

## SUMMARY OF COMMENTS/RECOMMENDATIONS

**PROPONENT:** Mr. Gord Lenz operating as  
**ENVIRO DISPOSAL SOLUTIONS.**  
**PROPOSAL NAME:** LIGHT BULB RECYCLER  
**CLASS OF DEVELOPMENT:** N/A  
**TYPE OF DEVELOPMENT:** Hazardous Waste (Dangerous Goods  
Handling & Transportation Act Application)  
**CLIENT FILE NO.:** 5065.00

### OVERVIEW:

On October 12, 2004 the Department received an Application from Enviro Disposal Solutions for the development and operation of a light bulb crushing and recycling facility. The facility will be located at unit 4, 106 DeVos Road in Winnipeg, Manitoba. On October 26, 2004 the Department placed copies of the Application in the Public Registries located at 123 Main St. (Union Station), the St James-Assiniboia Public Library in Winnipeg, and at the Manitoba Eco-Network. As well, copies of the Application were provided to the Technical Advisory Committee (TAC) members. The Department placed a public notification of the Application in the Winnipeg Free Press on October 30, 2004. The newspaper and TAC notification invited responses until November 29, 2004.

### COMMENTS FROM THE PUBLIC:

No comments were received from the public.

### COMMENTS FROM THE TECHNICAL ADVISORY COMMITTEE:

#### Sustainable Resource Management

1. A map is required showing the location of the proposed facility, the adjoining land uses and the nearest residential, commercial and institutional areas.
2. More information is required on how the lights are processed. For example:
  - a) How are the lights handled prior to crushing? ( e.g., how are they stored in the facility – on pallets, or on the floor?; how is the crushing machine loaded – manually, by conveyor?; how are the lights moved around in the facility – by fork lift, by hand?; how is breakage of lamps minimized prior to crushing?)
  - b) How many lights can be processed per day/ per month/ per year?
  - c) How does the machine operate? A more complete process description is required. Is the process batch or continuous? What controls are on the machine to reduce air emissions, both during crushing and after crushing is complete?
  - d) The machine apparently needs water to operate. What is the function of the water and what pollutants does the water collect?
  - e) How are the products ( i.e. the glass, other components, water) from the machine handled to prevent spillage?

3. Of particular concern is the potential for the release of mercury from these lights as they are crushed. If the mercury from the crushed lights is captured, how is this mercury capture done and how is the collected mercury disposed of? If the mercury is not captured, then it is highly recommended that mercury vapour capture be required.
4. Additional information with respect to disposal of the wastewater generated from this process is required. It is not clear what is meant by sending the wastewater to a "local environmentalist."
5. Further information with respect to operation of the unit should be provided. The proponent states "the water I'm told needs to be changed approximately five times a year." If the proponent intends to operate and maintain this equipment, one would hope he has better information on operation/maintenance requirements than what he is told by an unnamed source.
6. A process schematic or drawing and some procedures would be useful.

**Disposition.** The proponent replied with the following information about the facility:

1. The location is Unit 4 at 106 DeVos Road alongside the South Perimeter. There are no buildings adjacent to the south. There are two commercial businesses -- Greenleaf to the west and a metal manufacturer to the east adjacent to 106 property line. Richmond West residential is to the north. TAC should be able to access maps through the city departments from planning and zoning.

2. a) The lighting is picked up in its original boxes or packaged in cardboard containers which are handled by hand. They will be stacked on pallets if needed. The plan calls for them to be processed through the machine the day of being picked up, so there should be minimal lights, if any, sitting around. I would have less lighting sitting around intact than any store or manufacturer or retailer would have on hand that is visited daily by the public or in the presence of their employees. I will not pick up boxes or industrial bags of crushed lighting. So the word should be sent out by whomever that they are not to be crushing lights and having them sit there for who knows how long exposed with no concern to protect the environment or the citizens of our community and I know there are lots of places that have broken lighting because they have called me. Also, the machine is loaded manually and to be CSA approved the entry chute had to be a certain length to avoid arm / hand injury. The lighting is moved around in the building by hand but if needed by a floor jack. Breakage is reduced by lighting in its original package and by the handling done by myself.

2. b) There is no limit as to how many I could process a day / month / year. It will be determined by the clients who have a concern for the environment and take advantage of the service. If I was to guess I would say no more than 4000 a day and if I did do 4000 at once it would take at the most an hour.

2. c) The machine operates through a water technology which is one of the best ways to break down mercury. The lights are fed at one end where the chute is. They go through a wash section prior to entry and then get mulched by the apparatus that is motor driven. Once disposed the wash is still going which stays continuous until stopped by the operator. As the wash is running, the water goes through a filter system (Filters are rated at 5 micron) which immediately and continuously capture the powder of the lighting. When the catch tray is slid out all that remains is the glass and the end caps which are sorted by hand. Never does there pose any danger of any mercury (powder) in the air due to the lighting always being wet through the technology.

Also, the glass will be stored in a container supplied by Potters Canada who in return use the glass to manufacture highway reflective paint. The end caps will be sent to smelt dealers. Stainless Steel, Tin, Brass or Copper will also be kept separate for resale at market value.

2. d) The water technology prevents mercury from becoming airborne ever. The mercury is captured by the filter system (5 Micron). These filters will then be stabilized by another local environmental company and will be stored in sealable barrels or industrial bags.

2. e) The products are transferred from the machine to their containers by hand. The machine is designed in a way that when the catch tray inside is full it slides out connected to a hinge system and can be emptied in to a container / box / bag etc... after separating the end caps out. Safety glasses, ear plugs and gloves are to be worn at all times. Also the machine will be sitting on top a container built to prevent run off if spillage were to ever occur.

4. When the water gets dirty and needs to be changed for the first time I will have tests done to determine the contaminate level if any. Even if there is no dangerous contaminate level I will still send the barrel(s) of water to Wastco environmental for proper disposal. They charge a fee in accordance to the contaminate level. The water is not a sitting hazard waiting to happen. The main reason for changing the water is due to build up as water does after being used over and over. Remember the filters remove the contaminates.

In closing if there is such a concern over this operation which genuinely protects the environment not harms it. Then I would assume the same people have already address and brought forth the same concerns in regards to their handling of lighting such as manufacturers, retailers, public buildings, educational institutes, hospitals, residential homes, etc....

I know lighting is a non hazardous and disposal regulations are not yet in place. I do know what the governments intentions are in regards to stewardship for disposal and what they are aiming for in the future due to communications I have had with them. I have had nothing but support from all levels of public office and like everyone they too find this service a unique and much needed service which will go a long way in protecting our future environment.

The Machine is called - ENVIRONMENTAL LAMP RECYCLER  
Serial Number: ELD101  
Model Number: ELR1

**Canadian Environmental Assessment Agency** noted that application of the Canadian Environmental Assessment Act with respect to this proposal will not be required. It was indicated however that Health Canada expressed an interest in participating in the review process.

Health Canada had the following comments:

1. In Section 7 it is unclear what is meant by "The filters which catch the dust are also sold for re-use or will be stabilized by one of the local environmental company's here". How will the spent filters be sold or re-used while ensuring continued efficacy and that no contaminants found on the filter pose a risk to human health?
2. Will the glass, aluminum and other components recovered from the process be tested (e.g. mercury content) prior to sale to manufacturing sectors, scrap dealers and smelt plants? What standards will these materials meet before being released to for re-use?
3. The components offered for sale (e.g. glass) must be designated for non-food related manufacturing sectors.
4. What special handling procedures will be implemented to deal with bulbs that are broken prior to or after receipt, spills of the contaminated process waters or other potential hazards that could affect human health. A documented environmental hygiene program and standard operating procedures will be needed to reduce or eliminate the potential effects of acute events and chronic contamination conditions.
5. How will employee health be monitored in regards to the potential exposures to hazardous substances? Will the proponent have a plan to evaluate employee health on a regular basis and when concerns arise? What types of respiratory and other personal protective equipment will be used to ensure employee health?
6. In addition to meeting all provincial and municipal health and safety requirements, the proponent should provide hands on training of staff by the supplier of the lamp recycling equipment to reduce the risk from any chemical, physical or radiation (e.g. noise, UV) hazards.
7. Does the proponent have plans to use mercury vapour analyzers to continually monitor the airborne mercury vapour concentration to ensure safe occupational exposure? What air quality standards will be utilized?
8. What other features will be incorporated into the design and operation of the facility to maintain human/environmental health (e.g. lunch/welfare rooms separate from plant, spill containment devices, appropriate ventilation, dedicated in-plant cloths, washing facilities)?

## Disposition

The Applicant sent the following reply

1. The filters are sent with the wet phosphor and mercury to CEDA which has a method of separating the chemicals. The filters are neutralized and disposed of appropriately by them (or some other place of business regulated to do such service). My commitment to the processes ends once I have confirmation from CEDA or whomever has properly recycled and disposed of all components just as I will have to provide a recycling certificate to my clients for their proof of proper disposal of lights. A list of approved agents will be supplied with the machine.
2. The aluminum and glass are submerged in what is the discharge water. The glass if used for further use such as silicone sand will then have to be put through a wash to completely rid any phosphor residue. The machine used would meet approval standards set. That is why the glass for now is specifically sent to Potters Canada for the sole purpose of its use as one component in reflective highway paint.
3. The aluminum end caps are not the type of aluminum used in food containers. The aluminum is processed thru smelting. At those temperatures, if there was mercury residue, which there isn't, it would break down the mercury at a molecular level.
4. Bulbs are to be package in their original boxes intact. If in transport a few bulbs are broken, the level of exposure to hazardous substance is well below the danger point. The exposure level would be nothing compared to outfits who stock lighting and incur breakage daily. The places I'm referring to are your big light suppliers in the city because they have contacted me in regards to supplying the service for them. As for spills, the machine has an attachable catch tray that does not allow spillage. The catch tray can be drained into sealable containers that then would be sent out for neutralizing with whomever is under contract to provide the service. If spills did occur proper cleaning rags, floor dry or absorbing cloths would be used and stored in drums for proper disposal. The facility used will have access to a washroom if needed.
5. In discussion I had with Rod McCormick he has informed me that Conservation will do periodic testing to assure everything is on the up and up. He also told me I can request at any time for Conservation to come out and do an air quality level test to assure safety for all concerned at the company's expense. The design of the machine allows for normal daily operations besides wearing safety glasses, aprons, water proof gloves. Dust mask's will be available if required but the technology does not allow any contaminate to become airborne.
6. The designer of the machine will deliver the machine himself and go through a training period with myself to cover all pertinent aspects needed. I will then train employees to operate machine if employees do become an option for me to look at. If employees are an option I will inform Conservation before the hiring process begins if needed.
7. Again in talking with Rod McCormick there are monitors available through Conservation to station in the building to monitor 24 / 7 which would be implemented upon start up.

The Applicant also provided the following information about the system that will be used to break the lights:

The name of the machine is Ultimate Lampcracker, There is no model number as they are built upon request. The machine has a capability to process 4000 lights per day with the filters being changed every 2000 to 3000 lights. Tthe machine weighs in between 500 to 600 lbs, its 5 feet tall and approximately 4 feet long. The supplier of the machine is ENVIRO-LAMP RECYCLERS.

I hope this information addresses the concerns you have and please let me know if there are any other concerns.

**Manitoba Transportation and Government Services** has no concerns.

**Winnipeg Regional Health Authority** noted that the process is unlikely to cause health concerns for citizens as outlined, however, they would be interested in having clarification on the process for disposal of the contaminated water prior to finalizing this review.

**Disposition**

The proponent replied with the following information:

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When the water gets dirty and needs to be changed for the first time I will have tests done to determine the contaminate level if any. Even if there is no dangerous contaminate level I will still send the barrel(s) of water to Wastco environmental for proper disposal. They charge a fee in accordance to the contaminate level. The water is not a sitting hazard waiting to happen. The main reason for changing the water is due to build up as water does after being used over and over. Remember the filters remove the contaminates.

**Manitoba Agriculture and Food** - had no concerns.

**Manitoba Intergovernmental Affairs** – had no comments.

**Manitoba Historic Resources** – had no concerns.

**FURTHER INFORMATION** The Applicant supplied some testing results that were carried out at the Alberta facility. These results showed monitoring results for Mercury, Phosphorus and particulate. The results showed Mercury present in the workplace air.

**PUBLIC HEARING:**

A public hearing is not required.

**RECOMMENDATION:**

The Applicant should be issued a Licence, in accordance with the attached draft, to operate the light bulb crushing and recycling facility. Enforcement of the Licence should be assigned to the Red River Region.

PREPARED BY:

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January 17, 2005.

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