tracking and training requirements. Such regulatory relief is expected to result in some degree of cost savings over the baseline.

DCN FLEP-00189
COMMENTER National Aeronautics and Space Admin.
SUBJECT ECON
COMMENT Any cost comparison between the actual cost of disposal or recycling must include the short and long term liabilities associated with landfilling. There may also be increased costs associated with special handling, management, and testing requirements when landfilling. Recycling costs should continue to decrease based on facility capacity, competition, and

improved processing efficiencies.

RESPONSE

EPA believes that there are short-term and long-term liabilities associated with all types of lamp management, including landfilling and recycling. Furthermore, the Agency agrees with the commenter that recycling costs would decline as the demand for lamp recycling increases.

DCN FLEP-00190
COMMENTER Browning-Ferris Industries
SUBJECT ECON
COMMENT The Universal Waste Rule does not address the practical aspects of managing mercury-containing lamps on a day-to-day basis as proposed. BFI does not believe that the Universal Waste rule concept will go very far in encouraging generators to comply with the current hazardous waste regulations. While the rule may offer relief in manifesting, transportation and storage issues, the rule does address the high costs of hazardous waste treatment and disposal. To the extent that generators are hesitant to embrace the Green Lights program because of the costs of compliance with the existing hazardous waste program, it is doubtful that the modest costs savings that may or may not result from the Universal Waste rule will encourage compliance.

RESPONSE

EPA believes that cost reductions under the universal waste approach would be one of the incentives for increased compliance. Another incentive would be simplification and convenience of lamp waste management. For example, under the universal waste program, generators could transport their lamps to the destination site without manifesting or using a Subtitle C hauler. In fact, the Agency expects that most building owners would undertake many of the procedures under universal waste even in the absence of the rule. An example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that the universal waste approach would not interfere with an owner's willingness to upgrade.

DCN FLEP-00191
COMMENTER Utility Solid Waste Activities Group
SUBJECT ECON
COMMENT The Agency's regulatory impact analysis confirms in real terms the scope of this problem. Under EPA's analysis, the cost differential between disposal of lighting wastes as a

nonhazardous waste versus a hazardous waste is significant. EPA estimates that the annual national cost of Subtitle C compliance for large quantity generators could range from 110 to 134 million dollars. Id. at 38290. USWAG believes that these numbers are extremely conservative because they do not take into account, among other things, the costs associated with the requirement to obtain RCRA permits for prolonged on-site management of lighting wastes or for generator consolidation facilities (i.e., central facilities where lighting wastes are consolidated prior to off-site shipment to a commercial facility). In fact, even putting aside the cost of obtaining a RCRA permit, one utility estimates that, in 1994 alone, it will spend upwards of $83,000 to manage, transport and dispose of mercury-containing lighting wastes as hazardous waste. See Comments submitted by Potomac Electric Power Company to RCRA Docket at 3 (Sept. 21, 1994) (included in Attachment C). [See hard copy of Comment FLEP-00191 for Attachments]. Multiplying this number by the number of electric utilities in USWAG alone (80), yields an annual Subtitle C compliance cost of 6,640,000 million dollars for this particular segment of a industry. Given a total potential universe of 64,000 generators of lighting wastes (59 Fed. Reg. at 38298), annual compliance costs for the entire regulated community can quickly rise into the billions of dollars. Moreover, EPA's economic impact analysis incorrectly assumes that all conditionally exempt small quantity generators ("CESQGs") that engage in energy- efficient relamping programs are not affected by Subtitle C requirements. 59 Fed. Reg. at 38298. Certain States, however, currently prohibit disposal of CESQG hazardous wastes in Subtitle D landfills (this is the case, for example, in Ohio and West Virginia). Thus, these particular CESQGs are confronted with the same regulatory disincentives to engaging in relamping projects as are all other generators. The failure of the regulatory impact analysis to account for States that impose restrictions beyond those in 40 C. F. R. ' 261.5 is another flaw in the analysis and compounds EPA's underestimation of Subtitle C compliance for lighting waste generators. In addition, many of these facilities such as office buildings have not previously generated hazardous waste. Therefore, for these small quantity generators, management of fluorescent lamps is their initiation into RCRA regulation. The

problem is especially acute in remote or isolated areas where perhaps a dozen or fewer fluorescent lamps may be generated in a month. The regulatory impact analysis fails to account for this as well. Nonetheless, even accepting the Agency's conservative cost numbers, EPA estimates that the MSWLF option could result in nationwide annualized savings in the range of $85-102 million (with the best estimate of $93 million). Id. at 38298-9. In contrast, the 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.

RESPONSE

EPA notes the commenter's cost data for lamp management. EPA acknowledges also that certain States regulate CESQG lamps; however, the Agency has made the simplifying assumption in the final economic assessment that CESQG lamps go to non-Subtitle C facilities. The Agency does not believe this assumption significantly affects the overall conclusions reached in the analysis.

EPA 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.

DCN FLEP-00191
COMMENTER Utility Solid Waste Activities Group
SUBJECT ECON
COMMENT This detailed analytical and notification requirement will eventually be imposed on all hazardous wastes, including TC metal wastes. Therefore, this additional Subtitle C burden would

be imposed on all generators engaging in energy-efficient relamping programs. The operational and economic burdens associated with this single aspect of the RCRA Subtitle C system alone will be staggering and will likely be beyond the economic and technical means of many potential participants in Green Lights and similar relamping programs. As one USWAG member has pointed out, when the regulated community comes to fully comprehend the increased burdens under the LDR program for generators, any economic incentive for participating in energy-efficient relamping programs will quickly evaporate. SW Comments submitted by Commonwealth Edison to RCRA Docket (November 1994) (Attachment C). [See hard copy of Comment FLEP-00191 for Attachments].

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN SCSP-00195
COMMENTER Robert M. Quintal
SUBJECT ECON
COMMENT In actuality, EPA has just published a document, (Green Lights Update - December 1992), that specifically states that the economic impact of the recycling cost is virtually inconsequential. In the example, the return-on-investment of a "typical" energy conversion lighting project is impacted by just one month.

RESPONSE

EPA agrees with the commenter.

DCN FLEP-00197
COMMENTER Cincinnati Gas and Electric Company
SUBJECT ECON
COMMENT At 59 Fed. Reg. 38290, EPA itself acknowledges in the lighting waste 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." Because of these costs, CG&E could be forced to 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 CG&E and its customers would otherwise undertake.
RESPONSE
EPA notes the commenter's concerns, but 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.
DCN FLEP-00197
COMMENTER Cincinnati Gas and Electric Company
SUBJECT ECON
COMMENT Under the universal waste option, lighting wastes would remain subject to one of the most onerous components of the Subtitle C regulation-- the land disposal restrictions program, which is only becoming more onerous, and the costs of Subtitle C disposal. As long as lighting wastes remain under the umbrella

of Subtitle C regulation, there will be significant economic burdens associated with relamping programs.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00202

COMMENTER Union Camp Corporation

SUBJECT ECON

COMMENT UCC has had extreme difficulty in obtaining consistent advice from regulatory agencies in the proper procedures for disposing of lamps. Government agencies have different interpretations of the requirements, leading to confusion within the regulated continuity. UCC recommends that EPA respond by eliminating the current confusion with lamp management thereby reducing building maintenance costs, and reaping the full benefits of energy-efficient relamping by promulgating a conditional exclusion.

RESPONSE

EPA does not have any data to suggest that confusion over regulations would add significantly to an owner's maintenance costs. However, the Agency believes that a Federal universal waste program would assist the States in coordinating efforts among themselves regarding lamp regulation. The Agency notes a growing trend for States to adopt universal waste regulations. A Federal program would assist in ensuring that such State programs are consistent across the country.

DCN FLEP-00206

COMMENTER Cornhusker Public Power District
SUBJECT ECON
COMMENT Requiring the disposal of lamp wastes as hazardous waste, under Subtitle C regulations, could be costly to our customers and may discourage participation in energy efficient lighting programs.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00213
COMMENTER Consolidated Edison Company (Con Edison)
SUBJECT ECON
COMMENT Keeping lighting wastes in RCRA Subtitle C is not only unnecessary from an environmental perspective, but, equally important, the complexity of the Subtitle C regulations and the costs of managing lighting wastes as hazardous wastes impedes the full participation of electric utilities, including Con Edison, and their large customers in Green Lights and other energy-efficient relamping programs. EPA itself acknowledges in the July 27, 1994 proposed rule that the additional costs associated with managing, transporting, and disposing of lighting waste as hazardous waste can create an additional disincentive to join Green Lights and make the initial investment in energy-efficient technologies. Although Con Edison has joined Green Lights and also developed various DSM programs, it has only implemented either those programs that do not include direct disposal of lighting waste by the Company or

those programs that are mandated by the New York State Public Service Commission ("PSC"). The costs and regulatory burdens resulting from lighting waste being regulated under Subtitle C have made it operationally and economically impractical to implement other relamping programs. We are currently proceeding, under the PSC mandate, with relamping our small customers. The small amounts of lighting waste generated at each customer location have allowed us to take an advantage of the simplified hazardous waste storage and transportation rules applicable to conditionally exempt small quantity generators. The simplified logistics of storing, collecting, and transporting the lighting wastes have made this program somewhat operationally practical; nevertheless, the costs associated with recycling the lighting ballasts and fluorescent lamps in State-approved recycling facilities have made the program economically unattractive. For example, the unit cost associated with collecting, transporting, and recycling fluorescent lamps removed under this program runs as high as $0.94 per linear foot of the removed lamp or $3.76 per a four-foot lamp. [Footnote 1: In comparison, the cost of a new four-foot fluorescent lamp is $2.25.] This unit cost would be substantially greater if the conditionally exempt small quantity generator status could not be claimed under this program and a RCRA-permitted facility would have to be used for treatment and disposal of fluorescent lamps.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00214
COMMENTER American Municipal Power-Ohio, Inc.
SUBJECT ECON
COMMENT While the universal hazardous waste option is an improvement over current regulations, it still requires the use of Subtitle C transporters and recycling/disposal facilities and compliance with land ban restrictions. While these costs will be borne initially by recyclers and disposal companies, increased costs will be passed on to the generators. Increased disposal cost means Demand-Side Management Programs are less attractive, and less efficient bulbs will continue to be used until they burn out. Not only are costs savings to electric utilities and retail customers lost, but thousands of tons of avoided air emissions will not be realized.

RESPONSE

EPA notes the commenter's concerns, but 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.

In addition, EPA believes that the universal waste approach would place minimal technical requirements on waste handlers in managing their lamp wastes. The Agency expects that most building owners would undertake many such procedures even in the absence of the rule. An example is familiarizing employees with proper and safe lamp waste management and disposal procedures. Because of these reasons, EPA continues to believe that today=s universal waste final action would not interfere with an owner's willingness to upgrade.

DCN FLEP-00221
COMMENTER Broadway Lighting Services
SUBJECT ECON
COMMENT In addition, the cost associated with conforming to the EPA regulations will have a negative impact on the end user who will consider eliminating any kind of relamping program or energy saving retrofit, which is in the best interest of all parties concerned.
RESPONSE
EPA notes the commenter's concerns, but 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.

DCN FLEP-00222
COMMENTER Columbus Southern Power & OH Power Co.
SUBJECT ECON
COMMENT U.S. EPA itself stated in the proposal that "[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" 59 Federal Register 38288-38290 (July 27, 1994).
RESPONSE
EPA notes the commenter's concerns and acknowledges the statement from the 1994 proposed rule. Since that time, however, the Agency has conducted additional research and analyses on the potential impact(s) spent lamp disposal costs may have on a facility=s decision to convert to more energy efficient lamps. We now believe

that the cost of spent lamp disposal represents a minimal percent of overall lamp operation and maintenance costs, regardless of disposal scenario. For example, the cost of operating a lamp (including the ballast losses) for its 20,000-hour life is approximately $64 at the national average electric rate of seven cents ($0.07) per kilowatt-hour. Assuming a $0.50/lamp disposal fee, disposal costs would represent less than 1 percent of overall operation and maintenance costs.

EPA has conducted 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 disposal/recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and disposal/recycling cost, the IRR was 50 percent **C** only a marginal decrease in IRR despite a 100 percent increase in waste management costs. EPA believes the majority of commercial and industrial facility owners recognize that lamp disposal costs are minimal, regardless of disposal scenario, when viewed in terms of a lamp's life-cycle costs.

DCN FLEP-00224
COMMENTER Amtech Lighting Services
SUBJECT ECON
COMMENT We also are very concerned with the creation of the 658,000 new small quantity generators and the 64,000 new large quantity generators based on classifying fluorescent and HID lamps as hazardous waste. With this negative move, this could very well result in greatly reducing the practice of group relamping as well as decreasing the amount of energy saving lighting upgrades, which will increase the national power demand and will result in a significant increase in air pollution.
RESPONSE
Under today=s rule, hazardous waste lamp generators are included into the category of universal waste handler. The regulatory requirements associated with universal waste handlers are less complex than the requirements associated with hazardous waste generators. In addition, the Agency believes 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.

DCN FLEP-00228
COMMENTER STAPPA/ALAPCO
SUBJECT ECON
COMMENT In addition, this action would promote the agency's current initiative to spur sustainable development, including recycling industries. The EPA "Jobs Through Recycling" initiative is supporting this concept by providing funding and technical support for various recycling industries. Successful fluorescent bulb and mercury-recycling industries have developed in California, Minnesota and Wisconsin due to the bulb-disposal requirements. Unfortunately, these economic benefits were not considered in the rule. EPA would be acting inconsistently if it promulgated regulations that undermined one of its major priorities -- supporting recycling activities. Due to the low volume (crushed) and weight of the material, the routing of mercury- containing lamps from the solid/industrial waste stream into the recycling stream should have little or no discernible adverse impact on the hazardous and solid waste disposal industries. Conversely, the recycling of this material would significantly affect the recycling industry, due to the high relative increase in materials for recycling. As the demand for mercury-recycling facilities grows and the number of lamp-recycling facilities increases, the cost of recycling should fall. As an added benefit, the improved infrastructure for recycling would make lamp recycling more accessible, and possibly more cost-effective for small- quantity generators and households.

RESPONSE

EPA notes the commenter's data on the recycling industry. In analyzing impacts under the options, the Agency researched impacts to lamp recyclers under the baseline and proposed options. The Agency found that, as of 1995, the lamp recycling industry employed more than

1,000 employees and had a gross annual revenue (from lamps recycling and all other business activities) in excess of $146 million. Therefore, the Agency is well aware of the viability of the lamps recycling industry and its value regarding employment and State revenues.

DCN FLEP-00229
COMMENTER Global Recycling Technologies, Inc.
SUBJECT ECON
COMMENT Option 1 would have a negative impact on the growing recycling industry. The lamp recycling industry is potentially a $300 million market, with the potential to employ more than 3,000 people, and generate taxable income of in excess of $90,000,000. The overall recycling industry currently accounts for 103,400 jobs in the Northeast alone, and contributes $7.2 billion to the region's economy.
RESPONSE
EPA notes the commenter's data on the recycling industry. In analyzing impacts under the options, the Agency researched impacts to lamp recyclers under the baseline and proposed options. The Agency found that, as of 1995, the lamp recycling industry employed more than 1,000 employees and had a gross annual revenue (from lamps recycling and all other business activities) in excess of $146 million. Therefore, the Agency is well aware of the viability of the lamps recycling industry and its value regarding employment and State revenues.

DCN FLEP-00229
COMMENTER Global Recycling Technologies, Inc.
SUBJECT ECON
COMMENT Economic impact of lamp disposal/recycling is negligible. PCB ballast recycling accounts for 11percent of lighting upgrade cost, lamps 4 percent. Including lamp recycling in project increases simple payback by 1.2 months. Proper disposal of lamps represents less than 1 percent of the own and operate cost. The EPA Green Lights Program has not been negatively impacted due to disposal of lamps or ballasts.
RESPONSE
The Agency agrees that the EPA Green Lights Program has not been negatively impacted due to any specific spent lamp management scenario.

DCN FLEP-00229
COMMENTER Global Recycling Technologies, Inc.
SUBJECT ECON
COMMENT ECONOMIC EFFECTS OF RECYCLING INDUSTRY

The lamp recycling industry is part of the overall recycling industry that accounts for some 103,400 jobs in the Northeast alone, and contributes a "value-added" $7.2 billion to the region's economy[15] [Footnote 15: Northeast Recycling Council, Study 11/94, Roy F. Weston Inc. Funded by USEPA and USEDA.]. The lamp recycling industry is potentially a $300 million market, with the potential to employ more than 3,000 people, and generate taxable income of in excess of $90,000,000.

RESPONSE

EPA notes the commenter's data on the recycling industry. In analyzing impacts under the options, the Agency researched impacts to lamp recyclers under the baseline and proposed options. The Agency found that, as of 1995, the lamp recycling industry employed more than 1,000 employees and had a gross annual revenue (from lamps recycling and all other business activities) in excess of $146 million. Therefore, the Agency is well aware of the viability of the lamps recycling industry and its value regarding employment and State revenues.

DCN FLEP-00229
COMMENTER Global Recycling Technologies, Inc.
SUBJECT ECON
COMMENT ECONOMIC IMPACT TO ENERGY-EFFICIENCY UPGRADES

The impact of including lamp disposal as a hazardous waste or recycling it of minimal overall impact to the economics of an energy- efficiency upgrade, or to Utility DSM program economics [16]. [Footnote 16: Attachment 3: Fluorescent lamp recycling impact, new England Power letter, August 1994.][See hard copy of Comment FLEP-00229 for Attachments] Recycling of PCB ballasts currently accounts for 11 percent of overall project cost. Lamp recycling would account for 4 percent. Lamp recycling compared to lamp disposal in trash increases the simple payback 1.2 months. Proper disposal of mercury lamps represents less than 1 percent of the owner and operator cost.

RESPONSE

The Agency agrees that the spent lamp management scenario represents a very small percentage of lamp lifetime operation costs.

DCN FLEP-00234
COMMENTER Minnesota Mining and Manufacturing (3M)
SUBJECT ECON
COMMENT 1. 3M supports the practical, environmentally sound option of recycling mercury-containing lamps. 3M's Pollution Prevention

Pays (3P) program goal is to prevent or reduce pollution at the source whenever practical. If this is not possible, then 3M would attempt to reuse or recycle the particular waste stream before treatment or land disposal is considered. Over the past 18 months, 3M has recycled an estimated 1.2 million "lamp feet" of mercury-containing lamps at a State-registered, commercial recycling facility. The cost of this program is approximately $120,000 annually, excluding packaging, handling, and shipping. Recycling provides greater protection to human health and the environment and should be the waste management option of choice. Legitimate lamp recycling operations are available nationally to recover the lamp components in a safe manner that is not cost-prohibitive.

RESPONSE

EPA notes the commenter=s support of practical and environmentally sound spent lamp recycling. EPA projects that spent lamp recycling will increase under the universal waste spent lamp management approach.

DCN FLEP-00236
COMMENTER Conservation Lighting, Inc.
SUBJECT ECON
COMMENT The Conservation Lighting Company supports environmentally sound and cost-effective recycling of mercury-containing lamps. The cost to warehouse these spent lamps on our very limited space until out of State disposal Companies can pick these lamps up is prohibitive. And the cost to the Customer would double or more and stop them from updating and maintaining their systems.

RESPONSE

Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

DCN FLEP-00243
COMMENTER Recycling Advocates of Middle Tennessee
SUBJECT ECON
COMMENT Perhaps most disturbing about the EPA analysis is an ignorance of the true cost associated with resulting Hg releases from a health care perspective, or even from a lost-work-days

perspective. The cost savings analysis also failed to include the economic benefits from recycling Hg-containing lamps. For common recyclables this was found to average about $764 per ton in a survey in Massachusetts during the recession year of 1991. It's higher now. This represents the money flowing into the economy through wages, profits and taxes resulting from the transformation of scrap materials into products with a much higher value per ton. The estimated cost saving between options 1 and 2 per average lamp listed by EPA is $.27 [subtract] $.05 [equals] $.22. [Equation for cost determination. See hard copy of Comment FLEP-00243.] Since the economic benefit related to common recycling (including glass and nonferrous metals) is greater than $690 per ton, I strongly suspect that this might be the case for Hg-containing lamp recycling as well. Please calculate this from value-added data provided by lamp recycling operations and publish this before relaxing any regulations. I suspect that a $.44 figure listed in the analysis might actually be a value-added figure per average lamp. If so, it is erroneously stated as "lamp/revenue ratio" and isolated from the "savings" figures. If this is indeed the case, it needs to be corrected.

RESPONSE

EPA expects that the economic benefits of recycling are taken into account when recyclers price their services. Because recyclers charge a fee for their services, there is an implicit assumption that the recyclers= revenues (income from tipping fees and marketable recovered materials) exceed the costs of recovering these materials, resulting in economic benefits.

DCN FLEP-00245
COMMENTER American Iron and Steel Institute
SUBJECT ECON
COMMENT We would encourage the Agency to make an expeditious decision to establish the conditional exclusion so that our member companies can move forward with cost- effective, energy saving programs.

RESPONSE

Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA notes the commenter's concerns, but 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.

DCN FLEP-00259
COMMENTER Cherry City Electric, Inc.
SUBJECT ECON
COMMENT The additional paperwork, record keeping, TCLP testing and Waste Analysis Plans of Subtitle C Hazardous Waste make it virtually impossible to keep project costs in line with reasonable return on investment expectations.

RESPONSE

Today=s final rule adds hazardous waste lamps to the universal waste rule regulations under 40 CFR Part 273. Management costs under the universal waste approach are projected to be lower than for full Subtitle C management due to various factors, including reduced transport and record keeping requirements.

EPA notes the commenter's concerns, but 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.

DCN FLEP-00262
COMMENTER OG&E Electric Services
SUBJECT ECON
COMMENT The cost of otherwise managing mercury-containing lamps as hazardous wastes is significant and has caused widespread reluctance by utilities and their customers to participate in energy-efficient lighting programs. The Agency has estimated that the annual national cost to manage mercury-containing lamps under the Subtitle C program for large quantity generators alone currently ranges from $110 to $134 million dollars and that these additional costs create a disincentive to join Green Lights and make the initial investment in energy-efficient light technologies. Conversely, the Agency has estimated that the conditional exclusion option, as proposed, could result in nationwide annualized savings ranging from $85 to $102 million dollars (See 59 FR 38290, 38298-9, July 27, 1994).

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00262
COMMENTER OG&E Electric Services

SUBJECT ECON
COMMENT III. The Universal Waste option is not the solution for managing Mercury-containing lamps the universal waste option will continue to subject mercury-containing lamps to Subtitle C regulation and, as such, will still result in an economic burden for utilities and their customers contemplating participation in an energy-efficient lighting program.

RESPONSE
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 must follow streamlined standards for storing universal waste, labeling and marking waste or containers, preparing and sending shipments of universal waste off-site, employee training, and response to releases. Universal waste transporters must comply with all Department of Transportation (DOT) regulations and ensure transportation of universal waste to a universal waste handler or a destination facility. Transporters of universal waste do not have to comply with 40 CFR Part 263 requirements.

In addition, EPA believes 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 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.

DCN FLEP-00262
COMMENTER OG&E Electric Services
SUBJECT ECON
COMMENT Disposal costs notwithstanding, the costs associated with complying with the LDR provisions alone is so burdensome as to discourage participation in any energy-efficient lighting

program. For this reason, OG&E does not endorse the universal waste option as it does not eliminate what it considered to be one of the most complex and, problematic elements of Subtitle C.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-00272

COMMENTER Detroit Edison Company

SUBJECT ECON

COMMENT There presently are no lighting waste recyclers in Michigan, so transportation is a significant additional cost factor. The cost for transportation of uncrushed bulbs for recycle depending on the number of bulbs, range from approximately $0.05 per bulb for a full truck load to more than $1.00 per bulb for a normal small shipment from a small generator. Under the present system of regulation of lighting waste as a hazardous waste, if generator crushing of bulbs is allowed, the cost of disposal as a hazardous waste (solidification and landfilling) is approximately $0.13 per bulb plus transportation. Transportation is local and the waste can be sent with other hazardous waste generated, so for Detroit Edison, transportation costs of lighting waste for disposal do not significantly impact total costs.

RESPONSE

The Agency notes the commenter=s input.

DCN FLEP-00277
COMMENTER Taunton Municipal Lighting Plant
SUBJECT ECON
COMMENT Currently the average payback for a lighting retrofit is 3-4 years. If the lamps are classified as hazardous waste, the payback would take longer to achieve. As a rule, companies tend to shy away from pay backs that are greater than three years. Furthermore, additional handling time and paperwork will add considerably to the burden.
RESPONSE
EPA agrees that many factors can affect the rate of return of a lighting upgrade and a building owner's willingness to upgrade, as the commenter suggests. 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.

In addition, 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 must follow streamlined standards for storing universal waste, labeling and marking waste or containers, preparing and sending shipments of universal waste off-site, employee training, and response to releases. Universal waste transporters must comply with all Department of Transportation (DOT) regulations and ensure transportation of universal waste to a universal waste handler or a destination facility. Transporters of universal waste do not have to comply with 40 CFR Part 263 requirements.

DCN FLEP-00295

COMMENTER Texas Instruments, Inc.
SUBJECT ECON
COMMENT In addition, in the area of air emissions, TI does not feel Subtitle C regulation would offer significantly more protection over that afforded by Subtitle D, making the added expense for hazardous waste disposal disproportionate to the environmental benefit achieved.
RESPONSE
Today=s final rule implements the universal waste approach for the management of spent hazardous waste lamps. This approach provides regulatory relief while, at the same time, ensuring protection of human health and the environment.

DCN FLEP-00301
COMMENTER Minnesota Pollution Control Agency/MOEA
SUBJECT ECON
COMMENT Businesses that use and generate lamps will be able to take advantage of the streamlined and lower cost record keeping and transportation requirements provided in the Universal Waste Rule proposal.
RESPONSE
The Agency agrees with the commenter.

DCN FLEP-00309
COMMENTER Bethlehem Apparatus Company
SUBJECT ECON
COMMENT The Overall Cost of Option 2 is Not Disproportionate to the Benefit. As the Proposed Rule recognizes, both Option 1 and Option 2 will reduce the present cost of RCRA compliance for Lamps. Proposed Rule at 38,300. The average annual cost reduction for Option 1 is calculated by EPA to be only $1,700 more than Option 2. This limited difference is further minimized when compared to the cost of the typical relamping project anticipated in EPA's Green Lights Program. EPA estimates that the installation of a new fluorescent bulb fixture costs $100-150 and the cost of operating a single Lamp over its lifetime is $64.00. Lighting Waste Disposal at p. 11. A relamping of the size necessary to trigger large quantity generator status, a relamping of 350 Lamps, would cost $35,000 plus an additional $22,400 for the life-time operating costs of the Lamp. To the average generator, a $1,700 cost differential

is less than 5 percent of the costs of the relamping and less than 3 percent of the lifetime cost of the Lamp. This additional cost is inconsequential when compared to the environmental benefit of reducing the amount of mercury discharged directly into the environment.

RESPONSE

The Agency agrees with the commenter that the lamp disposal scenario represents a very minor percentage of lamp operational costs over the lifetime of the bulb. Today=s final rule implements the universal waste approach for the management of spent hazardous waste lamps. This approach provides regulatory relief while, at the same time, ensuring protection of human health and the environment.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT Relamping is Extremely Cost-Effective, and Disposal Costs are an Insignificant Element. As EPA points out in the cost analysis in its recent "Lighting Waste Disposal," "The overall impact of lamp disposal on the profitability of typical Green Lights lighting upgrade projects is minimal." [19] [Footnote 19: "Lighting Waste Disposal," EPA, (EPA 420-R-94-004), March 1994, p. 11 (emphasis added).] Even if hazardous waste lamp disposal or recycling costs $1.00 per lamp -- twice the current cost -- relamping would have an Internal Rate of Return (IRR) of 45.5 percent, [20] [Footnote 20: Ibid] a truly magnificent rate of return. (EPA incorrectly states the IRR as twenty to thirty percent in the preamble, without any support.) It would simply be irrational for potential relampers not to relamp because they can achieve "only" a 45.5 percent IRR, rather than the 47.1 percent IRR that would result from a zero disposal cost. The approximately two-year pay-back period for relamping projects (incorrectly stated in the Preamble as three to four years) would be extended by only one month by hazardous waste disposal or recycling costs. Looked at another way, replacing an old fixture costs $100- $150 including installation; disposing of an old fixture's lamps as hazardous waste or recycling will cost lets than $2.00, less than two percent of the total replacement cost. Furthermore, disposal cost is less than one percent of total life cycle costs. [21] [Footnote 21: Ibid., pp.11-12.]

RESPONSE

The Agency agrees with the commenter that the lamp disposal scenario represents a very minor percentage of lamp operational costs over the lifetime of the bulb. Since the proposal, the Agency has further evaluated the potential impact spent lamp disposal costs may have on a facility=s decision to convert to more energy efficient lamps. We confirm that spent lamp disposal costs represent a minimal percent of overall lamp operation and maintenance costs, regardless of disposal scenario, generally less than 1 percent of overall operation and maintenance costs.

EPA has also conducted updated 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 disposal/recycling cost, the IRR for a typical project over ten years was 51 percent. At a $1.00/lamp transportation and disposal/recycling cost, the IRR was 50 percent **C** only a marginal decrease in IRR despite a 100 percent increase in waste management costs.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT Moreover, this situation would likely lead to more "interstate waste wars," as generators would shop for cheap disposal at distant, out-of-State solid waste sites that could accept the lamps (rather than incurring the greater costs of recycling them or managing then as hazardous waste). This, in turn, would drive importing States to resort to differential fees and taxes to block such imports.

RESPONSE

The Agency has not analyzed the issue of "interstate waste wars" in the context of today=s rulemaking.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT The Universal Waste Option Will Encourage Recycling The costs of recycling fluorescent lamps and of hazardous waste disposal are comparable. [33] [Footnote 33: "Lighting Waste Disposal," p.9.] Under the universal waste option, generators will have to choose either hazardous waste disposal or recycling. Given this choice and approximately equal costs, many generators -- perhaps most -- will choose recycling and avoid

the perceived long-term liability associated with any form of landfilling.

RESPONSE

The final economic assessment projects increased recycling under the universal waste scenario.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT It is important to note that these investments create jobs. In addition, the universal waste option will likely result in investments creating significant revenues for an industry that employs high-tech methods to recycle hazardous waste. These technologies also can be exported to other countries, thereby helping to maintain this country's lead in developing and marketing pollution control technologies.

RESPONSE

The final economic assessment projects increased recycling under the universal waste scenario.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT Thus, an exemption would essentially end the establishment of new fluorescent lamps recycling facilities. No private sector entrepreneur will invest in the development of new lamp recycling facilities when EPA is authorizing disposal at a fraction of the cost. Even if additional States implement more stringent regulations, the uncertainties and confusion of differing federal and State regulations would, at a minimum, greatly inhibit new investment in lamp recycling.

RESPONSE

Today=s final rule incorporates hazardous waste lamps into the universal waste system.

DCN FLEP-L0001
COMMENTER Environmental Technology Council
SUBJECT ECON
COMMENT The promulgation of the universal waste rule for fluorescent lamps would create powerful incentives for investing in new or

expanded lamp recycling facilities. In fact, there is a substantial number of potential investors in numerous States awaiting the outcome of this rulemaking before they make their investment decisions.

RESPONSE

The Agency notes the commenter=s response.

DCN SCSP-L0009
COMMENTER National Electric Manufacturers Assn.
SUBJECT ECON
COMMENT NEMA is concerned about the short-term problems of limiting users' disposal options to Subtitle management or recycling/reclamation. Costs of these two options exceed the costs of management in a quality solid waste landfill by an order of magnitude. Even with these costs, relamping is cost effective. Building maintenance budgets, however, typically do not include costs for either hazardous waste disposal of lamps or recycling/reclamation of lamps, causing delays in many companies' ability to upgrade their lighting systems.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN FLEP-L0010
COMMENTER United Energy Associates, Inc.
SUBJECT ECON
COMMENT Our experience in Florida, where the State has already imposed

lamp disposal restrictions, has been a noticeable slow-down in retrofits. This is the direct result of the additional expense now required for lamp disposal (Which constitutes a 10 percent-20 percent add-on to the original cost for conversion). In a price-sensitive environment, it doesn't seem to take much to cause rejection of a proposed retrofit. None of us likes to see the volume of our business diminished for no good reason, so it's natural that folks like us would resent the imposed additional charges necessary to meet State requirements. On a much larger scale, however, the implications are clearly counter- productive to the EPA's efforts to significantly reduce energy consumption, hence hazardous emissions, to our environment. And, make no mistake about it, our experience is that the additional cost required for special lamp disposal techniques will slow, and , eventually stop, the momentum of lighting retrofit. This is especially true because those initially embracing lighting retrofit had no financial problems in doing so. The second wave of potential converters however, are quite price-sensitive and do not hesitate to ax a project that now requires an initial 10-20 percent up-front cost. Note that this "second wave" of potential customers also constituents 70 percent-80 percent of the marketplace. It is truly unfortunate that a simple lack of knowledge can create a situation where the overwhelmingly greater good (reduced energy consumption, reduced stack emissions) can be stymied by lesser concerns. Hope you can help, hope this kind of feedback helps, in correcting the situation.

RESPONSE

EPA notes the commenter's concerns, but 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.

DCN SCSP-L0010
COMMENTER Robert M. Quintal
SUBJECT ECON
COMMENT The lamp manufacturers lobbying efforts are an attempt to portray recycling and/or environmentally safe disposal costs as an economic deterrent to programs that encourage conversion to energy efficient light sources, like EPA's own Green Lights Program. In actuality, EPA has just published a document, (Green Lights Update - December 1992), that specifically states that the economic impact of the recycling cost is virtually inconsequential. In the example, the return-on-investment of a "typical" energy conversion lighting project is impacted by just one month.
RESPONSE
Comment noted. No response is required.

DCN SCSP-L0019
COMMENTER New Jersey Dept. of Env. Prot. and En.
SUBJECT ECON
COMMENT While this proposal does assist in the process of encouraging recycling, the use of a manifest will make that system more costly. There was a substantial discussion at the March 10 and 11 meeting that the use of the manifest will increase the cost of the program (See minutes of meeting). This position was confirmed by William Ehrhardt, President of Advanced Environmental Recycling Corporation, a fluorescent bulb recycling company located in Allentown, PA and permitted by the Pennsylvania Department of Natural Resources. Their cost for recycling bulbs is approximately $.40 -.60 for a four foot bulb plus transportation cost. This overall cost would be lower if the manifest system were not fully required.
RESPONSE
Today=s final action implements the universal waste approach for management of spent hazardous waste lamps. This approach, as stated in Part 273, includes a record keeping requirement to track waste shipments arriving at and leaving from large quantity handlers (those who handle more than 5,000 kilograms of *total* universal waste at one time). Large quantity handlers are required to keep records of each shipment of mercury-containing lamps received and keep records of each shipment of lamps sent off-site. 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. Small quantity handlers are not required to keep records of shipments of mercury-containing lamps.