ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	
AMENDMENT OF	)	
35 Ill. ADM. CODE 733	)	R98-12
(STANDARDS FOR UNIVERSAL	)	(Rulemaking)
WASTE MANAGEMENT)	)	Volume II

The following is the transcript of a hearing held in the above-entitled matter, taken stenographically by Kim M. Howells, CSR, a notary public within and for the County of Cook and State of Illinois, before CYNTHIA I. ERVIN, Hearing Officer, at the James B. Thompson Center, 100 West Randolph Street, Suite 9-040, Chicago, Illinois on the 15th day of December, 1997, A.D., commencing at the hour of 10:00 a.m.

A P P E A R A N C E S:

HEARING TAKEN BEFORE:

ILLINOIS POLLUTION CONTROL BOARD,
600 South Second Street
Suite 402
Springfield Illinois 62704
(217) 524-8509
BY: CYNTHIA I. ERVIN

ILLINOIS POLLUTION CONTROL BOARD MEMBERS PRESENT:

Ms. Claire A. Manning

Mr. Anand Rao

Ms. Kathleen Hennessey

ILLINOIS ENVIRONMENTAL REGULATORY GROUP:

Ms. Whitney Wagner Rosen

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY:

Mr. Peter G. Orlinsky

Mr. Christopher P. Perzan

There were also other appearances not listed on this appearance page.

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HEARING OFFICER ERVIN: Good morning. My name is Cynthia Ervin. I'm the hearing officer in this proceeding originally entitled In The Matter of: Amendments of 35 Illinois Administrative Code 703, 720, 721, 724, 725, 728, and 733, Standards for Universal Waste Management.

This is the second hearing in this rulemaking. The first was held in Springfield on December 9th.

Present today on behalf of the Illinois Pollution Control Board is a presiding board member in this rulemaking to my right Chairman -- sorry, to my left Chairman Claire Manning.

MS. MANNING: Good morning.

HEARING OFFICER ERVIN: Also joining us is Board Member Kathleen Hennessey.

MS. HENNESSEY: Good morning.

HEARING OFFICER ERVIN: And Anand Rao from the -- our technical unit.

As background, on October 17, 1997, the Illinois Environmental Protection Agency filed this proposal for rulemaking to amend the Board's regulations concerning standards for universal waste management to include mercury-containing lamps as a category of universal waste.

This rulemaking was in response to Public Act 90-502 which changed the designation of fluorescent and high-intensity discharge lamps from hazardous waste to universal waste. The legislation also required the board to adopt the agency's proposal within six months of receipt of the agency's proposal.

On November 6, 1997, the board accepted the proposal for hearing and due to the stringent time frames for adopting the agency's proposal sent this matter to first notice without commenting on the proposal. The rule adopted for first notice was published in the Illinois Register on November 21, 1997.

As noted earlier, the board held a hearing in this matter on December 9th in Springfield. At this hearing, the agency provided testimony in support of its proposal. The purpose of today's hearing is to allow the agency to present some follow-up testimony based on questions asked at the hearing and further question the agency and also to provide anyone else who would like to testify in this matter an opportunity to do so.

Procedurally, this is how I would like to proceed. The agency will provide a summary of the testimony provided in Springfield. They will then provide some additional testimony based on questions raised at that

hearing. We will then allow for questioning of the agency.

At this questioning period, I prefer that all persons with questions raise their hand and wait for me to acknowledge them. After being acknowledged, please state your name and organization that you represent, if any. After this questioning period, anyone else who would like to testify will be given the opportunity to do so.

This hearing will be governed by the board's procedural rules for regulatory proceedings. All information which is relevant and not repetitious or privileged will be admitted. All witnesses will be sworn and subject to cross-questioning.

Are there any questions regarding the procedures we will follow this morning?

Seeing none, I will then ask if Chairman Manning or Board Member Hennessey have any additional comments before we proceed.

MS. MANNING: No. Just welcome you all to this proceeding, and we hope to proceed expeditiously and judiciously.

Thank you.

MS. HENNESSEY: Nothing in addition to that.

HEARING OFFICER ERVIN: At this time, I'll turn to

the agency.

Mr. Orlinsky, do you want to make an opening statement?

MR. ORLINSKY: No, I have no opening statement.

HEARING OFFICER ERVIN: Would you like to then proceed?

MR. ORLINSKY: Yes. We had not prepared to resummarize our testimony, but if you'd like us to do so, we can do that.

HEARING OFFICER ERVIN: Why don't you because there are some people that didn't attend the first hearing?

MR. ORLINSKY: Do the witnesses need to be resworn?

HEARING OFFICER ERVIN: Yes.

Will the court reporter please swear in the witnesses?

(Whereupon the witnesses, David Jansen, Jerry Kuhn and Todd Marvel, were sworn by the Notary Public.)

WHEREUPON:

D A V I D C. J A N S E N ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MR. JANSEN: Yes. My name is David Jansen. I'm the Springfield Regional Manager for the Bureau of Land in the Field Operations Section. I wanted to summarize my testimony before the board.

The proposal before the board does not change existing definitions of universal waste, small and large quantity handlers, transporters, and destination facilities. It does not change existing Part 733 universal waste requirements for small quantity and large quantity handlers and transporters of universal waste regarding disposal and treatment prohibitions, notification, accumulation time limits, employee training, responses to releases, off-site shipments, tracking of shipments and exports. It also does not change the destination facility requirements.

The proposal defines the applicability of the standards and provides for specific mercury-containing lamp waste management and labeling and marketing standards for small quantity and large quantity handlers. Under the proposal transporters and small

quantity and large quantity handlers will not be allowed to intentionally crush bulbs. The small quantity handlers do not need to notify their activities or keep track of their shipments.

The agency estimates that if approximately 23 million bulbs are generated in Illinois on an annual basis for disposal, 1,375 pounds of mercury are being discarded annually. Reducing the amount of mercury going into landfills and incinerators, you will reduce the amount of mercury entering groundwater, surface water, the food chain, and the air we breathe.

The agency will attempt to reduce the number of mercury-containing lamps destined for disposal primarily through the education of generators in the requirements of the proposal and the promotion of land recycling.

During its routine inspections of generators, transporters, treaters, storers, and disposers of waste, the agency will determine if they are in compliance with the lamp rules in an attempt to obtain their voluntary compliance. The sites not achieving voluntary compliance with the rules will be considered for enforcement action following the procedures of Section 31 of the act.

At this time, no special efforts are planned to specifically target regulated generators of

mercury-containing lamps for inspection, compliance and enforcement action.

Any complaints the agency receives regarding the generation, transportation, storage, treatment or disposal of mercury-containing lamps will be investigated and the necessary follow-up action will be completed.

MR. ORLINSKY: Jerry?

WHEREUPON:

J E R R Y K U H N ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MR. KUHN: My name s Jerry Kuhn. I'm the manager of the Resource Conservation Recovery Act unit within the Permit Section, Division of Land Pollution Control, Bureau of Land in the Illinois Environmental Protection Agency.

My comments today will address the characteristic of spent mercury-containing lamps that render them hazardous waste and discuss the reasons for prohibiting the intentional crushing or breaking of the lamps by handlers.

Many commonly used lights contain small amounts of mercury. Such lights include fluorescent, high pressure sodium, mercury vapor, and metal halide lights. Used

mercury-containing lights may be a RCRA hazardous waste if the material exhibits the characteristic of toxicity.

Toxicity is one of the four characteristics used to identify waste as hazardous along with ignitability, corrosivity, and reactivity.

The Toxicity Characteristic Leaching Procedure, TCLP test, is used to define the toxicity of a waste. Mercury is a well-known toxin that primarily affects the central nervous system and kidneys. If, when using the TCLP, the extract from a representative sample of waste contains mercury at a concentration greater than or equal to the maximum contaminant concentration of point parts per million, the waste would be hazardous waste.

According to the U.S. EPA, past testing of used fluorescent lamps showed that a high percentage of the lamps tested exhibited toxicity characteristic for mercury.

Generators of used mercury-containing lights are responsible for determining if their lighting wastes are hazardous. If the lighting wastes have not been tested to show that they are not hazardous or if the generator doesn't have other supporting data such as manufacturer's information, then the generator should assume the lights are hazardous and manage them as a hazardous waste.

Also, the proposed regulations prohibit the intentional crushing for breaking of used mercury-containing lamps by small and large quantity handlers and transporters. They do not prohibit destination facilities, however, from crushing or breaking lamps.

In the U.S. EPA report, Mercury Emissions from the Disposal of Fluorescent Lamps, it was concluded that a large amount of the total mercury released to the environment would be as a result of breakage of the lamps during handling and transportation to the disposal and/or recycling facility.

Drum top crushing is a treatment technology providing volume reduction by crushing lamps before transport. Estimates of the control efficiency provided by these devices vary from zero percent to about 90 percent for the more complex devices. Operational difficulties have been reported, however, including leaks at the seal between the drum and crusher, resulting in violations of the OSHA mercury standards.

The report recommends that procedures be established to minimize emissions during transport and/or processing; i.e., crushing of used mercury-containing lamps.

The agency believes that limiting the intentional

crushing and breakage of lamps to the destination facility only is the most appropriate way to address this issue. Destination facilities are subject to full RCRA permitting requirements, and all would be required to have the appropriate equipment, expertise, safety measures, and the ability to respond to and contain releases.

HEARING OFFICER ERVIN: Thank you.

WHEREUPON:

T O D D M A R V E L ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MR. MARVEL: My name is Todd Marvel. I'm the RCRA coordinator -- Resource Conservation and Recovery Act coordinator and the U.S. EPA liaison for the Bureau of Land, and I've also recently been named the acting assistant manager of the field operations section within the Bureau of Land.

My today -- my testimony summary today will cover the federal rulemaking and RCRA authorization issues as they relate to mercury-containing lamps as part of the Universal Waste Rule.

On February 11th of 1993, U.S. EPA proposed a Universal Waste Rule with new streamlined hazardous waste

management regulations governing the collection and management of certain widely generated hazardous wastes known as universal waste.

On May 11th of 1995, U.S. EPA promulgated a final Universal Waste Rule very similar to the proposed rule. In between those two dates, U.S. EPA published a proposed rule specifically addressing the regulations for fluorescent lamp management.

Two options for changing the regulations were proposed. The first option was a conditional exemption from regulation as a hazardous waste. The second option was to add fluorescent lamps to the Universal Waste Rule.

In the proposed Universal Waste Rule, U.S. EPA originally had fluorescent lamps as part of the rule. However, prior to the proposal, fluorescent lamps and high-intensity discharge lamps were removed from the rule because they felt that further investigation of the risk posed by mercury-containing lamps was needed.

To date no further action has been taken to specifically address the regulation of mercury-containing lamps under RCRA. However, on June 30th of 1997, U.S. EPA published a study entitled Mercury Emissions from the Disposal of Fluorescent Lamps, Final Report. This report

is further discussed in Mr. Kuhn's testimony.

During the Illinois Pollution Control Board's rules adoption process for the Universal Waste Rule, they stated that they could not add a hazardous waste to the Universal Waste Rule until U.S. EPA authorized the Illinois universal waste regulations. In response to that order, the agency submitted Authorization Revision Application No. 7 to the U.S. EPA. This application contained the Universal Waste Rule.

No action to date has been taken on that application, although the Waste Pesticides and Toxics Division of U.S. EPA Region 5 has reviewed the application and indicated that the application is complete and ready for approval.

The application -- excuse me. The approval has not been published in the Federal Register due to several enforcement-related issues involving statutory revisions in Illinois over the last several years.

This rulemaking is submitted in response to Public Act 90-502. The Universal Waste Rule with mercury-containing lamps in the rule is less stringent than the federal RCRA regulations and could be considered inconsistent with the federal program.

However, several states' frustration with the lack of regulatory action by U.S. EPA has prompted the addition

of mercury-containing lamps to their Universal Waste Rules. U.S. EPA has not and has stated that they will not take action against those states.

Currently, there are 14 states that have mercury-containing lamps as part of their Universal Waste Rule. Six of those states are listed in the attachment to my testimony, and those are the six that we have copies of the regulations for.

On February 13th of 1997, U.S. EPA published a universal waste rule Questions and Answer Document. This document was authored by Mike Shapiro, the director of the Office of Solid Waste. In the first question under that document, there's a question as to whether or not states can add waste to the Universal Waste Rule prior to obtaining authorization, and the answer specifically states that states can add a hazardous waste to the Universal Waste Rule prior to authorization provided that the waste meets three criteria identified in the Universal Waste Rule.

The agency believes that mercury-containing lamps do meet those three criteria and that that is the appropriate regulatory proposal for mercury-containing lamps. The agency has notified U.S. EPA of this action and provided them with a copy of our proposed rule.

HEARING OFFICER ERVIN: Thank you.

MR. ORLINSKY: That concludes our summarized testimony.

HEARING OFFICER ERVIN: There were also some additional matters that were raised at the previous hearing.

MR. ORLINSKY: Yes. There were a few questions we told you that we would get back to you on. One had to do with the consistency of the proposed regulation to the handlers in the act as promulgated by the legislature. Mr. Kuhn has a statement on that.

MR. KUHN: House Bill 2164, Minute Section 22.238 of the Illinois Environmental Protection Act designated waste fluorescent bulbs and high intensity discharge lamps as universal waste.

Section 22.238 includes a definition of fluorescent or HID lamps as a lighting device that contains mercury and generates light through the discharge of electricity. The definition provided in the agency proposal for addition to the Universal Waste Rule is for a mercury-containing lamp, which means an electric lamp in which mercury is purposely introduced by the manufacturer.

Now, both definitions include examples of these types

of lights. In Section 22.238 of the act, examples are mercury vapor, high pressure sodium, or metal halite lamps. In the Universal Waste Rule, the examples provided for mercury-containing lamps are fluorescent in HID.

So in summary, in fact, both definitions are equivalent since both definitions include the universal lamps that contain mercury. So they're equal even though they go about different ways to define them.

HEARING OFFICER ERVIN: Do you want to -- Mr. Orlinsky, would you like to proceed with all the testimony on these additional matters, then we'll do questions?

MR. ORLINSKY: Yes. The other question, as I recall, had to do with the economics of the proposal, and Mr. Jansen will address that.

MR. JANSEN: The agency believes that the proposed regulations will reduce the regulatory burdens and accompanying costs on handlers and mercury-containing lamps in the state of Illinois.

The costs associated with managing the lamps in accordance with RCRA hazardous waste regulations are larger than most associated with handling them under the universal waste regulations. This is because of less of

record keeping management.

In addition, the Illinois EPA believes the Illinois legislature considered the positive economic effects in directing that mercury-containing lamps be added to the Universal Waste Rules.

MR. ORLINSKY: That's their testimony.

HEARING OFFICER ERVIN: I think there was an exhibit that you also were going to introduce.

MR. PERZAN: Yeah. I'm Chris Perzan, co-counsel for the agency.

There was an exhibit that we offered, I think it was Exhibit 7, at the last hearing. It was a portion of a document entitled Universal Waste Questions and Answers Document from the U.S. EPA. The date is February 13, 1997. The board requested that we offer into evidence the entire document, and we have that here today. I'd like to offer that.

HEARING OFFICER ERVIN: Thank you.

Are there any objection to the admittance of this document? Seeing none, the Universal Waste Questions and Answers Document of the United States Environmental Protection Agency will be admitted as Exhibit No. 8.

(Whereupon, Exhibit No. 8 is admitted into evidence.)

HEARING OFFICER ERVIN: Mr. Orlinsky, do you have anything further at this time?

MR. ORLINSKY: No, we do not.

HEARING OFFICER ERVIN: Okay. Seeing none, we will now proceed with the questions for the agency's witnesses.

Does the board have any additional questions?

MS. MANNING: I just -- I just wanted to -- there was a question we had at the last hearing as well about the statement that, I think, Mr. Marvel made about the enforcement activities and the U.S. EPA not acting yet on the -- the request, the No. 7 request that was given, and the idea was that there was some sort of enforcement activity concern that they had, and I had asked whether the U.S. EPA's concerns to the agency were ever indicated in writing, and I was wondering if you had an answer for me on the record, Mr. Orlinsky, to that question.

MR. ORLINSKY: Yes. I've talked to Renee Cipriano who's our associate director who had been dealing with U.S. EPA on this matter. She said she has not seen anything in writing from the U.S. EPA. At this point, it's just a matter of hearsay.

MS. MANNING: Thank you.

HEARING OFFICER ERVIN: Does the board have any

other questions?

We'll open it up then. Is there anyone in the audience that has questions for the agency at this time? Okay.

MR. BERNSTEIN: My name is Gene Bernstein, and I entered an appearance in this proceeding on behalf of Commonwealth Edison and Company.

I'd like to direct just a couple of questions, if I may to, Mr. Kuhn or whoever the agency prefers to answer the question, but I think the questions relate to the subject that he addressed in his testimony.

Did the agency model the language that it incorporated in the regulation that prohibits crushing on language that it found in the regulations in any of the other states whose regulations were examined?

MR. KUHN: Not that I'm aware of.

MR. BERNSTEIN: Did you find prohibition on crushing of mercury-containing lamps in the regulation in any of the other states?

MR. KUHN: Not a prohibition that is as direct as what ours is.

HEARING OFFICER ERVIN: Mr. Kuhn, what do you mean "not as direct"?

MR. KUHN: Well, our language specifically

prohibits, and I believe many of the states that prohibit it, prohibit it through not allowing treatment of universal waste, and crushing of a lamp would be treatment.

MR. BERNSTEIN: Excuse me. Can I ask you to repeat the last few words? What did you say about crushing and treatment? I couldn't hear the words.

MR. KUHN: Okay. Crushing would be volume reduction, which if you look at the definition of treatment in RCRA, it would fall under that definition.

MR. BERNSTEIN: Are you familiar with the EPA interpretation that crushing of lamps that are destined for recycling is not regarded as treatment?

MR. KUHN: No, I'm not aware.

HEARING OFFICER ERVIN: Any other questions for the agency at this time? Seeing none, is there anyone else who would like to testify today?

The agency, you can be excused.

HEARING OFFICER ERVIN: Yes?

MS. ROSEN: My name is Whitney Rosen. I'm with the Illinois Environmental Regulatory Group, and with me today is Jennifer Cawein who is going to be offering testimony on behalf of Commonwealth Edison and IERG.

HEARING OFFICER ERVIN: If you can step forward.

(Brief pause.)

MS. ROSEN: Just before we begin, we have made copies of Jennifer's testimony available. They are on the back table. She will be reading the document into the record, and then we will move to admit it as an exhibit. I believe we discussed that that would be the most appropriate way to handle it.

HEARING OFFICER ERVIN: Ms. Rosen, do you have an opening statement you'd like to make?

MS. ROSEN: I believe we're okay. I've already introduced myself for the record and Gene Bernstein and Jennifer Cawein, and, as I said, Jennifer's testimony is on behalf of Commonwealth Edison and IERG. IERG is a trade association of approximately 59 companies that are members of industry within the state, I guess is a fairly general description.

A number of our members have issues with the lamps that could be managed as universal waste lamps pursuant to the regulations, and we're interested in this issue.

HEARING OFFICER ERVIN: Okay. Would the court reporter please swear in the witness?

(Witness sworn.)

WHEREUPON:

J E N N I F E R C A W E I N ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MS. CAWEIN: Good morning. My name is Jennifer Cawein. I'm an environmental engineer in the Corporate Environmental Services Department at Commonwealth Edison Company. For the past four years, I've served as the company's principal RCRA regulatory expert. My responsibilities include providing RCRA compliance guidance to all ComEd facilities as well as overseeing ComEd's waste disposal contacts. I also serve on several Utility Solid Waste Activity Group Committees or USWAG, an industry group that works closely with the U.S. EPA on the federal level to promote reasonable regulation of solid and hazardous wastes.

My educational background includes a bachelor's degree in chemistry and a master's degree in environmental engineering both from Northwestern University.

I appreciate being given the opportunity to address you today on behalf of ComEd and the Illinois Environmental Regulatory Group or IERG regarding the proposed Illinois universal waste standards for the management of spent mercury-containing lamps.

As the largest electric utility in Illinois, ComEd generates thousands of spent fluorescent lamps each year from our over 50 different facilities in northern Illinois. We also have an extensive program that provides guidance and assistance to our commercial, municipal, and industrial customers to help them install energy-efficient lighting. IERG represents 59 members of industry with numerous facilities throughout the state, many of whom will be impacted by this rulemaking.

IERG and ComEd commend the IEPA and the state of Illinois for its commitment to develop an alternative regulatory scheme for mercury-containing lighting wastes that is more appropriate than the existing highly prescriptive "one-size-fits-all" approach of RCRA Subtitle C hazardous waste rules.

But having waited years for some relief, we are disappointed that IEPA has elected to include a prohibition against intentional crushing of spent fluorescent lamps.

While we understand the concern that IEPA has expressed regarding the integrity of some of today's crushers, we believe that a blanket prohibition against crushing is short sighted and unwise. Lamp recycling is a relatively recent phenomenon, and the technology is

still evolving. Barring crushing is likely to preclude the introduction in Illinois of important improvements in lamp recycling technology.

It would unnecessarily inflate the cost of recycling and place Illinois businesses who wish to recycle at a disadvantage relative to their counterparts in other states.

In short, it may seriously undermine attempts to increase lamp recycling and mercury recovery in the state of Illinois. We were aware of no other state that has imposed such a prohibition.

At the outset, we should note that crushing is not widely utilized in Illinois. ComEd, for example, crushes fewer than one percent of its generated lamps, all in a highly controlled environment. We are, however, aware of several trends in the mercury recovery and recycling industry including the development of new and improved crushers that are expected to significantly drive down the cost of lamp recycling and mercury recovery. Cost reduction, we believe, will be the primary factor in capturing more lamps for mercury recovery, and we should encourage the use in Illinois of new technology that may eventually result in more recycling.

It's important for the board to understand that only a

small fraction of discarded mercury-containing lamps will be directly affected by this rulemaking because most lamps are generated by Conditionally Exempt Small Quantity Generators or CESQGs. CESQGs are currently exempt from most RCRA Subtitle C requirements. They will also be exempt from the universal waste standards and requirements.

The U.S. EPA recognizes that monthly generation of about 350 four-foot lamps would be necessary to exceed the 100 kilogram per month threshold for Conditionally Exempt Small Quantity Generators which is roughly 4,200 lamps discarded per year.

After analyzing commercial floor space and lamp density, the U.S. EPA concludes that less than 20 percent of commercial buildings are large enough to exceed this threshold and that 80 to 90 percent of discarded lamps fall into the Conditionally Exempt Small Quantity Generator or Subtitle C status and these estimates come from the Mercury Emissions from the Disposal of Fluorescent Lamps final report at 2-23.

A prohibition against crushing under the universal waste standards will apply only to the regulated 20 percent of discarded lamps. Ironically, the generators of these lamps, who either generate large quantities or

generate other hazardous wastes, will tend to be those that are the most knowledgable about potential problems with crushers.

These larger and more aware generators are also the driving force behind new technology development to lower mercury recovery and lamp recycling costs, including, potentially, the creation of new and more protective crushers. ComEd was, in fact, told a few months ago by one mercury retorting facility that it's in the process of developing a new crusher that, quote, will satisfy even ComEd.

IERG and ComEd agree with IEPA that the new universal waste standards should result in some increased recycling by encouraging on-site consolidation of lighting wastes and by enhancing compliance through increased generator awareness. The majority of lamps, however, will remain unregulated and unaffected by this rulemaking.

If Illinois truly wishes to have an impact on mercury emissions attributable to lamp disposal, it must encourage mercury recovery and recycling within the unregulated 80 percent. Thus the prime environmental benefit of the rule should come from the 80 percent of used lamps that historically end up as municipal solid waste.

We firmly believe that most companies, whether or not it's required, would choose to recycle lamps over landfilling provided the costs can be brought down to a comparable level. Therefore, Illinois must promote policies to help drive down the cost of recycling. Unfortunately, a prohibition on crushing would have the opposite effect, keeping costs high. More importantly, a crushing prohibition will likely slam the door on existing -- on certain emerging technologies that are expected to reduce costs.

The lamp recycling industry is in its infancy. We are unaware of any recycler in the Midwest that's more than five years old, and like any other new industry, it will likely undergo many transformations as it matures.

Currently, all-inclusive prices for lamp recycling in northern Illinois range from a low of about 35 cents per 12-foot bulb to a high of about $1.25 per four-foot bulb. There are two major cost components, the cost related to the actual processing of the spent lamps and the cost associated with handling, management, storage, and transportation of the bulbs.

Disregarding the costs of handling, management, and storage, the cost associated with transportation can comprise up to 60 percent of the total recycling cost.

Because Illinois has done little to promote the development of the recycling industry within our state, there are no land recyclers in Illinois. Consequently, lamps destined for recycling must be transported to other states and thus transportation costs can be high.

How can transportation costs be reduced? One way would be to eliminate transportation entirely by fostering the development of on-site mobile recycling units. We are aware of several recyclers that have developed the technology to do just that. However, because a mobile unit would require intentional crushing, a crushing prohibition will discourage the development of this option.

Another way to reduce transportation costs is to transport more lamps per trip. Including lamps as a category of universal waste, it is, in fact, expected to lower the cost of transportation slightly by allowing generators to build up larger quantities of lamps before calling for a pick up, thereby reducing the number of milk runs.

However, space is often at a premium particularly in and around the city of Chicago, and many facilities simply will not have enough room to build up the quantity of lamps necessary to see real and significant cost

savings.

Crushing, however, would allow significant volume reduction in both lamp storage and transportation. Obviously, the more lamps transported per trip, the less the cost per lamp. Although most recyclers now prefer to receive lamps whole due to the design of their equipment, there's a growing initiative among mercury retorting facilities to encourage generators to crush lamps.

One large mercury retorting facility has even informed us that it's looking into developing a lamp maintenance program similar to that used for parts washers in which the lamp crushing equipment would be installed, serviced, and maintained on the generator's premises by the mercury recovery facility.

Crushing can be accomplished in a manner that's protective of workers and the environment, crushing units in which air is passed through a cyclone, a HEPA filter, and a carbon absorber before being released are now available and reportedly capture roughly 90 percent of the mercury. Better systems are on the horizon. Prohibiting all crushing would preclude the use of not just today's crude drum top crushers, but also the more efficient devices including those likely to emerge in the next few years. And we believe that the long-term

benefits in cost reduction for mercury recovery and the resultant increase in recycling that may be promoted through the eventual use of crushers will far outweigh the negative impact created by the potential release of mercury from the few poorly-designed crushers now in service.

Our suggestion to fix the proposed regulation is simple. Section 733.113(d), Waste Management, as proposed by IEPA should be revised as follows: In Paragraph 2, a large (sic) quantity handler of universal waste lamps must at all times manage waste lamps in a way that minimizes insert unintentional lamp breakage.

Paragraph 5, striking universal waste mercury-containing lamps shall not be intentionally broken or crushed and replacing with universal waste lamps may be intentionally broken or crushed to reduce storage volume. Such breaking, crushing, handling, or storing must be conducted in equipment specifically designed and operated to minimize the release of mercury to the workplace or environment and must ensure compliance with applicable OSHA exposure levels for mercury. Similar language changes should be made to 733.133(d) and 733.151.

The simplicity of this language is its greatest

virtue. It allows crushing activities that are conducted in a manner that is protective of both workers in the environment, but it does so without imposing an inflexible standard that could preclude innovation and progress in an industry, lamp recycling, that is likely to experience significant changes in the coming years.

It would likely be a costly mistake to regulate based solely on today's conditions and without regard for a different tomorrow.

Thank you for allowing me to participate in these proceedings.

HEARING OFFICER ERVIN: Okay. Thank you.

Ms. Rosen, do you have anything else?

MS. ROSEN: Well, I would like to have this admitted as an exhibit.

HEARING OFFICER ERVIN: Are there any objections to the admittance of this testimony? Seeing none, we will enter into the record as Exhibit No. 9 the statement of Jennifer Cawein.

(Whereupon, Exhibit No. 9 is admitted into evidence.)

HEARING OFFICER ERVIN: We'll now open it up for any questions -- well, I guess, Ms. Rosen, do you have anything further?

MS. ROSEN: No, I have nothing further at this time.

HEARING OFFICER ERVIN: Thank you.

We'll open it up for questions for Ms. Cawein. I will first ask Mr. Orlinsky. I realize that the agency just received this testimony this morning. Would you like to take a short recess to go over it, or are you ready?

MR. ORLINSKY: Well, we have several questions that we can ask now, but I think we could probably do a better job if you can give us a short recess.

HEARING OFFICER ERVIN: Certainly. We'll do that. Will a ten-minute recess be enough?

MR. ORLINSKY: Sure.

HEARING OFFICER ERVIN: Then we'll reconvene in ten minutes.

(Break taken.).

HEARING OFFICER ERVIN: We'll now proceed with questions for Ms. Cawein.

Are there any questions?

MR. ORLINSKY: Yes, the agency has some questions.

Ms. Cawein, is it my understanding then that the main reason that Commonwealth Edison is proposing that crushing of mercury-containing lamps be permissible is

that by doing a crushing, you'd be reducing the volume of the lamps?

MS. CAWEIN: I would say the main reason is to leave open options for the future. We don't know, but it appears that that may be one of the primary cost savings, but, again, we're speculating right now about that. We don't know what's coming down the road. We want to be open to what's coming down the road.

MR. ORLINSKY: But there's no question though that crushing would lead to volume reduction?

MS. CAWEIN: Right.

MR. ORLINSKY: Sections 731.111(b) and 733.131(b) of the current board regulations prohibit a handler of universal waste from diluting or treating a waste.

In your opinion, wouldn't both crushing constitute treatment?

MS. CAWEIN: No, not if it was intended to lead to recycling because the U.S. EPA has determined that that is their interpretation, and we have a letter to that effect.

MR. ORLINSKY: That letter you have is not -- is not an exhibit in this hearing at this point, is it?

MR. BERNSTEIN: I don't believe so. We were not at the last hearing.

MS. ROSEN: No, it's not part of the record.

HEARING OFFICER ERVIN: Would you like to introduce it into the record?

MS. CAWEIN: Yes, yes. I can read portions of it.

HEARING OFFICER ERVIN: Please.

MS. CAWEIN: Thank you for your letter dated March 30th, 1992 --

MS. ROSEN: One moment. Identify who the letter is from and who it is directed to.

MS. CAWEIN: Oh, right. The letter is from Michael Petruska, chief regulatory development branch of the U.S. Environmental Protection Agency.

MR. BERNSTEIN: Spell Petruska.

MS. CAWEIN: Petruska is spelled P-e-t-r-u-s-k-a. And it's dated June 5th, 1995, and was in response to a letter from Mr. Steven O. Jenkins, chief RCRA compliance branch land division of Alabama Department of Environmental Management.

The letter addresses a question that Mr. Jenkins had obviously asked about what he was interpreting as conflicting guidance from the U.S. EPA on the crushing of mercury-containing lamps.

The original letter had referenced two documents from the U.S. EPA. The first document referenced was a letter

dated July 28, 1993, from Jeffery Denit, D-e-n-i-t, acting director of the office of solid waste. This letter clarifies, quote, that the crushing of fluorescent lamps as a necessary step of a legitimate recycling process is exempt under 40 CFR 261.6(c) and, therefore, would not be subject to RCRA Subtitle C regulatory requirements except as specified in 406 CFR 261.6(d).

The letter further clarifies that the crushing activities may occur at this generator's facility or at the recycler's facility and remain exempt under 40 CFR 261.6(c). The agency had considered an interpretation of 261.6(c) where the recycling would have to take place at the same site as the crushing but determined that as long as recycling occurs, it does not have to be at the same site.

Under this interpretation, the person claiming the exemption, the generator, is responsible for ensuring that the crush bulbs do end up being recycled, not just disposed of. This remains the current regulatory status of lamp crushing activities that are part of a legitimate recycling process.

MS. ROSEN: We'd like to have this admitted for the record.

HEARING OFFICER ERVIN: Are there any objections

to the admittance of this document?

MR. ORLINSKY: Well, I would like to know before it's admitted -- the copy of the letter I have has no address on it. We don't know who Michael Petruska is, if he's at U.S. EPA headquarters, if he's in one of the regional offices, and as long as it's not going to be admitted for the purpose of stating that this is U.S. EPA policy because we don't know that, we just have a letter from one person of some unidentified office to another person in Alabama that -- you know, with those caveats, I have no objection to it being admitted as an exhibit.

MS. ROSEN: Well, I would note that the letter is on United States Environmental Protection Agency letterhead, and we will make an effort to better identify if that is from within a region or from the main office. We will trace back that address within our comment.

HEARING OFFICER ERVIN: If you could provide those in your final comments, that would be great.

MS. ROSEN: Yes.

HEARING OFFICER ERVIN: Mr. Orlinsky, then you are objecting to this document?

MR. ORLINSKY: No, I will not object to it.

HEARING OFFICER ERVIN: All right. Seeing no

objections, the document from Michael Petruska will be admitted into evidence as Exhibit No. Ten.

(Whereupon, Exhibit No. 10 is admitted into evidence.)

HEARING OFFICER ERVIN: Mr. Orlinsky, do you have further questions?

MR. ORLINSKY: Yes, I do.

Along those same lines of treatment, you told us what Mr. Petruska's opinion is at least. I just would like you to take a look for a second at the Illinois Pollution Control Board definition of treatment which is found as 35 Illinois Administrative code 720.110, and I can read that to you.

It says treatment means any method, technique, or process including neutralization, design 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 not hazardous or less hazardous, safer to transport, store or dispose of, or amenable for recovery, amenable for storage or reduced in volume.

Given that definition of treatment, which is the board's current definition of treatment, wouldn't you

think that crushing would include changing the physical characteristic of a waste so as to make it amenable for storage or reduced in volume?

MS. ROSEN: Could I ask that we have a -- that she could look at the copy while she gives her answer?

(Mr. Orlinsky tendered documents to the witness.)

MS. ROSEN: Thank you.

MS. CAWEIN: First of all, I believe this word for word comes out of the U.S. EPA guidelines, Federal RCRA guidelines.

MR. ORLINSKY: Well, my question to you has nothing to do with federal guidelines.

My question to you is, does crushing constitute treatment as so defined by Pollution Control Board Regulations?

MS. CAWEIN: I'm not sure that it does, I mean, safer to transport. Reduced in volume, yes, it does reduce the volume.

MR. ORLINSKY: Okay. Thank you. That's all I wanted to know.

Now, I would like to take a look at your testimony concerning your proposed regulation. First of all, when you refer to 733.113(d), I think you probably were

mistaken. You said large quantity handlers. I assume you meant that to be small quantity handlers because the large quantity handlers were at 733.133?

MS. CAWEIN: Oh, yes. Right. All three sections should be amended in a similar way, yes, you're right.

MR. ORLINSKY: All right. But my question to you has to do with the language where you say such breaking, crushing, handling, or storage must be conducted in equipment specifically designed and operated to minimize the release of mercury to the workplace or environment.

Now, minimize is a pretty general term, and I just pulled out a dictionary, and my dictionary defines it as minimize, to reduce to the smallest possible amount, extent, size, or degree.

Are you then proposing that the smallest -- that by minimizing it that companies that do crushing should be required to put out the least amount of emissions as possible?

MS. CAWEIN: I think as far as it's technically feasible, yes. I think that the word "minimize" in this context means that the person who's conducting the crushing has an obligation to ensure that they're doing it in some way that limits the emissions of mercury to the environment, and that means to me that they can't do

it with baseball bats or trash compactors. They must have some equipment that's designed for that purpose, to minimize and reduce the emissions of mercury.

MR. ORLINSKY: Okay. The U.S. EPA report which is Exhibit 3 identifies crushing technology, and it says that crushers have -- that they're aware of crushers with control efficiencies ranging from zero to 90 percent.

Would 90 percent then be the efficiency you're looking at as being the best available technique to reduce emissions?

MS. CAWEIN: Where was that?

MR. ORLINSKY: In your testimony, you refer to the federal report that says that -- you said crushing units are available that capture roughly 90 percent of the mercury, and that figure came -- I'm assuming came from the federal report, which is Exhibit 3.

MS. CAWEIN: No. That, I did not get from the federal report. No. I don't really recall anything that says crushers in the federal report except that it may be a cost saving measure for large mercury retrofit projects. That's the only recollection I have of them mentioning it.

MR. ORLINSKY: Well, maybe I can --

MS. CAWEIN: Oh, here. Okay. Here we go. Yes.

Estimates of control efficiency provided by these devices vary from zero percent for the uncontrolled case to about 90 percent for the more complex devices.

MR. ORLINSKY: So then would 90 percent efficiency be the equivalent of minimizing the releases?

MS. CAWEIN: Well, I would say that when you're talking about minimizing, you're talking about looking at the current technology that's available. This number and these figures come from a report that came out in 1994. I'm not sure that that's the current state.

MR. ORLINSKY: So you're saying it may be greater than 90 percent?

MS. CAWEIN: It could be.

MR. ORLINSKY: Well, wouldn't it make more sense then to put in an efficiency figure than just say a general term like minimize?

MS. CAWEIN: Well, I think it's a little premature to do that, and I think that we don't really know the current state of the technology as far as -- or where it's going, and I think you're locking yourself into a number too early --

MR. ORLINSKY: Okay.

MS. CAWEIN: -- if we try to do that.

MR. ORLINSKY: Okay. In Exhibit 6, which is a

compilation of the different state regulations that we're aware of that have to do with mercury-containing lamps, the Oregon provision allows for crushing, and let me just read it to you and see if you think that that would comport with what you're suggesting.

It says handlers of universal waste may treat mercury-containing lamps for the purpose of volume reduction at the site they were generated provided the handler crushes the lamps in a controlled unit that does not allow releases of mercury or other hazardous constituents to the environment.

So the question is, do you believe that the Oregon -- that the Oregon regulation is such that it would minimize emissions to the environment?

MS. CAWEIN: What was the question again?

MR. ORLINSKY: Let me rephrase it. Let me rephrase it. We were talking about what minimize means, and then we -- I cited the Oregon regulation that says no emissions of mercury should go into the environment.

Is that -- would that be equivalent to minimizing?

MS. CAWEIN: Yeah, I would say so.

MR. ORLINSKY: Would that be 100 percent of efficiency they're looking for in the Oregon standard?

MS. CAWEIN: That to me seems very restrictive and

that is what they're looking for, and I think that is what the goal is.

MR. ORLINSKY: You're saying that's a goal, but do you think that's not enforceable?

MS. CAWEIN: I don't know how you could especially since there's no detection equipment that goes down to zip.

MR. ORLINSKY: Are you -- okay. Let me go on.

Are you aware of any U.S. EPA policy that would state that if bulbs are to be crushed that all emissions must be contained?

MS. CAWEIN: No. The U.S. EPA has stated that they're looking at that right now --

MR. ORLINSKY: Okay. Well, let me.

MS. CAWEIN: -- as part of the universal waste rulemaking.

MR. ORLINSKY: Let me cite you the Petruska letter, which was just entered into as an exhibit which states such waste management requirements may include volume reduction incident to collection activities and should be designed to ensure that these management practices do not dilute the hazardous constituents or release them to the environment.

After researching and considering the issue, a state

may decide that crushing be allowed as appropriate management if the crushing process was performed in a controlled unit which did not allow any releases of mercury or other hazardous constituents to the environment.

By any releases of mercury, is that then saying that you must have a control of an efficiency of 100 percent if you're going to crush bulbs?

MS. CAWEIN: First of all, this is not a rulemaking guidance, and I think --

MR. ORLINSKY: Oh, I understand that, but --

MS. CAWEIN: -- that they would like that, and I think everybody who would like that wants to be protected and would want to eliminate it. And here they're taking about design of the equipment. Again, we may be limited on what's possible technology-wise.

MR. ORLINSKY: So are you saying then that the Oregon regulation which says no emissions of mercury to the environment and the Petruska letter which says states should be allowed to -- to allow the handlers to control as long as there's no emissions to the environment, then at the present time those are standards that cannot be achieved?

MS. CAWEIN: Can you repeat that?

MR. ORLINSKY: Are you saying that those standards of no emissions to the environment could not be achieved at the present time?

MS. CAWEIN: No, I'm not saying that. I'm not saying that. I don't know. I don't know the limits of our technology right now.

MR. ORLINSKY: Okay. Let me ask you a further question.

Given your proposal which asks handlers to minimize emissions of mercury to the environment if an Illinois EPA inspector was to go and observe crushing, what would be a violation? How would that inspector know if this regulation was being violated?

MS. CAWEIN: Again, I think it would be reasonable to assume that if an inspector walked in and saw that the crushing was being done in a unit that has been manufactured and designed to contain mercury and to control the release of mercury that that would be in compliance with what we are saying.

And I don't know how far ahead or how far behind. I don't see it as having to have the crusher of the moment being in compliance. I mean, he may get something that is the state of the art, and two years later something slightly better comes out. I wouldn't say that he would

necessarily be out of compliance if he didn't have the very latest as it comes out every time.

I mean, there has to be a certain amount of reasonableness associated with this in order to encourage this among the people that are not subject to this especially.

MR. ORLINSKY: Okay. But the U.S. EPA report, Exhibit 3, says that they've looked at crushing equipment with efficiencies that varied from zero percent to 90 percent.

If an inspector were to observe crushing in a piece of equipment that had a 20 percent efficiency, would that be in compliance with your proposed rule?

MS. CAWEIN: I would say that the word "minimize" is flexible enough so that the Illinois EPA could make their own determination about whether that was minimized or not. The inspector could make the call about whether that was minimized or not. Personally, I don't think it would be.

MR. ORLINSKY: But are you willing to give an opinion as to what control efficiencies the inspector should be able to see before in order to say that minimizing emissions are taking place?

MS. CAWEIN: Well, I don't know how you would

demonstrate that. I don't know how an inspector would walk in and know how to measure that.

I mean, in order to have a reduction, you have to know what the influence stream is, and you would have to know what you're reducing from, and there's no way of really knowing that. The only way -- that's why we thought the applicable OSHA exposure levels -- that is a number, and if they're exceeding that, they're in violation according the way we've written this.

MR. ORLINSKY: Well, is there a way -- is there a methodology by which the EPA inspector could go in to a plant and know whether the OSHA levels are being exceeded?

MS. CAWEIN: If he had a monitor, he could.

MR. ORLINSKY: So are you saying then the inspector should have monitors or that the plant should have monitors?

MS. CAWEIN: I really don't think I should take a position on that.

MR. ORLINSKY: All right. I have no further questions, but Mr. Perzan does.

MS. CAWEIN: Okay.

MR. PERZAN: Yeah. Can you tell me right now if you know that there's a significant difference in the

cost between getting rid of a crushed lamp versus an uncrushed lamp?

MS. CAWEIN: It depends on who you talk to. There's a brand new mercury reporting facility that is very large that will charge you less for crushed lamps. Most recyclers currently in existence though prefer to get lamps whole, and it depends on a number of factors.

It depends on where you're transporting from. If you're going from Carbondale up to Wisconsin and include the transportation costs there, it's going to be more expensive than if you're going from Zion to Wisconsin.

MR. PERZAN: I think the question was a little bit more specific though. I mean, do you know if there's a difference?

MS. CAWEIN: There is a difference usually. Although, I've calculated out for some facilities where it comes out to be just about the same --

MR. PERZAN: It's about the same?

MS. CAWEIN: -- as the prices they quoted, but we're using estimates on how many lamps fit in a drum of crushed lamps, for example.

MR. PERZAN: So in the facilities that you've contacted, it's about the same to dispose of or recycle crushed versus a noncrushed lamp?

MS. CAWEIN: No, none of them -- we're not talking disposing.

MR. PERZAN: I mean recycling.

MS. CAWEIN: Recycling crushed lamps versus recycling whole lamps? Yeah. It --

MR. PERZAN: So allowing --

MS. CAWEIN: -- varies depending on the facility.

MR. PERZAN: But I thought you just said that of the ones that you've talked to, there isn't a difference really?

MS. CAWEIN: No. I said I've talked to a facility where there was no big difference. I've talked to other facilities where there's a big difference. I've talked to facilities where in one case a whole lamp is actually more expensive than a crushed lamp.

MR. PERZAN: Do you know how much --

MS. CAWEIN: So I've seen all of it.

MR. PERZAN: Do you know how much a crushing machine costs?

MS. CAWEIN: All I know is from a conversation I had with Jerry Kuhn that some of them can be 15 to $20,000. Other than that, I don't know.

MR. PERZAN: Do you think the cost of operating and running and managing the crushing machine would have

an impact on the cost of recycling?

MS. CAWEIN: It would depend on who was doing the crushing. If it could -- yeah. It would have some kind of an impact either lower or raise it depending on who was doing it, I suppose.

MR. PERZAN: So I think in your testimony you said that a lot of recyclers now or most or all prefer whole bulbs record than crushed?

MS. CAWEIN: Yes.

MR. PERZAN: Do you know why that is?

MS. CAWEIN: The design of their equipment. Some of them their mercury retorting facilities are small, and it's more economical for them to separate out the phosphor powder and only retort that as opposed to the whole crushed lamps.

Other mercury retorting facilities that are large and have large units and are doing other mercury wastes, it can be cheaper to do the whole lamp rather than go through the separate step of separating out the glass from the phosphor powder from the aluminium end cap from the mercury vapor, so. . .

MR. PERZAN: So let me ask you a little bit about the process then.

If a generator crushes the lamps and gives it to a

transporter, say, how would that be contained? How would you make sure that whatever mercury has been contained during the crushing process stays contained when it's transferred to the transporter and it goes and it ends up at the recycling facility?

MS. CAWEIN: Well, No. 1, a lot of recyclers only do the part up to the torting, the retort.

MR. PERZAN: I'm not sure I understand.

MS. CAWEIN: A lot of recyclers will only do the separation of the glass from the phosphor powder from the aluminum end caps. They take the phosphor powder which contains most of the bound mercury. They put it in drums which is very concentrated, and they ship it now to the mercury retorting facilities in large truckloads. The way they're doing it --

MR. PERZAN: Okay. I'm -- you're a couple steps ahead of me here though. That wasn't really my question. My question was --

MS. CAWEIN: Well, the way they're doing it --

MR. PERZAN: -- generator to transporter to recycler.

MS. CAWEIN: I was going to say the way they're doing it is --

HEARING OFFICER ERVIN: Just one speak at a time

for the court reporter.

MS. CAWEIN: The way they're doing it is in sealed drums, you know, and that's a lot more concentrated than you're going to get from a lamp crusher as far as the mercury.

I think if a generator has a drum that is sealed to go there, it should be all right because --

MR. PERZAN: How does the -- and I'm not real familiar with this.

How does the crushed lamp get from the crusher to the drum?

MS. CAWEIN: The crushing is done in the drum.

MR. PERZAN: Okay.

MS. CAWEIN: But, again, you have to remember we're talking about present technology. My point is, as I said, we don't crush lamps. We don't think there's a lot of crushing going on, and a lot of what you're raising here is the reason it's not done because the technology is not good enough yet.

But we think there are developments to encourage the crushing with better technology, and you're asking me to speculate about technology that I don't know.

MR. PERZAN: Well, I'm not asking you because this is -- I guess the key to your argument has been that

there are going to be these technologies. I just want to know -- and I think the board will probably be interested in hearing what the technology is right now because, you know, these will become final within a couple of months, and this is what we'll be dealing with.

MS. CAWEIN: Well, the technology right now is you have to remember that most lamps are being put in trash compactors, period, and that's where most of them are going. So we have to leave open the door for these -- any initiatives that are going to help with mercury recovery and recycling.

MR. PERZAN: Okay. You talked earlier about how -- and I'm paraphrasing your testimony, and correct me if I'm wrong. Conditionally exempt small quantity generators, you were talking about, the way I understand it, that allowing crushing would encourage more conditionally exempt small quantity generators to use the Universal Waste Rule to sent these to recycling?

MS. CAWEIN: Um-hum.

MR. PERZAN: Isn't it true that even after this Universal Waste Rule is passed the conditionally exempt small quantity generator can still toss it in the dumpster, if they wanted to?

MS. CAWEIN: Yeah.

MR. PERZAN: Is there a significant economic incentive for them to take?

MS. CAWEIN: Right now, no.

MR. PERZAN: No. So there isn't right now?

MS. CAWEIN: No, there isn't.

MR. PERZAN: Okay.

MS. CAWEIN: And that's what we want to encourage, the development of economic incentive.

MR. PERZAN: I guess I'm still not clear on how that will happen.

MS. CAWEIN: Like I said, the lamp recycling industry is very young. It's very young. The oldest one in the Midwest is '92. I don't think the equipment actually began until '91 or was even developed to do that. So if it's like every other industry, there will be new innovations which will lead to lower costs altogether.

MR. PERZAN: Now, have you discussed with people who would manage these, what you see, just generally what these new innovations are? You've talked with them, right?

MS. CAWEIN: I have -- you mean people who are developing things? Yes.

I've been told there are crushers now that have no

mercury emissions. I haven't seen them, but I've been told they're being developed. I've been told that certain people are looking at becoming the Safety Kleen of the fluorescent lamp world where they would just maintain crushers to -- and I guess the whole purpose is to come up with something that is more efficient.

And I've also been told by some that the true value in lamp recycling is to recover mercury, that the raw material value in a fluorescent lamp is very low, and there's glass -- mostly glass. There's aluminum, a tiny bit, in the end caps, and there's phosphor powder, and a little bit of mercury, none of which have a tremendous amount of economic value.

So the real advantage to encouraging recycling is really to capture mercury, and I've been told by some that if they avoid doing the little stuff and go straight for the mercury which after all is the true value of their service, they may be able to lower costs.

MR. PERZAN: Let me ask you another question.

Do you think it's important, from your general understanding as to how these machines work, to keep them up and keep them maintained?

If they're not maintained, they don't contain properly, is that a correct statement?

MS. CAWEIN: I don't know.

MR. PERZAN: Do you think it's fair to say --

MS. CAWEIN: I've never operated one. We don't --

MR. PERZAN: Do you think it's fair to say though that if the machine isn't properly maintained and it's designed to reach a certain level of efficiency that it's not going to contain as well as it might?

MS. CAWEIN: I would think. I don't know. I'm speculating.

MR. PERZAN: Who would be responsible for the maintenance of the machines?

MS. CAWEIN: It would depend. If you had Safety Kleen coming out every month or whatever, maybe they would be. If it was the generator, maybe the generator would. Again, we're speculating. I'm guessing.

MR. PERZAN: Okay. Do you think a little bit of oversight on the part of the agency might be helpful in terms of making sure that machines are maintained properly, if they're operating?

MS. CAWEIN: I'm not sure I understand. You mean through a regulation?

MR. PERZAN: Inspection.

MS. CAWEIN: Inspection. If you think that a typical inspector would know how to.

MR. PERZAN: Do you think that notification requirements should crushing be allowed might be a notification to the agency that crushing activities were taking place at some point would be a reasonable thing to have required by the regulations?

MS. CAWEIN: Well, I think certainly if somebody was in the business of doing this and was, therefore, maybe a large quantity handler, I think that would be reasonable.

On the other hand, what we're really trying to do here is bring the ones that are not regulated and the conditionally exempt small quantity generators into becoming, in essence, small quantity handlers.

I think notification, since they wouldn't have to notify under any other requirements in here, would act as a distance center.

MR. PERZAN: Do you think you could do it on, say, a one-page letter to the agency saying that we are doing this, this activity, and they may never be inspected for it?

MS. CAWEIN: Well, again, it's adding another layer to maybe someone who you're encouraging to become a small quantity generator -- handler rather.

MR. PERZAN: Do you really think that would be a

distance center?

MS. CAWEIN: I think it could.

MR. PERZAN: Do you think maybe the people that would be unwilling to do that maybe shouldn't be doing crushing?

MS. CAWEIN: I don't know. If you're looking at the alternative, which is throwing it in the trash dumpster or throwing it in the trash compactor, I'm not so sure.

MR. PERZAN: Did you read through the U.S. EPA report that, I think, is Exhibit 3?

In that report, I think it says that an improperly functioning crusher machine can actually create more emissions than incidental breakage during -- you know, like in a dumpster because of the way it can propel the emissions outside.

Are you familiar with that?

MS. CAWEIN: I think that is more of an OSHA issue. I think ultimately if it's broken in the dumpster, I think you're going to -- by the time it reaches the landfill, you will have lost the mercury to the environment.

If you're talking about more concentrated, it's more of a safety concern, I would think, more concentrated

emissions in the vicinity of the unit and, again, which is another reason why we think an OSHA -- yeah. They already have to comply with an OSHA standard, then they wouldn't be in that event.

MR. PERZAN: Well, let's all concede that OSHA has -- you know, OSHA regs. are applicable, and they're important here, but don't you think that the possibility of increased emissions is also a matter that the board and the agency would be concerned with as well?

MS. CAWEIN: Yeah. But I don't see how it would be increased emissions. I can see how it would be more concentrated emissions, but I'm not so sure it would be increased. I mean, there's only so much mercury in a lamp.

MR. PERZAN: Well, more coming out of the machine, I think, is the concern that the U.S. EPA has.

MS. CAWEIN: Okay. I'm going to have to think about that because I haven't really given that any thought.

HEARING OFFICER ERVIN: Does the agency have any further questions?

MR. ORLINSKY: Yes. I just have a few more.

HEARING OFFICER ERVIN: You can answer that question in your final comments.

MS. CAWEIN: Okay.

MR. ORLINSKY: I just have a few more questions. You testified that ComEd does already at this point crush some of its lamps, albeit not a lot, but they are doing --

MS. CAWEIN: A tiny fraction.

MR. ORLINSKY: -- some crushing.

Where do they do their crushing?

MS. CAWEIN: We do it in a nuclear station.

MR. ORLINSKY: Which station?

MS. CAWEIN: In Quad Cities.

MR. ORLINSKY: So it's just one Edison facility?

MS. CAWEIN: No, and it's only a tiny fraction of theirs. They are in the process of sending a whole slew of lamps probably today to a recycler in Minnesota, Quad Cities is. They crush only the lamps that come out of the radiologically-protected area, and they crush it together with their radioactive waste.

MR. ORLINSKY: Okay. But that is the only ComEd facility where any crushing takes place?

MS. CAWEIN: I think one of our nuclear facilities does the same, but, again, it's only a small fraction of the lamps that they generate.

MR. ORLINSKY: Okay. At those facilities, what

types of crushing equipment do they use, do you know?

MS. CAWEIN: No. And as I said, it's done -- it's a crusher that was not designed specifically for lamp crushing but was designed for compacting and getting ready for landfilling radioactive dry wastes.

MR. ORLINSKY: So do you know if they have any -- if those crushers at those facilities have any controlled equipment at all?

MS. CAWEIN: Oh, yes. I can guarantee they're very, very highly controlled. In fact, the whole room is highly controlled. So I can guarantee you that no mercury is getting out from those -- those activities.

MR. ORLINSKY: So you're talking about crushers with very high control efficiencies?

MS. CAWEIN: Um-hum. It's not just the crusher though.

MR. ORLINSKY: But while the crushing activities are going on, there's a very high level of control efficiency?

MS. CAWEIN: Yes.

MR. ORLINSKY: Okay. Do you have any idea what that equipment costs?

MS. CAWEIN: No.

MR. ORLINSKY: Just one other question, before

when you were talking about trying to get the conditionally exempt small quantity generators into the program so that they would be doing recycling as well, even under your proposal though, they would not be required to do anything?

MS. CAWEIN: No.

MR. ORLINSKY: Okay. If crushing were allowed and there would be a set price for whatever recycling costs, I mean it may be across the board, it would still always be cheaper though, wouldn't it, for the conditionally exempt small quantity generators to continue tossing their bulbs in the dumpster?

A. Probably. But I'd like to add that our experience has been that most people want to recycle and will be willing to pay even if it's a little more to recycle over landfilling because they feel it's the right thing to do. I think there has been a lot of publicizing about mercury in the environment, and we know that a lot of our customers want to recycle. But the costs are so high that it's difficult for them to justify economically.

MR. ORLINSKY: Other than general statements like that, do you have any specific information that you can provide the board with?

MS. CAWEIN: I can get it.

MR. ORLINSKY: Well, I'm sure that will be helpful to the board.

Thank you. I have nothing further.

MS. CAWEIN: Yeah. We can get letters from some of our customers.

HEARING OFFICER ERVIN: That's fine.

Are there any other questions for Miss Cawein? I think the board has some for you.

MS. CAWEIN: Okay.

MS. MANNING: We do.

In addition to the letters that you've just provided, I would like you to provide whatever information you have on these technologies and developing technologies. In your testimony, you talked about the 90 percent rate, yet there's no -- and then you indicated, I think, in your testimony that it came from a figure in 1984 or something?

MS. CAWEIN: '94.

MS. MANNING: '94. I'm sorry. If you could provide the basis for those conclusions, I think that would be helpful.

MS. CAWEIN: Okay. You have to understand that a lot of that comes from people contacting me and telling me what they have. I do know of one lamp recycler that

is offered to provide data to us. So I will be able to get that. I'll make more inquiries.

They call us because we're the utility, you know, and they call us, and they are testing the market to see what's out there and what kind of demand there may be. So I think we're privy to some of these phone calls that -- and can see growing trends.

MS. MANNING: Well, are you familiar with other states? I mean, Oregon has obviously some sort of crushing rule. We just talked about it, and it was put into evidence. I would assume then that they have technologies, perhaps, that have been developed in Oregon that aren't developed elsewhere. I don't know.

I mean, is there any technology that has developed in other states that do allow for the crushing that might be wise for the board to look at?

MS. CAWEIN: We can look into that. I just don't know, but I doubt it. I doubt they have other technology that hasn't been seen elsewhere, but we can look into that.

MS. MANNING: You indicated as well in your testimony that the generally accepted -- you didn't call it the generally accepted practice, but you basically said that most -- let's face it, most of the lamps are

now being disposed of by trash compaction. Obviously, that's not ComEd. Yours is only a small portion.

But my question is, when they are disposed of through trash compaction, then I assume that goes into a municipal waste landfill, and that's part of the problem we're trying to deal with here and we've been trying to deal with the whole legislation and the changing it to universal waste.

My question though is, the way that your suggested rule revision reads, might some generator of waste construe this sort of broad language to actually maybe even indicate that a trash compactor could be such a -- I guess what I'm saying is, is this language itself, perhaps, not hinting to people that they continue to trash compact?

MS. CAWEIN: Hinting to other people that are not --

MS. MANNING: Well, it says must be conducted in equipment specifically designed, and, obviously, a trash compactor is not specifically designed to necessarily minimize the release of mercury, but there aren't any standards set forward or --

MS. CAWEIN: For the conditionally exempt?

Are you saying that the conditionally exempt, the ones

that are not subject to this rule may misinterpret this and think they can put it in the trash compactor?

MS. MANNING: Well, I'm just wondering whether this might be an allowance for -- I guess I'm just wondering whether this might not be misconstrued to actually allow for the continuation of the practice of trash compacting. I mean, is this really driving --

MS. CAWEIN: I don't see how anyone can interpret this to allow it into a trash compactor. I mean, those things are open. I mean, for all intents, I don't think anyone would.

MS. MANNING: More specifically, you talk about the OSHA exposure levels for mercury, would you provide us in your comments as well what OSHA exposures those are, the standards, the OSHA standards?

MS. CAWEIN: Um-hum.

HEARING OFFICER ERVIN: Along the same lines as Chairman Manning's questions about the term "minimize," are there any thresholds or standards because that is somewhat of a broad term?

MS. CAWEIN: Yeah. The only standard I know of is in the OSHA standard, really. It is broad, but, again, we want to be flexible here because we want to leave open -- I mean if you impose, you know, 75 percent

standard or something like that, then you talk about well, there's 90 percent ones. If you impose 90 percent, then what happens if they come out with a cheap one that's 99 percent? I mean, you're locking yourself in to a numerical standard that I don't know if it's not too early to do that right now.

MR. RAO: Can we have a minimum threshold so that there will be at least a minimum level to which they can reduce, say, 90 percent or whatever you think is a reasonable minimum threshold, so if they want to achieve 99 percent or 100 percent they can still do it?

MS. CAWEIN: Again, the difficulty with that is how you demonstrate that. I'm afraid of the burden on the industry to try to demonstrate that.

MR. RAO: Do manufacturers of this unit, do they rate their units, you know, at what efficiency they can reduce?

MS. CAWEIN: I don't think so.

MR. RAO: And does the statement from the manufacturer rectifies to say, you know, that equipment can reduce up to 90 percent or whatever minimum threshold that was set to reduce such a threshold?

MS. CAWEIN: I really don't know the answer to that.

MR. RAO: Would it be possible for you to get this information because you said all the manufacturers contacted you frequently?

MS. CAWEIN: It's not manufacturers of crushers. You have to understand that.

MR. RAO: Oh, really?

MS. CAWEIN: It's just people talking about generally, well, if we were able to do this for you, would you be interested in this? I always -- we're a very conservative company, and I'm always questioning them closely about how protective their ideas are.

MR. RAO: But assume that if, you know, people are going to use these crushing units, they will be a manufacture of selling them, and if we put in this kind of thing, if they say it's allowed to at least reduce to whatever level, they should be able to, say, rate their equipment that it can reach that level of reduction. So based on --

MS. CAWEIN: Well, I'll see what I can dig up, and we'll provide that in our written comments on the standards.

MR. RAO: And it will be helpful if the agency has any information as to what kind of reduction levels are currently being achieved that you can provide us.

MS. MANNING: Also, do you know whether the state of Oregon has been able to develop an effective recycling industry with the crusher rule that it has?

MS. CAWEIN: No, but that's a good question. I'd be interested in knowing that.

MS. MANNING: Thank you. Yeah we would be interested in knowing that.

MS. HENNESSEY: I had two questions.

Are there any OSHA regulations other than the exposure levels that you're aware of?

MS. CAWEIN: Are there any other standards?

MS. HENNESSEY: Yes. Well, not -- I know there's a standard for mercury. But do they specifically address handling mercury in the workplace other than by setting an exposure standard?

MS. CAWEIN: Not that I'm aware of.

MS. HENNESSEY: Okay. And then you're discussing the crushing units that are now available can recapture 90 percent of the mercury.

Can you explain how is it captured?

MS. CAWEIN: It doesn't allow the free volatilization of mercury out of the container that the crushing is done in.

I think it can -- I'm going to speculate again, but I

think that the small amount that gets released is probably from changing, you know, from taking equipment off because you're going to have a lag in there. But, again, I'm speculating because I don't use those, and I haven't, you know, operated one, so. . .

MS. HENNESSEY: Well, do you know if -- when you say they capture this mercury, it's trapped in filters?

MS. CAWEIN: Yeah, in filters that are built in to the crusher primary, but also some of them have, you know, sealed where there's no air flow.

MS. HENNESSEY: And then do the people that utilize these crushers extract the mercury --

MS. CAWEIN: Yes.

MS. HENNESSEY: -- from those -- wherever it's trapped?

MS. CAWEIN: The whole mess goes into a big retorting operation, or some of the recyclers actually dump the drum of the crushed lamps into their separation unit. So then it will separate the glass from the phosphor powder from the aluminum and the mercury, and then we'll just retort the phosphor powder and then also sometimes retort the drum or we use the reuse of the drum.

MS. HENNESSEY: And where does this typically take

place, at the generator or the recycler?

MS. CAWEIN: Oh, at the recycler.

Typically, the only thing that happens at the generator is they just crush it and never open it and send it off, but at some point, they have to change -- it all gets crushed in the drum, and then, you know, they have to change it out, and I'm not sure exactly how that's accomplished.

MS. HENNESSEY: That's where the releases might occur?

MS. CAWEIN: Might. Again, I don't know how the technology works, so I don't know, but I can look into that closely. How they change it out, I'd like to know.

MS. HENNESSEY: And do you know if in the crushing process there's any hazardous waste generated that can be recycled?

MS. CAWEIN: No.

MS. HENNESSEY: And you also talked a little bit about drum top crushers?

MS. CAWEIN: Um-hum.

MS. HENNESSEY: What's the capture rate for those types of crushers?

MS. CAWEIN: I don't have any data on that, so I don't know.

MS. HENNESSEY: Thank you.

HEARING OFFICER ERVIN: I think Mr. Orlinsky asked you this question. But in your testimony you said though it would necessarily inflate the cost of recycling if they were strictly prohibited.

If you do have any actual figures regarding this, if you could provide those that would be very helpful.

MS. CAWEIN: Yeah, I'm trying to come up with some of those.

HEARING OFFICER ERVIN: Any other questions? Any other questions for Ms. Cawein.

MR. HOMER: I'm Mark Homer from the Chemical Industry Council.

Isn't is true from your testimony that approximately 60 percent of the costs involved in the process are transportation costs?

MS. CAWEIN: Up to -- yeah. Yeah.

MR. HOMER: Doesn't it make sense that as you reduced the volume, obviously, those transportation costs are going to be reduced?

MS. CAWEIN: Yes.

MR. HOMER: So it would be relatively obvious that a large cost saving will occur simply from reduction of volume?

MS. CAWEIN: Yes.

MR. HOMER: Isn't that correct?

MS. CAWEIN: I think it's pretty self-evident, yeah.

MR. HOMER: Chairman Manning, I don't know if this is appropriate or not, but could I possibly go back and ask the agency one question?

HEARING OFFICER ERVIN: Actually, if you can wait because we'd like to ask the agency a couple of questions.

MR. HOMER: Sure.

MS. MANNING: They'll be back.

HEARING OFFICER ERVIN: At this time, are there any more questions for Ms. Cawein? Seeing none, I'd like to thank you for your testimony. And if you wouldn't mind to come up for a few other questions.

MR. KELLY: Are you going to allow additional testimony this morning? I had signed up.

HEARING OFFICER ERVIN: Oh, I'm sorry.

MR. KELLY: I would appreciate just one moment.

HEARING OFFICER ERVIN: Yes. Why don't we do that next?

MR. KELLY: Thank you.

HEARING OFFICER ERVIN: We'll take your testimony

next then.

(Brief pause.)

HEARING OFFICER ERVIN: Okay. Sir, if you'd like to state -- well, actually, the court reporter can swear in the witness.

(Witness sworn.)

WHEREUPON:

L A W R E N C E K E L L Y ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MR. KELLY: Good morning. My name is Lawrence Kelly. I'm currently the president of a company known as Spent Lamp Recycling Technologies, and I don't have any prepared testimony. I'm here simply to start with as a listener, and I thought maybe I might be able to add a few things to what has gone on here this morning.

Just following up on Ms. Cawein's testimony -- and I, first of all, would like to say that we at Spent Lamp have effectively developed a mobile mercury vapor extraction unit that has consistently demonstrated the ability to lock up mercury vapors, and we have not demonstrated any what's known as TCLP or toxic characteristics in our filter. That's No. 1.

No. 2, we currently use a mercury vapor analyzer and

do continuous monitoring while the crushing is going on and effectively have been able to demonstrate that. We have not emitted into the cavity of our unit, nor have we admitted at any point along the line of this treatment.

And what this unit consists of is a crusher that has been designed to crush fluorescent and high pressure sodium and metal-allied type mercury-containing lamps that's operated under negative air, and it's drawn through -- the vapor is drawn through a series of filters. There's a primary filter and a secondary filter.

And while this process is taking place, we continually monitor for the presence of mercury vapor. Our data, which is published -- unfortunately, I don't have it with me, we didn't know we were going to be doing this until Friday, but it is available -- is in two forms, manual readings and a data logger which is done vis-a-vis software. So it's something that ties in -- on our QA, QC, it ties in to the manual loggings.

We have subscribed -- we assumed that somewhere down the road we were going to have to answer to a regulatory agency. We never thought we were going to be out there on our own doing business on our own. So we have looked at the OSHA guideline, meaning .05 milligrams per cubic

meter is what we use as our extent of what would be considered below regulatory guidelines.

We have not had a reading even close to that with our mercury vapor analyzer. Our readings are going .003, not .05, .003 which is significantly less than what the current emission guidelines state for OSHA being safe emissions.

Our technicians work at Level C, which is half-mask tieback hard hat, so forth and so on. We've crushed approximately 10,000 lamps, various sizes for various customers, CTA, Waste Management and smaller generators.

Again, throughout the course of this, we have never demonstrated any TCLP from our subsequent lab work or have we ever been able to show an emission that was above -- I think the highest emission we got was .003, which is background, which is what the manufacturer calls background. So that's that part of it.

Now, some of the questions that were brought up by the regulators today is would you allow somebody to go out in the street and just say they have a crusher, mail in a simple notification and say we're in business? I don't think that would be reasonable.

When we designed our unit, we assumed that some regulator was going to want to look at us. So we

basically have built in the concept of yes, we feel that we should be regulated. We feel that there are relatively easy methods of doing that and establishing a nice, safe operation. And what that does at the same time is when we talk about small quantity generators or exempt generators, in our profiling of generators, we find that most companies that are going through any kind of spent lamps whether they be metal, allied, high pressure sodium or fluorescents are proactive and would like to go into a voluntary program if it is cost effective.

And when we talk about cost effective, I can tell you this. The numbers for transportation alone is upwards of 50 cents with a lot of companies, and that doesn't take into consideration the cost of an individual in that company sticking a lamp back in the box, packaging it, preparing documents, and subsequently getting that on a skid for transportation to a permitted TSD. That's No. 1.

No. 2, there are no TSDs in Illinois. So effectively a generator of a spent material has to address two sets of regulations, Illinois and Wisconsin. Once you cross a state line out of Illinois into Wisconsin, that spent material number on a Wisconsin hazardous waste

manifests.

So now he's become a generator of hazardous waste instead -- and that, in essence, alone is breaching the spirit of the universal waste code. There could be a third set of guidelines, Minnesota, if it goes to Minnesota. So you're traveling to a third state, and now you're suggest to another set of guidelines or regulations.

Effectively, the wherewithal is there. We have the proven ability to be able to take spent mercury-containing materials and render them innocuous, and our media has not demonstrated any TCLP, which effectively would allow us to transport spent activated carbon to a retort without manifesting it. The glass goes to Owens-Corning, a fiberglass plant. The metal ends are simply recycled as aluminum.

Like I say, we have data. We're more than happy to submit that to whomever would like it. We have it in the form of data logs, and we also have it in the form of manual readings. This is -- like I say, it's been demonstrated to environmental engineering firms, lawyers who are environmentally oriented, companies like Waste Management, Chicago Transit Authority. They've all had their health and safety people there, all had an

opportunity to view the process, and this unit can treat 1,200 lamps an hour, four footers, 1,200 four-foot fluorescent lamps an hour.

So it's a pretty efficient unit, pretty straightforward, and from a regulatory standpoint, we're prepared to submit data as I sit here, and that's about all I have to say except, yes, we would expect to be regulated.

HEARING OFFICER ERVIN: I think the board would appreciate any data that you have if you could supply that.

MR. KELLY: I certainly would.

HEARING OFFICER ERVIN: I'll give you the address and everything later.

MR. KELLY: If you have any questions.

HEARING OFFICER ERVIN: Are there any questions at this time?

MR. ORLINSKY: Yes, we have a few questions.

HEARING OFFICER ERVIN: Mr. Orlinsky?

MR. ORLINSKY: Where is your business located?

MR. KELLY: Our corporate office is in Bensenville. Our facility is in Chicago, 16th and Kilbourn.

MR. ORLINSKY: Okay. I guess I was having a hard

time understanding exactly what the business is.

Are you selling a service, or are you selling equipment?

MR. KELLY: No, we're selling a service.

MR. ORLINSKY: Okay. Now, when you said that these are mobile units, you then take the unit out to the generator facility and do the crushing --

MR. KELLY: Correct.

MR. ORLINSKY: -- at that facility?

MR. KELLY: It's literally on wheels. It never comes off the wheels. I have pictures here, if you'd like to see them.

MR. ORLINSKY: Okay. No. I'm just trying to get an idea of it.

MR. KELLY: Yeah.

MR. ORLINSKY: Then after you've done the crushing at the site, what's the next step of the process?

MR. KELLY: Okay. The spent materials, after the mercury vapor has been removed, goes into drums, and it subsequently separates glass and aluminum. The mercury is locked up in an activated charcoal filter that effectively will handle roughly 600,000 lamps without breaching. It's a redundant system. Effectively, if there's for some reason it breaches that before then, it

will be picked up in the secondary system from the emissions side.

Now, the glass has demonstrated no TCLP through various lab work that we offered nor has the aluminum ends. The phosphorous dust -- although not regulated, we've gone through TCLP testing on that also to make sure that we're extracting levels from that nondetect -- so it comes back nondetect. That's consistent.

So effectively, we've taken a lamp that has mercury vapor and render it innocuous.

MR. ORLINSKY: Okay. But I guess my question was, what's the next step in the process once you've done the crushing, you've got the broken glass and you have, I guess, mercury in the filters and you've got phosphor powder and all that?

MR. KELLY: Right.

MR. ORLINSKY: What happens in the next step? Where does that go?

MR. KELLY: The glass is loaded into a 55-gallon DOT approved drum, moved on to a sister track that supplies us with fresh drums, depending on how many lamps we're crushing, and move back to our facility as a product.

At that point, once it comes out of the crusher, it is

a product. So it stays as a product until we can get the volumes necessary to ship to the big users, and that is Owens-Corning who needs not truckloads but train car fulls. So that's what this material will be shipped as in train cars to Kansas City to their plant.

They've looked at our material. They've accepted it. The only thing that they have some reservation on is whether or not we can maintain volumes, and we've told them that we have a way of doing that.

MR. ORLINSKY: What about the mercury though? Is the mercury locked up in an assigned place?

MR. KELLY: Mercury is locked up -- yes. It goes to New York to a retort. We picked the facility, the permitting facility in New York for two reasons. No. 1, they'll come out and pick it up so it comes right off of our truck, goes on another truck, never hits the ground.

Now, remember, at that point, we're not demonstrating any TCLP in that filter. It's simply locked up in a form of a mercury sulfate which is neither water -- will not leach in water nor acid.

The reason we picked the New York facility is because we checked the regulatory background. They, for some reason, were pristine. They've never had a hit. So we figured well, we'll do business with them because once

you move it, it doesn't -- you know, if it's going to Indianapolis or New York, it's moot. It doesn't matter. So we picked it. That's the facility we're going to use.

MR. ORLINSKY: How many of these crushing units do you have?

MR. KELLY: We have the first one on the street right now. It's available for anyone to come and take a look at it. We're prepared to show you how it operates with our technicians. They're all OSHA-trained, 40-hour OSHA-trained. We have a complete health and safety plan put together that is based on what we assume might come up regulatory wise.

MR. ORLINSKY: Do you have an estimate as to what the control efficiencies of that unit are?

MR. KELLY: As far as the emissions go?

MR. ORLINSKY: Yes.

MR. KELLY: We have to have an emission nondetect out of the effluent side of the first filter.

Remember, we have the redundant filter. The effluent side of the first filter, there's no hit. When we put it into the chamber when crushing, it goes off the scale. It takes us half an hour to recalibrate the unit. So we're locking up almost, if not all, the mercury that's

available. We have yet to get a hit on it.

MR. ORLINSKY: Then you could comply then it seems to me with the Oregon regulations that says if you crush, there should be no further emissions?

MR. KELLY: (Indicating). Like that.

MR. ORLINSKY: You would have no trouble?

MR. KELLY: No problem.

MR. ORLINSKY: How much does your unit cost?

MR. KELLY: It's significant, quite significant.

MR. ORLINSKY: By "significant," are we talking six figures?

MR. ORLINSKY: Six figures. That's all I can say.

HEARING OFFICER ERVIN: How much does your service cost?

MR. KELLY: I'm sorry?

HEARING OFFICER ERVIN: How much does your service cost?

MR. KELLY: Our service for a four-foot fluorescent lamp is 40 cents. That's in place, no packaging on it.

MR. PERZAN: I had a question.

You maintain negative pressure during the crushing?

MR. KELLY: Correct.

MR. PERZAN: What about after?

MR. KELLY: We maintain negative pressure for a span of about seven minutes. The air turns four times in three minutes. For that period of time in between the crush, we're monitoring the cavity of the unit.

At that point when the readouts come out, then our technicians can go back to Level D for reloading the unit, but we make sure that there's no mercury in the cavity. We have yet to find it, but we do it anyways. That's part of our health and safety plan. It's the list that they have to go through.

MR. PERZAN: Just so I have a picture and so the record is clear --

MR. KELLY: Sure.

MR. PERZAN: -- on this, the way I understand it, you've got a drum?

MR. KELLY: Not a drum. It's a crusher.

Open crushing, obviously, we're opposed to it also. Open drum top crushing with no emission controls is ridiculous. For the purpose of volume reduction, you violated the spirit of what we're here for, and that is to capture mercury.

So getting back to what we do, we have what looks to be an oversized coffin. It's run hydraulically. It's a big drawer. You can put 400 lamps in that drawer, close

the unit, shut the door, negative air goes on, starts running. At that point, after you're through with your checklist, the mercury vapor monitor is running, and it's analyzing at the effluent side of the first filter, okay, then there's a second --

MR. PERZAN: Where it's going in?

MR. KELLY: Coming out, coming out of the first effluent side.

And when that's up and running, then we can crush, hit a button. It's all automatic. It goes down. All the lamps are crushed, and from there, they're manually put into 55-gallon drums. They do not demonstrate any toxicity at that point. We made sure of that.

Once it goes through that and there's a three-minute span of air turned in there, which means it's turned, I don't know, three to four times, there's no detection, and the mercury is now all in that filter. The glass nor the ends do not demonstrate TCLP.

MR. PERZAN: Now, when did you do the TCLP, after you took the glass out?

MR. KELLY: Well, we've done TCLP testing at various stages. We have more than one lab result, but, of course, each time we do TCLP testing it would be subsequent to the crush; otherwise, obviously, you

wouldn't have any way to test it.

MR. PERZAN: So you -- the draw comes back out or the glass falls through a grate.

MR. KELLY: Correct, down in the holding area.

MR. PERZAN: The holding area down there and you take it out and do a grab sample?

MR. KELLY: Immediately. You mean for our testing? We don't test every time. We've only --

MR. PERZAN: Well, I'm just talking about when you do.

MR. KELLY: For the R & D side of it, yes, that's exactly right.

MR. PERZAN: Do a grab sample and --

MR. KELLY: Right to the lab.

MR. PERZAN: Okay. Have you had any, you know, independent testing come in and do a test?

MR. KELLY: We hired Beling Consultants, which is a middle-of-the-road conservative environmental consulting firm that we ask them to simply go out independently and look at what we're doing, and they have signed off. If you, you know, want, there are representatives here from that company.

MR. PERZAN: I think it would help.

MR. KELLY: Sure.

MR. PERZAN: You said that there were -- and maybe I got this wrong.

You said there was published data?

MR. KELLY: We have published data that we failed to bring with us because we didn't know about this until Friday.

MR. PERZAN: Published in a journal or something.

MR. KELLY: No, no, published -- in other words, our data that's done manually and also off a data logger which is a software that comes with the mercury vapor analyzer, which, by the way, the Illinois EPA owns one of them also.

MR. PERZAN: Are you aware of anybody else that does things similar to you?

MR. KELLY: Nope. This is state of the art.

MR. PERZAN: Nobody else in the country?

MR. KELLY: Not to my knowledge.

MR. PERZAN: You may have answered this question, but when you send the mercury out, how did that transaction work? I mean, do you sell that to them? Is there a market for that?

MR. KELLY: Well, actually it's a trade-off. There's a market, a very small market, but the costs are eaten up in the transportation, but, in fact, it is

product. It's being retorted as being brought back to product whether its used for mercury switches or thermometers or the vehicle for igniting fluorescent lamps.

MR. PERZAN: So the mercury is in a solid form?

MR. KELLY: Yes, in a salt form.

MR. PERZAN: It's in a salt form?

MR. KELLY: Yes. And then it's flashed at 2,400 degrees which brings it back into a vapor form brought down into a liquid form in a retort, federally permitted.

MR. PERZAN: Do you know the name of that facility?

MR. KELLY: I do, but I don't have it with me. But I could certainly give you all that data. We have a whole technical file that we'd love to supply you with.

HEARING OFFICER ERVIN: Okay. Are there any other questions? Thank you.

Board Member McFawn?

MR. KELLY: Hi.

MS. McFAWN: This is probably in the literature, but did you design the manufacture of your facilities?

MR. KELLY: I'm sorry?

MS. McFAWN: Did you design the manufacture of

your own facility?

MR. KELLY: Yes, ma'am, and it's patented.

MS. McFAWN: And you said you have some pictures?

MR. KELLY: Yes, I do.

MS. McFAWN: You do? Maybe you'd like to share them with the board.

MR. KELLY: I can show them to you, no problem.

HEARING OFFICER ERVIN: Could you provide copies of those for the board?

MR. KELLY: Oh, sure, absolutely. I'd love to.

MS. MANNING: The board really only makes decisions on what we have in the record.

MR. KELLY: Yes.

MS. MANNING: So whatever information you give us -- pertinent information we'll look at.

MR. KELLY: Absolutely. But the pictures will help you.

Thanks for your time, if there's any other questions.

HEARING OFFICER ERVIN: Are there any other questions?

MS. McFAWN: Did you want to have those submitted on the record now?

MR. KELLY: Did you want them now? Well, I'll give them to you, but it's my only copy I have with me.

HEARING OFFICER ERVIN: Well, if you could maybe make copies.

MR. KELLY: Yeah, sure. I can get them to you. Would you rather have them right now, and then subsequently we can take them back?

HEARING OFFICER ERVIN: Why don't you just provide copies for us? That will be the easiest way.

MR. KELLY: Okay. Fine. If the regulators would like copies, I certainly would be happy to do that also. Give me your card. I'll make sure you get them.

HEARING OFFICER ERVIN: Are there any other questions then? All right. Thank you very much for your testimony.

MR. KELLY: Thank you.

HEARING OFFICER ERVIN: Well, we've been running for a little over two hours now. I really don't want to break for lunch because I think we can probably get this finished rather quickly. We could take about a five-minute break and have the agency come up. No? Everybody is shaking their head no. Okay.

MR. DUFFALA: I have a brief statement.

HEARING OFFICER ERVIN: Oh. You'd like to testify as well?

Mr. DUFFALA: Yes.

HEARING OFFICER ERVIN: All right.

MR. DUFFALA: Do it now?

HEARING OFFICER ERVIN: Let's go ahead and do that now.

MR. DUFFALA: Thank you.

I won't take all that much time. My name is Dale --

HEARING OFFICER ERVIN: Excuse me. If the court reporter can swear you in, please.

MR. DUFFALA: Oh, I'm sorry.

WHEREUPON:

D A L E D U F F A L A ,

called as a witness herein, having been first duly sworn, testified, and saith as follows:

MR. DUFFALA: My name is Dale Duffala. That's D-u-f-f-a-l-a, and I'm with Beling Consultants. That's B-e-l-i-n-g. I'm the environmental department manager here in Chicago. By way of background, I've got a master's in environmental science from Indiana, and I've been an environmental consultant for 20 years now.

Just a couple of things, I'd like to echo what Larry has said about the process there and what Ms. Cawein has said earlier. We're here today because we think that as the regulatory changes are proposed, they represent a potential or really put a damper on the development and

implementation of recycling technologies in Illinois and also have the potential to drive the recycling costs up for clients very high or at least prevent them from coming down.

A couple of things that I'd like to address that primarily came out of questions that the agency raised, the issue of minimization of emissions. The agency now regulates waste water treatment, water treatment, area emissions, and those kinds of systems have been in place for a long time. Rather than taking about a percentage emission reduction, is 90 percent enough, is 95 percent, it should be a strict numeric standard, I think, because it's measurable.

There are OSHA limits, the OSHA limits of .05 milligrams per cubic meter, that Larry mentioned is the NIOSH time-weighted average with a skin notation. The OSHA ceiling limit is 0.1 milligrams per cubic meter, and the IDLH or the immediately dangerous life and health limit is ten milligrams per cubic meter.

The idea of using a percentage standard, 100 percent control technology will not happen. We know that from our previous air pollution control experience. So I would recommend that you consider modeling any regulatory limits after the existing OSHA standards.

Other standards you asked about, the only other ones that are on the record that I'm aware of are the national emission standards for hazardous air pollutants for mercury. They are specifically tied, however, to battery manufacturing plants and municipal waste water treatment plants.

I, unfortunately, do not have those numbers in front of me, but we can provide them in the final comments that SLR is going to provide.

As far as maintenance, you raised an issue on maintenance and monitoring, again, using waste water, water treatment, air pollution control as a model, it's incumbent on the operators to prove they're complying with whatever the regulatory limits are, and I think that would be a reasonable approach in this case.

The agency reserves the right to pull inspections to do its own monitoring, but, you know, you don't have the personnel to go out and monitor all the waste water treatment plans. You rely upon submitted records to show that they're maintaining this compliance with discharge standards.

Mr. Kuhn's testimony was really kind of limited to drum top crushing, and we agree with everything he said. The SLR process is not drum top crushing. It's a highly

controlled environment, and one that we've looked at and think addresses a lot of the issues dealing with the mercury emissions into the atmosphere, which to us is the primary thing.

I believe in SLR's final submittal to the board, we can provide cost data on the process, economic data regarding cost of disposal versus recycling from the client base and also the monitoring data that Larry talked about.

We've got to look over that for proprietary information though because this is a brand new, state-of-the-art technology, and I'm sure SLR wants to maintain their lead in the industry on this.

The last thing that I'd like to say, somebody raised an issue on conditionally exempt small quantity generators, what would be economic drivers for them to get into a program like this. We have heard -- and this is anecdotal that if a disposal firm sees broken lamps in a load, they're going to start refusing to take those loads. That, to me, seems like a pretty large economic driver to get conditionally exempt small quantity people out of the habit of throwing them into the dumpster and into the habit of putting them back into the boxes in which they came.

I think that's about all I have to say now, and, again, I'll work with Mr. Kelly, and we can provide the final package to you.

HEARING OFFICER ERVIN: Thank you.

Are there any questions. Seeing none, thank you very much.

MR. DUFFALA: Thank you.

HEARING OFFICER ERVIN: Is there anyone else that would like to testify today? Seeing none, if the agency would step forward again.

(Brief pause.)

HEARING OFFICER ERVIN: We'll open it back up for questions for the agency. I believe someone in the audience had a question.

MR. HOMER: Yes. Thank you. Mark Homer from the Chemical Industry Council again.

Does the agency have any idea as to what the emissions ranges are at the recycling facilities across the country currently for crushing?

MR. KUHN: No, I don't really have a number in mind, although based on what I've seen, some of the manufacturer's information, the crushing and the recycling and processing is all done together. So I would assume being a more highly effect process that the

emissions are pretty low. I don't have a number for you.

MR. HOMER: Obviously, these facilities are all permitted, I would assume. Is that the agency's impression?

MR. KUHN: Recycling is exempt under RCRA.

MR. HOMER: Would it make sense from the agency's perspective that if a specific number, efficiency limitation, was put in the regulations for crushing that obviously it shouldn't exceed what's being currently done right now at the recycling facilities?

MR. KUHN: That would seem to make sense.

MR. HOMER: Okay. That's all I have. Thanks.

HEARING OFFICER ERVIN: Are there any additional questions for the agency?

MS. MANNING: Does the agency care to comment on the process we just heard about?

MR. KUHN: It sounded like a -- the way they described it, it sounds like a very feasible process. It sounds like something that's probably going to be under the Universal Waste Rules. It would be something that I assume they would be a large quantity handler. To be able to afford that type of equipment, I would assume that they would have to crush a large amount of bulbs to

make it cost effective; otherwise, if it does what they indicated it does, it sounds like a very good process.

HEARING OFFICER ERVIN: We've heard testimony today -- in one of your comments, I don't know which one, said that there are currently no recycling facilities in Illinois.

From testimony today, we've heard people talk about sending recycling to Wisconsin and Minnesota. Are those the two closest recycling facilities that people send to?

MR. KUHN: I believe so. Michigan has recyclers, I believe. Indiana might have too. I'm not aware.

HEARING OFFICER ERVIN: Okay.

MR. KUHN: Wisconsin and Minnesota are, from what I hear, the most commonly used.

HEARING OFFICER ERVIN: Miss Rosen?

MS. ROSEN: Yeah. I just want to follow up on Chairman Manning's questions, you had heard a process laid out for you today that sounds like they would likely be a large quantity handler under the rule.

Under the rules proposed, though, isn't it correct that they would not be able to engage in what the process they've outlined, the crushing?

MR. KUHN: That's true.

MS. ROSEN: Okay. Thank you.

HEARING OFFICER ERVIN: Are there any other questions for the agency? Okay. Thank you very much. We need to go off the record for a moment.

(Discussion had off the record.)

HEARING OFFICER ERVIN: The board has requested an expedited transcript of this hearing, and we should receive that on Thursday or Friday. If anyone would like a copy of today's transcript from today's hearing, please speak to the court reporter directly.

If you order a copy of the transcript from the board, the cost is 75 cents per page. We may also download a copy of the transcript from the board's web page. The board will post the transcript on the board's web page within approximately two days after receipt of the transcript. The board's web page is at http://www.state.il.us.

Final comments in this rulemaking will be due on January 8th, and responses to any comments filed must be received by January 15th. The mailbox rule does not apply. All comments must be served on those on the service list. An updated service list may be maintained by calling the hearing officer.

Are there any other matters that need to be addressed? Seeing that there are no further matters, this matter is hereby adjourned. Thank you for your attendance and participation.

MS. MANNING: Thank you.

(Whereupon, these were all the above-entitled proceedings had at this time.)

STATE OF ILLINOIS)
) SS.
COUNTY OF C O O K)

I, KIM M. HOWELLS, CSR, do hereby state that I am a court reporter doing business in the City of Chicago, County of Cook, and State of Illinois; that I reported by means of machine shorthand the proceedings held in the foregoing cause, and that the foregoing is a true and correct transcript of my shorthand notes so taken as aforesaid.

_____
KIM M. HOWELLS, CSR
Notary Public, Cook County, IL.

SUBSCRIBED AND SWORN TO
before me this_____day
of_____, A.D., 1997.

_____
Notary Public